

# Передовые материалы

## Технические характеристики

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231  
Ангарск (3955)60-70-56  
Архангельск (8182)63-90-72  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Благовещенск (4162)22-76-07  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Владикавказ (8672)28-90-48  
Владимир (4922)49-43-18  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Иркутск (395)279-98-46  
Казань (843)206-01-48  
Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Коломна (4966)23-41-49  
Кострома (4942)77-07-48  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Курган (3522)50-90-47  
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41  
Нижегород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Ноябрьск (3496)41-32-12  
Новосибирск (383)227-86-73  
Омск (3812)21-46-40  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Петрозаводск (8142)55-98-37  
Псков (8112)59-10-37  
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78  
Севастополь (8692)22-31-93  
Саранск (8342)22-96-24  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Сургут (3462)77-98-35  
Сыктывкар (8212)25-95-17  
Тамбов (4752)50-40-97  
Тверь (4822)63-31-35

Тольятти (8482)63-91-07  
Томск (3822)98-41-53  
Тула (4872)33-79-87  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Улан-Удэ (3012)59-97-51  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Чебоксары (8352)28-53-07  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Чита (3022)38-34-83  
Якутск (4112)23-90-97  
Ярославль (4852)69-52-93

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3M™ Nextel™ Chopped Fiber 312, Style AC-8, 299 Sizing, 1300 D, 1/8 in Long, per lb

0.25 g/cm<sup>3</sup>



750 psi

3M™ Glass Bubbles K25



3M™ Nextel™ Chopped Fiber 312, Style AC-8 Calcined, 1/4 in Long, per lb

0.38 g/cm<sup>3</sup>



4,000 psi

3M™ Glass Bubbles HGS4000



3M™ Nextel™ Chopped Fiber 312, Style AC-11, 299 Sizing, 3600 D, 1/8 in Long, per lb

0.32 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubble S32HS

0.60 g/cm<sup>3</sup>



27,000 psi

3M™ Glass Bubbles iM30K



Bondo® Fiberglass Mat, 00488, 6 per case

0.46 g/cm<sup>3</sup>



16,000 psi

3M™ Glass Bubbles iM16K



Bondo® Fiberglass Cloth, 00499, 8 sq ft, 6 per case

0.32 g/cm<sup>3</sup>



7,000 psi

3M™ Glass Bubbles HGS7K32

0.15 g/cm<sup>3</sup>



300 psi

3M™ Glass Bubbles S15

0.22 g/cm<sup>3</sup>



400 psi

3M™ Glass Bubbles S22

0.46 g/cm<sup>3</sup>



19,000 psi

3M™ Glass Bubbles HGS19K46

0.38 g/cm<sup>3</sup>



5,500 psi

3M™ Glass Bubbles S38HS

0.46 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubbles HGS6000

0.20 g/cm<sup>3</sup>



750 psi

3M™ Glass Bubbles K20HS

0.60 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubbles S60



3M™ Dyneon™ Fluoroelastomer  
FC 2152, 55 lb (25 kg)/Case

0.28 g/cm<sup>3</sup>



3,000 psi

3M™ Glass Bubbles S28HS

0.60 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubbles HGS10000



Bondo® Liquid Resin for  
Fiberglass



3M™ Dyneon™ Peroxide Cure  
Fluoroelastomer FPO 3650

0.46 g/cm<sup>3</sup>



16,000 psi

3M™ Glass Bubbles S4630



3M™ Dyneon™ Fluoroelastomer  
FPO 3820, 25 kg (55 lb) box



3M™ Dyneon™ Fluoroelastomer  
FPO 3820, 675 kg (1485 lb) box



3M™ Evaporation Boat 4.0



3M™ Hollow Cathodes



3M™ Dyneon™ Fluoroplastic Dispersion FEP 6300GZ, (88 lb), 40 Kg/drum



3M™ Dyneon™ Fluoroplastic PFA 6502NZ, 50 kg (110 lb) Box



3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3850



3M™ Dynamar™ Polymer Processing Additive FX 9613



3M™ Dyneon™ PTFE TF 5060GZ



3M™ Dyneon™ Fluoroplastic Agglomerate THV 221AZ, (110 lb) 50 Kg/Box



3M™ Dyneon™ PFA 6503PBZ & 6515PBZ Fluoroplastic Powder



3M™ Dyneon™ Fluoroplastic Granules FEP 6322Z



3M™ Dyneon™ Fluoroelastomer  
FT 2350, 55 lb (25 kg) box



3M™ Dyneon™ High  
Temperature Perfluoroelastomer  
PFE 81T, 1 kg (2.2 lb) Case



3M™ Dyneon™ Fluoroelastomer  
FE 5643Q



3M™ Dyneon™ Fluoroelastomer  
FC 2211, 25 kg (55 lb)/Case



3M™ Dyneon™ Fluoroelastomer  
FC 2145, 55 lb (25 kg) box



3M™ Dyneon™ Modified PTFE  
Powder TFM 1705, 25 kg (55 lb)  
box



3M™ Dyneon™ PTFE Fine  
Powder TF 2025Z, 25 kg (55 lb)  
Drum



3M™ Nextel™ Sleeving AS-40



3M™ Nextel™ Fabric AF-30

0.11 g/cm<sup>3</sup>



200 psi

3M™ Glass Bubbles K11



3M™ Vortex Generators



3M™ Silicon Nitride Sand Blast  
Nozzle Liner



3M™ Silicon Nitride Ball Bearing  
Component



3M™ Hydrodynamic Thrust  
Bearings



3M™ Boron Carbide Abrasive  
Powders

0.15 g/cm<sup>3</sup>



300 psi

3M™ Glass Bubbles K15

0.60 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubbles HGS10000



3M™ Neutron Quench  
(Experimental Product\*)



3M™ Dyneon™ Cure-in-Place Gasket CIPG 1951



3M™ Silicon Nitride Telemetry Tooling



3M™ Silicon Nitride Check Valve Ball



3M™ Ion Laser Cathodes



3M™ 11B Enriched Boric Acid



3M™ Dynamar™ High Performance Rubber Additive RA 5300



3M™ Dyneon™ Modified PTFE Powder TFM 1700, 25 kg (55 lb) box



3M™ Dyneon™ Fluoroplastic Granules THV 221GZ



3M™ Dyneon™ Fluoroplastic PVDF 11008/0003





3M™ Dyneon™ Fluoroplastic  
Granules PFA 6502TZ



3M™ Dyneon™ Fluoroelastomer  
FT 2481, 55 lb (25 kg) box



3M™ Dyneon™ Fluoroelastomer  
FG 5630Q 55 lb (25 kg) ctn



3M™ Dyneon™ Fluoroelastomer  
FC 2260, 55 lb (25 kg)/Case



3M™ Dyneon™ Fluoroelastomer  
FC 2170, 55 lb (25 kg) box



3M™ Dyneon™ PTFE Fine  
Powder TF 2053Z, 25 kg (55 lb)  
Drum



3M™ Nextel™ Tape AP-18



3M™ Nextel™ Fabric AF-62

0.20 g/cm<sup>3</sup>



500 psi

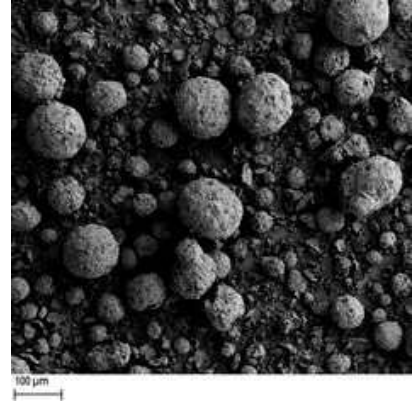
3M™ Glass Bubbles K20



Bondo® Fiberglass Cloth, 00499, 8 sq ft, 6 per case



Bondo® Fiberglass Mat, 00488, 6 per case



3M™ Boron Nitride Cooling Filler Agglomerates



3M™ Boron Nitride Cooling Filler Flakes



3M™ Boron Nitride Cooling Filler Platelets



3M™ Advanced Metal Matrix Composite

0.28 g/cm<sup>3</sup>



4,000 psi

3M™ Glass Bubbles HGS4K28



3M™ Silicon Nitride Cylindrical Roller Component



3M™ Boron Carbide Fillers



3M™ 11B Enriched Boron



3M™ Dyneon™ Fluoroplastic Powder FEP 6322PZ



3M™ Dyneon™ Fluoroplastic PFA 8502ESDZ



3M™ Dyneon™ Fluoroplastic PVDF 6133



3M™ Nextel™ Sewing Thread 312



3M™ Dynamar™ Rubber Curative FX 5166



3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3520, Low F Peroxide, 55 lb Box



3M™ Dyneon™ Fluoroplastic Granules THV 500GZ



3M™ Dyneon™ Fluoroplastic PVDF 11010/0000



3M™ Dyneon™ Fluoroplastic Dispersion PFA 6900GZ



3M™ Dyneon™ Peroxide Cure Fluoroelastomer FLS 2650, 25 kg (55 lb)/Case



3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 60



3M™ Dyneon™ Fluoroelastomer FG 5690Q, 55 lb (25 kg) box



3M™ Dyneon™ Fluoroelastomer FC 2261Q, 55 lb (25 kg) box



3M™ Dyneon™ Fluoroelastomer FC 2174



3M™ Dyneon™ PTFE Micropowder TF 9201Z, 25 kg (55 lb)/Case



3M™ Dyneon™ PTFE Fine Powder TF 2071USZ, 25 kg (55 lb) Drum



3M™ Nextel™ Tape BP-18



3M™ Nextel™ Fabric AF-8

0.60 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubbles S60

0.25 g/cm<sup>3</sup>



750 psi

3M™ Glass Bubbles K25



3M™ Evaporation Boat Trimet



3M™ Silicon Nitride Wear Component



3M™ Silicon Nitride Electrical Insulator



3M™ Boron Carbide Powders



3M™ 11B Enriched Boron Carbide



3M™ Dynamar™ Rubber Curative FC 2172



3M™ Dyneon™ Fluoroelastomer  
FE 5540



3M™ Dyneon™ Fluoroplastic  
PVDF 31008/0003



3M™ Nextel™ Sewing Thread  
440, Style BT-30, per lb



3M™ Ceramic Microspheres  
White Grade W-410



3M™ Dynamar™ Rubber  
Curative RC 5105, 7 lb (3 kg)  
Drum



3M™ Dyneon™ Peroxide Cure  
Fluoroelastomer FPO 3730 25  
kg (55 lb) box



3M™ Dyneon™ Fluoroplastic  
THV 505ESDZ, 50 kg (110 lb)  
Box



3M™ Dyneon™ Fluoroplastic  
PVDF 31508/0003



3M™ Dyneon™ Fluoroplastic  
PFA 6910GZ, 40 kg (88 lb) drum



3M™ Dyneon™ Peroxide Cure  
Fluoroelastomer FPO 3740, 55  
lb (25 kg) box



3M™ Dyneon™ Peroxide Cure  
Perfluoroelastomer PFE 80Z, 2  
kg box



3M™ Dyneon™ Fluoroelastomer  
FX 11818, 55 lb (25 kg) box



3M™ Dyneon™ Fluoroelastomer  
FE 5610, 55 lb (25 kg) box



3M™ Dyneon™ Fluoroelastomer  
FC 2176



3M™ Dyneon™ PTFE TF 9205



3M™ Dyneon™ PTFE Fine  
Powder TF 2072Z, 25 kg (55 lb)  
drum



3M™ Nextel™ Roving 312



3M™ Nextel™ Fabric BF-20

0.60 g/cm<sup>3</sup>



18,000 psi

3M™ Glass Bubbles S60HS



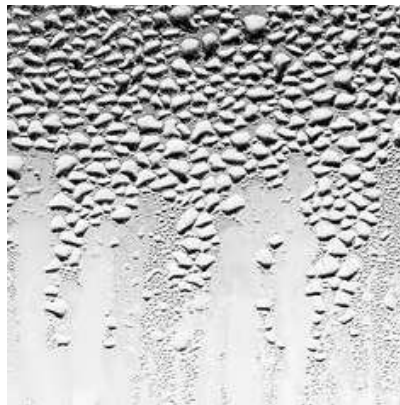
Bondo® Fiberglass Resin Jelly

0.37 g/cm<sup>3</sup>



3,000 psi

3M™ Glass Bubbles K37



3M™ Fluoro additives  
LJ-205010, 100 g, 1 Bottle/Case



3M™ Evaporation Boat 3.0



3M™ Evaporation Boat Dimet



3M™ Space Qualified Dispenser  
Cathodes



3M™ Natural Boron Carbide



3M™ Friction Shims





3M™ Boron Carbide Powders as Boron Source



3M™ 11B Enriched Boron Trifluoride



3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3600ULV



3M™ Dyneon™ Fluoroplastic PVDF 31008/0009, 55 lb (25 kg) bag



3M™ Nextel™ Chopped Fiber 610, Style DC-11, 324 Sizing, 10000 D, 1/4 in Long, per lb



3M™ Silicon Nitride Valve Ball & Seat



3M™ Ceramic Microspheres White Grade W-610



3M™ Dynamar™ Rubber Curative RC 5110, 7 lb (3 kg) Drum



3M™ Dyneon™ Fluoroelastomer FC 1630, 1485 lb (673.5 kg) box



3M™ Dyneon™ Fluoroplastic  
Granules THV 610GZ



3M™ Dyneon™ Fluoroplastic  
PVDF 31508/0009



3M™ Dyneon™ Fluoroplastic  
Granules PFA 6502UHPZ



3M™ Dyneon™ Peroxide Cure  
Perfluoroelastomer PFE 90



3M™ Dyneon™ Fluoroelastomer  
2110Q



3M™ Dyneon™ Fluoroelastomer  
FE 5620Q



3M™ Dyneon™ Fluoroelastomer  
FC 2177D, 55 lb (25 kg) box



3M™ Dyneon™ PTFE  
Micropowder TF 9207Z, 25 kg  
(55 lb)/Case



3M™ Dyneon™ PTFE Fine  
Powder TF 2073Z, 25 kg (55 lb)  
Drum



3M™ Nextel™ Yarn 312



3M™ Nextel™ Fabric BF-30

0.23 g/cm<sup>3</sup>



3,000 psi

3M™ Glass Bubbles XLD3000

0.42 g/cm<sup>3</sup>



7,500 psi

3M™ Glass Bubbles K42HS

0.38 g/cm<sup>3</sup>



4,000 psi

3M™ Glass Bubbles HGS4000



3M™ Dyneon™ Fluoroplastic PFA 6525TZ, (110 lb), 50 Kg/Box



3M™ Standard Modular Sliding Bearing Systems



3M™ Silicon Nitride Cam Roller



3M™ Silicon Carbide Blasting Nozzles

0.46 g/cm<sup>3</sup>



19,000 psi

3M™ Glass Bubbles HGS19K46



3M™ Dynamar™ Rubber  
Curative RC 5115, 7 lb (3 kg)  
Drum



3M™ Dyneon™ Fluoroelastomer  
FC 1643



3M™ Dyneon™ Fluoroplastic  
Granules THV 815GZ



3M™ Dyneon™ Fluoroplastic  
PVDF 32008/0009



3M™ Dyneon™ Fluoroplastic  
PFA 6505TZ, 50 kg (110 lb) box



3M™ Dyneon™ Fluoroplastic  
Agglomerate ET 6210AZ



3M™ Dyneon™ Translucent  
Perfluoroelastomer System PFE  
301Z, Kit



3M™ Dyneon™ Ultra High  
Viscosity Fluoroelastomer FC  
2299, 25 lb (11 kg) box



3M™ Dyneon™ Fluoroelastomer  
FE 5621



3M™ Dyneon™ Fluoroelastomer  
FC 2178



3M™ Dyneon™ Base Resistant  
Elastomer BRE 7231



3M™ Dyneon™ TFM™ Modified  
PTFE Fine Powder TFM 2001Z,  
25 kg (55 lb) Drum



3M™ Nextel™ Roving 440



3M™ Nextel™ Fabric BF-40,  
2000 D, 36 in Wide, per ft



3M™ Nextel™ Fabric BF-40,  
2000 D, 30 in Wide, per ft

0.46 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubbles K46

0.38 g/cm<sup>3</sup>



5,500 psi

3M™ Glass Bubbles HGS5000



Bondo® Fiberglass Resin Jelly Kit



3M™ Titanium Diboride



3M™ Silicon Nitride Fuel Pump Roller



3M™ Silicon Carbide Gas Seal Rings



3M™ Calcium Hexaboride Powders



3M™ 5Ns Ultra High Purity Boron



3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 932HB



3M Nextel Chopped Fiber 720, Style EC-11, 299 Sizing, 10000 D, 1/4 in Long, per lb



3M™ Dynamar™ Rubber Curative RC 5120, 7 lb (3 kg) Drum



3M™ Dyneon™ Fluoroelastomer  
FC 1650, 1485 lb (673.5 kg) box



3M™ Dyneon™ Fluoroplastic  
Granules THVP 2030GZ



3M™ Dyneon™ Fluoroplastic  
PVDF 2066/0002



3M™ Dyneon™ Fluoroplastic  
Granules PFA 6515UHPZ



3M™ Dyneon™ Fluoroelastomer  
FE 5730



3M™ Dyneon™ Low  
Temperature Fluoroelastomer  
LTFE 6400ZC, 15 kg (33 lb) Box



3M™ Dyneon™ Fluoroelastomer  
FE 5622Q



3M™ Dyneon™ Fluoroelastomer  
FC 2179, 55 lb (24.9 kg) Box



3M™ Dyneon™ Fluoroelastomer  
FC 2120, 55 lb (25 kg)/Case



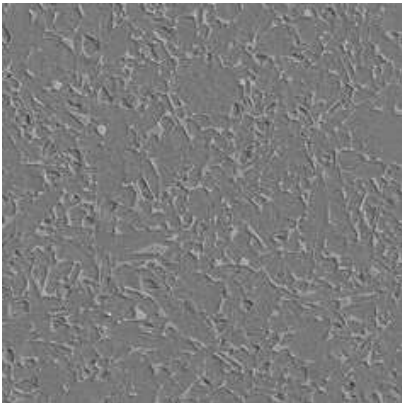
3M™ Dyneon™ PTFE TF 1620



3M™ Nextel™ Yarn 440



3M™ Nextel™ Fabric DF-11



3M™ Silicon Nitride Wear Plate

0.15 g/cm<sup>3</sup>



300 psi

3M™ Glass Bubbles S15

0.46 g/cm<sup>3</sup>



6,000 psi

3M™ Glass Bubbles HGS6000

0.16 g/cm<sup>3</sup>



500 psi

3M™ Glass Bubbles A16/500



Dynatron™ Fiberglass Cloth



3M™ Dyneon™ TFM™ Modified PTFE 1635, 50 kg (110 lb) Box





3M™ Nextel™ Fabric  
DF-13-4500



Bondo® Liquid Resin for  
Fiberglass

0.20 g/cm<sup>3</sup>



750 psi

3M™ Glass Bubbles K20HS



3M™ Dyneon™ Fluoroelastomer  
FPO 3620, 25 kg (55 lb) box



3M™ Silicon Nitride Gas Seal  
Ring



3M™ Silicon Nitride Tile



3M™ Titanium Diboride  
Powders



3M™ Silicon Carbide Materials



3M™ Castable Ceramic



3M™ 6Ns Ultra High Purity Boron



3M™ Dyneon™ Fluoroelastomer FX 3729



3M™ Dyneon™ Perfluoroelastomer PFE 194T



3M™ Dynamar™ Rubber Curative RC 5125, 7 lb (3 kg) drum



3M™ Dynamar™ Polymer Processing Additive FX 5911



3M™ Dyneon™ PTFE TF 5033Z



3M™ Dyneon™ Fluoroplastic PVDF 6008/0001



3M™ Dyneon™ Fluoroplastic Granules PFA FLEX8502UHPZ



3M™ Dyneon™ Fluoroplastic FEP 6301Z, 50 kg (110 lb) box



3M™ Dyneon™ Fluoroelastomer  
FE 5830Q



3M™ Dyneon™ Clear  
Perfluoroelastomer System PFE  
300Z, Kit



3M™ Dyneon™ Fluoroelastomer  
FE 5623, 55 lb (25 kg) box



3M™ Dyneon™ Fluoroelastomer  
FC 2180



3M™ Dyneon™ Fluoroelastomer  
FC 2121, 55 lb (25 kg) box



3M™ Dyneon™ PTFE Granules  
TF 1641, 50 kg (110 lb) Box



3M™ Nextel™ Roving 610



3M™ Nextel™ Fabric DF-19



3M™ Nextel™ Fabric AF-10

0.22 g/cm<sup>3</sup>



400 psi

3M™ Glass Bubbles S22

0.42 g/cm<sup>3</sup>



8,000 psi

3M™ Glass Bubbles HGS8000X

0.20 g/cm<sup>3</sup>



1,000 psi

3M™ Glass Bubbles A20/1000



Dynatron™ Fiberglass Mat, 688,  
8 sq ft, 6 per case

0.28 g/cm<sup>3</sup>



3,000 psi

3M™ Glass Bubbles S28HS



3M™ Silicon Carbide Sliding  
Bearings



3M™ 10B Enriched Boron  
Carbide



3M™ Dyneon™ Fluoroelastomer  
FX 9143



3M™ Nextel™ Fabric AF-29



3M™ Dynamar™ Polymer Processing Additive FX 5929M



3M™ Dynamar™ Polymer Processing Additive FX 5927M



3M™ Dyneon™ PTFE TF 5035Z



3M™ Dyneon™ Fluoroplastic PVDF 6108/0001, 55 lb (25 kg) bag



3M™ Dyneon™ Fluoroplastic PFA 6503PAZ, 110 lb (50 kg) box



3M™ Dyneon™ Fluoroplastic Granules FEP 6307Z



3M™ Dyneon™ Fluoroelastomer FT 2320, 55 lb (25 kg) box



3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 4131TZ, Two 1 kg bags p...  
Box



3M™ Dyneon™ Fluoroelastomer FE 5642



3M™ Dyneon™ Fluoroelastomer  
FC 2210



3M™ Dyneon™ Fluoroelastomer  
FC 2144



3M™ Dyneon™ TFM™ Modified  
PTFE 1600



3M™ Nextel™ Fabric EF-19



3M™ Nextel™ Fabric AF-20

0.38 g/cm<sup>3</sup>



4,000 psi

3M™ Glass Bubbles S38

0.125 g/cm<sup>3</sup>



250 psi

3M™ Glass Bubbles K1



3M™ Dyneon™ Low  
Temperature Fluoroelastomer  
LTFE 6350Z



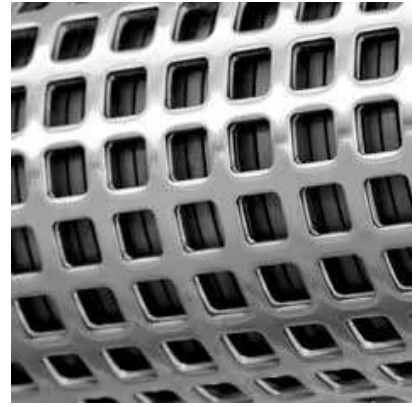
3M™ Dyneon™ Low  
Temperature Fluoroelastomer  
LTFE 6320Z



3M™ Silicon Nitride Metal Forming Roll



3M™ Silicon Carbide Seal Rings for Rotary Unions



3M™ Ceramic Sand Screen Systems



3M™ 10B Enriched Boron



3M™ Flame Retardant Additive FR-2025, 2 gal container (11 lb, 5 kg)



3M™ Dyneon™ Fluoroelastomer FX 6792



3M™ Dyneon™ Fluoroelastomer FE 5832



3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 40, 1 kg (2.2 lb) Case



3M™ Tungsten Dispenser Cathodes



3M™ Silicon Nitride Measuring Wheel



3M™ Silicon Carbide Mechanical Seal Rings



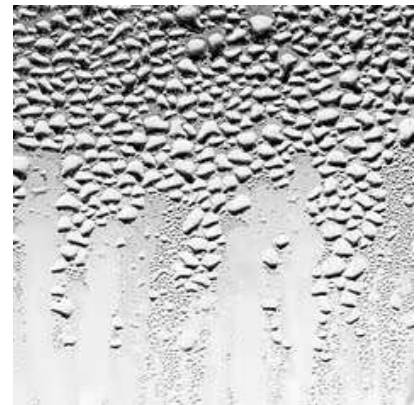
3M™ Castable Ceramic - Radiation Shielding



3M™ 7Li Enriched Lithium Hydroxide



3M™ 10B Enriched Boric Acid



3M™ Easy Clean Coating ECC-6000



3M™ Nextel™ Chopped Fiber 312, Style AC-8 Calcined, 1/8 in Long, per lb



3M™ Nextel™ Chopped Fiber 312, Style AC-8, 299 Sizing, 1300 D, 1/4 in Long, per lb



3M™ Dynamar™ Polymer Processing Additive FX 5920B, 175 lb Drum





3M™ Dynamar™ Polymer Processing Additive FX 5920A



3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 133TB



3M™ Dyneon™ Fluoroplastic PVDF 6012/0000, 55 lb (25 kg) bag



3M™ Dyneon™ Fluoroplastic Granules PFA 6515NZ



3M™ Dyneon™ Fluoroelastomer FLS 2530, 55 lb (25 kg) box



3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 132TB, 1 kg (2.2 lb) Case



3M™ Dyneon™ Fluoroelastomer FE 5641Q



3M™ Dyneon™ Fluoroelastomer FC 2182



3M™ Dyneon™ Fluoroelastomer FC 2123



3M™ Dyneon™ PTFE Powder TF 1750, 25 kg (55 lb) box



3M™ Dyneon™ PTFE TF 5050Z



3M™ Nextel™ Fabric EF-11



3M™ Nextel™ Fabric AF-14

0.35 g/cm<sup>3</sup>



3000 psi

3M™ Glass Bubbles S35

0.60 g/cm<sup>3</sup>



27,000 psi

3M™ Glass Bubbles iM30K

0.18 g/cm<sup>3</sup>



500 psi

3M™ Glass Bubbles G18/500, Small box (40 lb)



3M™ DYNAMAR™ RUBBER CURATIVE RC 5251Q, 0.75 LB BOX



3M™ Dynamar™ Polymer Processing Additive FX 5912, 25 kg (55 lb) Case



3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 191T



3M™ Dyneon™ Fluoroplastic PVDF 6010/0000, 55 lb (25 kg) bag



3M™ Dyneon™ Fluoroplastic Granules PFA FLEX8515UHPZ



3M™ Dyneon™ Fluoroplastic Granules FEP 6303Z



3M™ Dyneon™ Fluoroelastomer FE 5840Q, 55 lb (25 kg)/Case



3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 131T



3M™ Dyneon™ Fluoroelastomer FE 5640Q



3M™ Dyneon™ Fluoroelastomer FC 2181, 55 lb (25 kg) box



3M™ Dyneon™ Fluoroelastomer FC 2122



3M™ Dyneon™ PTFE TF 1645



3M™ Nextel™ Roving 720



3M™ Nextel™ Fabric DF-6,  
1500 D, 36 in Wide, per ft



3M™ Nextel™ Fabric AF-12

0.32 g/cm<sup>3</sup>



2,000 psi

3M™ Glass Bubbles S32

0.46 g/cm<sup>3</sup>



16,000 psi

3M™ Glass Bubbles iM16K

0.32 g/cm<sup>3</sup>



4,500 psi

3M™ Glass Bubbles D32/4500



Dynatron™ Fiberglass Resin,  
694, 1 gal, 4 per case



3M™ Nextel™ Fabric  
EF-13-4500, 4500 D, 36 in Wide,  
per ft



3M™ Nextel™ Fabric  
EF-13-4500, Heat Cleaned,  
4500 D, 36 in Wide, per ft



3M™ Dyneon™ Peroxide Cure  
Fluoroelastomer FPO 942HB, 10  
kg (22 lb) box



3M™ Dynamar™ Polymer  
Processing Additive FX 5929



3M™ Dyneon™ Fluoroplastic  
FEP 6300GZ, 1300 kg (2860 lb)  
Tote



3M™ Dyneon™ TFM™ Modified  
PTFE Dispersion TFM 5001GZ



3M™ Dyneon™ Fluoroplastic  
FEP FLEX6309Z, (110 lb) 50  
Kg/Box



3M™ Controlled Porosity  
Reservoir Cathodes



3M™ Dyneon™ PTFE  
Dispersion TF 5066GZ



3M™ Dyneon™ Fluoroplastic  
FEP FLEX6305Z, 50 kg (110 lb)  
Box



3M™ Fused Silica Rapid Cast System



3M™ Electron Guns



PTFE Micropowder 9202F, Private Label



3M™ Dyneon™ PTFE Dispersion TF 5135GZ



3M™ Dyneon™ PTFE Powder TF 1702, 25 kg (55 lb) Box



3M™ Fused Silica Advanced Shell System WDS2



3M™ Fused Silica Advanced Shell System GM2



3M™ Embedded Capacitance Material C4003RA, Sample



3M™ Embedded Capacitance Material C2006, 14 in x 18 in, ED HF SSE Density 100V



3M™ Embedded Capacitance  
Material C4003, 19 in x 24.6 in,  
35 um, RA Density



3M™ Embedded Capacitance  
Material C4003, 19 in x 24.6 in,  
35 um, RA Density



3M™ Embedded Capacitance  
Material C0619E, 18/18 Audit,  
Configurable Sheets



3M™ Embedded Capacitance  
Material C4003R, 19 in x 24.6 in,  
25/25 Audit



3M™ Embedded Capacitance  
Material C4004R, 25/25 Audit,  
Configurable Sheets



3M™ Embedded Capacitance  
Material C4003R, 20.3 in x 20.6  
in, 25/25 Audit



3M™ Embedded Capacitance  
Material C4004R, 35/35 Audit,  
Configurable Sheets



3M™ Embedded Capacitance  
Material C0619R, 14 in x 18 in,  
18/18 Audit



3M™ Embedded Capacitance  
Material C5003R, 18/18 Audit,  
Configurable Sheets



3M™ Embedded Capacitance  
Material C5003R, 25/25 Audit,  
Configurable Sheets



3M™ Embedded Capacitance  
Material C4004R, 18/18 Audit,  
Configurable Sheets



3M™ Embedded Capacitance  
Material C5003R, 35/35 Audit,  
Configurable Sheets



3M™ Embedded Capacitance  
Material C2006, 9 in x 14 in, 35  
um, RA, SSE, Density, 50V



3M™ Fused Silica Advanced  
Shell System WDS3



3M™ Dyneon™ Fluoroplastic  
FEP 6322HTZ, 250 kg (550 lb)  
Drum



3M™ Dyneon™ TFM™ Modified  
PTFE 1610, 50 kg (110 lb) Box



3M™ Fused Silica Castables



3M™ Nextel™ Yarn 720, 3000D,  
Water Sized





3M™ Dyneon™ PTFE  
Micropowder TF 9202Z, 25 kg  
(55 lb)/Case



3M™ Fused Silica Grains



3M™ Dyneon™ PTFE  
Micropowder TF 9201Z, 1 lb (0.5  
kg), Sample



3M™ Fused Silica Flours 550F,  
1000 kg Tote



3M™ Dyneon™  
Perfluoroelastomer Clear  
Catalyst PFE 300C

# **3M™ Dyneon™ Perfluoroelastomer Clear Catalyst PFE 300C**

3M Product Number PFE 300C 3M ID B40070305

## **Details**

Catalyst that can be used with 3M™ Dyneon™ Perfluoroelastomer PFE 300TZ  
Enables the manufacture of optically clear finished parts

## **3M™ Fused Silica Flours 550F, 1000 kg Tote**

3M ID 7010401918 UPC 00051115843747

### **Details**

High-purity fused silica (99.7%)

Low heat expansion properties provide high thermal shock resistance

Available in a variety of standard particle sizes, and can also be customized to your specifications

Extensive use of ferromagnetic separation in 3M facilities allows for reduced PPM levels of iron

### **Typical properties**

Brands: 3M™

Container Type: Pallet

Factory ISO Certification: No ISO Certification information available

Net Weight (Imperial): 2204.62 lb

Net Weight (Metric): 1000 kg

Product Type: Flour

eClass 14 Classification Group: 43010200

# **3M™ Dyneon™ PTFE Micropowder TF 9201Z, 1 lb (0.5 kg), Sample**

3M Product Number TF 9201 3M ID 7010351018 UPC 00051125649506

## **Details**

Low molecular weight virgin PTFE (non-degraded)  
Agglomerate particles  
Easily deagglomerated when incorporated into other matrixes

## **Typical properties**

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Net Weight (Imperial): 1 lb  
Net Weight (Metric): 0.5 kg

## **3M™ Fused Silica Grains**

3M ID B40066370

### **Details**

High-purity fused silica (99.7%)

Low heat expansion properties provide high thermal shock resistance

Available in a variety of standard particle sizes, and can also be customized to your specifications

Extensive use of ferromagnetic separation in 3M facilities allows for reduced PPM levels of iron

### **Typical properties**

eClass 14 Classification Group: 43010200

## **3M™ Dyneon™ PTFE Micropowder TF 9202Z, 25 kg (55 lb)/Case**

3M Product Number TF 9202Z 3M ID 7000059146 UPC 00051135896068

### **Details**

- Lowers coefficient of friction when blended into other polymers or liquids
- Very good rheological modifier (thickening agent) for fluid systems
- Improves non-stick properties when blended into formulations
- Broad chemical and thermal stability
- Can be used to improve abrasion resistance
- Highly hydrophobic filler
- Complies with U.S. Food and Drug Administration for food contact
- Complies with EU-directive 2002/72/EC for food contact

### **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 55 lb
- Net Weight (Metric): 25 kg
- Product Form: Micronized Powder

## **3M™ Nextel™ Yarn 720, 3000D, Water Sized**

3M Product Number 720 3M ID 7010353185 UPC 00051115230394

### **Details**

Yarn made from 3M™ Nextel™ 720 continuous ceramic oxide fiber  
high modulus fibers featuring low creep  
Very good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing

### **Typical properties**

Application: Thermal Management  
Brands: Nextel™  
Denier: 3000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 3000 Denier  
Nominal Filament Count: 750  
Product Composition: 720  
Product Type: Yarn  
eClass 14 Classification Group: 23330211

# **3M™ Fused Silica Castables**

3M ID B40066376

## **Details**

Engineered for high purity

Offers excellent thermal shock resistance

Exhibits minimal castable shrinkage

Superior performance where precision, durability, and thermal shock resistance are required

## **Typical properties**

eClass 14 Classification Group: 43010200



# **3M™ Dyneon™ TFM™ Modified PTFE 1610, 50 kg (110 lb) Box**

3M ID 7100090830

## **Details**

- Meets ASTM D 4894 – Type III, Grade 2 classification
- Good mould filling behaviour
- Very good free-flowing properties
- High surface quality, low content of pores and low permeation
- Substantially reduced deformation under load (“cold flow”)
- Low stretch-void index
- Good electrical and mechanical properties
- Increased modulus of elasticity
- Good weldability

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 110 lb
- Net Weight (Metric): 50 kg

# **3M™ Dyneon™ Fluoroplastic FEP 6322HTZ, 250 kg (550 lb) Drum**

3M ID 7000059170

## **Details**

- Excellent dielectric properties
- High thermal stability
- High extrusion speed
- Wide processing window
- Complies with VDE 0207
- Extremely low flammability (high LOI)
- Excellent low smoke properties
- Low coefficient of friction
- Very high weathering and UV stability

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Net Weight (Metric): 250 kg

# **3M™ Fused Silica Advanced Shell System WDS3**

3M Product Number WDS 3 3M ID B40066379

## **Details**

Non-fiber-based shell system creates thicker and faster shell build  
Improved permeability helps reduce non-fill and autoclave cracking  
Fiber-free composition makes slurry easier to maintain through a wide range of viscosities  
Without fibers, slot and hole coverage is simplified  
Unique slurry rheology substantially shortens drain times to increase foundry output  
Improved load carrying ability to reduce handling damage and cracking

## **Typical properties**

eClass 14 Classification Group: 43010200

# **3M™ Embedded Capacitance Material C2006, 9 in x 14 in, 35 um, RA, SSE, Density, 50V**

Part Number C2006 3M ID 7010397358 UPC 10076308626355

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Capacitance (Imperial): 20 nF/in<sup>2</sup>  
Capacitance (Metric): 3.1 nF/cm<sup>2</sup>  
Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 1.378 mil  
Foil Thickness (Metric): 35 µm  
Foil Type: Rolled Annealed

## **Dimensions and Classifications**

Overall Length (Imperial): 14 in Overall Length (Metric): 355.6 mm Overall Width (Imperial): 9 in Overall Width (Metric): 228.6 mm

# **3M™ Embedded Capacitance Material C5003R, 35/35 Audit, Configurable Sheets**

Part Number C5003R 3M ID 7100159020

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 1.378 mil  
Foil Thickness (Metric): 35 µm  
Foil Type: Rolled Annealed

# 3M™ Embedded Capacitance Material C4004R, 18/18 Audit, Configurable Sheets

Part Number C4004R 3M ID 7100159019

## Details

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## Typical properties

Capacitance (Imperial): 40 nF/in<sup>2</sup>  
Capacitance (Metric): 6.2 nF/cm<sup>2</sup>  
Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.709 mil  
Foil Thickness (Metric): 18 μm  
Foil Type: Rolled Annealed

# **3M™ Embedded Capacitance Material C5003R, 18/18 Audit, Configurable Sheets**

Part Number C5003R 3M ID 7100159022

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.709 mil  
Foil Thickness (Metric): 18 µm  
Foil Type: Rolled Annealed

# **3M™ Embedded Capacitance Material C5003R, 25/25 Audit, Configurable Sheets**

Part Number C5003R 3M ID 7100159021

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.984 mil  
Foil Thickness (Metric): 25 µm  
Foil Type: Rolled Annealed



# **3M™ Embedded Capacitance Material C0619R, 14 in x 18 in, 18/18 Audit**

Part Number C0619R 3M ID 7010537251

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.709 mil  
Foil Thickness (Metric): 18 µm  
Foil Type: Rolled Annealed

## **Dimensions and Classifications**

Overall Length (Imperial): 18 in Overall Length (Metric): 457.2 mm Overall Width (Imperial): 14 in Overall Width (Metric): 355.6 mm

# 3M™ Embedded Capacitance Material C4004R, 35/35 Audit, Configurable Sheets

Part Number C4004R 3M ID 7100159017

## Details

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## Typical properties

Capacitance (Imperial): 40 nF/in<sup>2</sup>  
Capacitance (Metric): 6.2 nF/cm<sup>2</sup>  
Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 1.378 mil  
Foil Thickness (Metric): 35 µm  
Foil Type: Rolled Annealed

# 3M™ Embedded Capacitance Material C4004R, 25/25 Audit, Configurable Sheets

Part Number C4004R 3M ID 7100159018

## Details

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## Typical properties

Capacitance (Imperial): 40 nF/in<sup>2</sup>  
Capacitance (Metric): 6.2 nF/cm<sup>2</sup>  
Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.984 mil  
Foil Thickness (Metric): 25 μm  
Foil Type: Rolled Annealed

# **3M™ Embedded Capacitance Material C4003R, 20.3 in x 20.6 in, 25/25 Audit**

Part Number C4003R 3M ID 7010537253

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.984 mil  
Foil Thickness (Metric): 25 µm  
Foil Type: Rolled Annealed

## **Dimensions and Classifications**

Overall Length (Imperial): 20.6 in Overall Length (Metric): 523.24 mm Overall Width (Imperial): 20.3 in Overall Width (Metric): 515.62 mm

# **3M™ Embedded Capacitance Material C4003R, 19 in x 24.6 in, 25/25 Audit**

Part Number C4003R 3M ID 7010537252

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.984 mil  
Foil Thickness (Metric): 25 µm  
Foil Type: Rolled Annealed

## **Dimensions and Classifications**

Overall Length (Imperial): 24.6 in Overall Length (Metric): 624.84 mm Overall Width (Imperial): 19 in Overall Width (Metric): 482.6 mm

# 3M™ Embedded Capacitance Material C0619E, 18/18 Audit, Configurable Sheets

Part Number C0619E 3M ID 7100147638

## Details

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## Typical properties

Capacitance (Imperial): 6.4 nF/in<sup>2</sup>  
Capacitance (Metric): 1 nF/cm<sup>2</sup>  
Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 0.709 mil  
Foil Thickness (Metric): 18 μm  
Foil Type: Electrodeposited

# 3M™ Embedded Capacitance Material C4003, 19 in x 24.6 in, 35 um, RA Density

Part Number C4003 3M ID 7100112210

## Details

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## Typical properties

Capacitance (Imperial): 40 nF/in<sup>2</sup>  
Capacitance (Metric): 6.2 nF/cm<sup>2</sup>  
Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 1.378 mil  
Foil Thickness (Metric): 35 µm  
Foil Type: Rolled Annealed

## Dimensions and Classifications

Overall Length (Imperial): 24.6 in Overall Length (Metric): 624.84 mm Overall Width (Imperial): 19 in Overall Width (Metric): 482.6 mm

# **3M™ Embedded Capacitance Material C2006, 14 in x 18 in, ED HF SSE Density 100V**

Part Number C2006 3M ID 7100022830

## **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Type: Electrodeposited

## **Dimensions and Classifications**

Overall Length (Imperial): 18 in Overall Length (Metric): 457.2 mm Overall Width (Imperial): 14 in Overall Width (Metric): 355.6 mm



# 3M™ Embedded Capacitance Material C4003, 19 in x 24.6 in, 35 um, RA Density

Part Number C4003 3M ID 7100111203 UPC 00000000000000

## Details

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

## Typical properties

Capacitance (Imperial): 40 nF/in<sup>2</sup>  
Capacitance (Metric): 6.2 nF/cm<sup>2</sup>  
Factory ISO Certification: No ISO Certification information available  
Foil Thickness (Imperial): 1.378 mil  
Foil Thickness (Metric): 35 μm  
Foil Type: Rolled Annealed

## Dimensions and Classifications

Overall Length (Imperial): 24.6 in Overall Length (Metric): 624.84 mm Overall Width (Imperial): 19 in Overall Width (Metric): 482.6 mm

## **3M™ Embedded Capacitance Material C4003RA, Sample**

Part Number C4003RA 3M ID 7100162610

### **Details**

Replaces surface mount capacitors, saving valuable space in wearable devices  
Can be used in high speed digital applications, providing distributed capacitance for power supply decoupling, and as low pass filters in analog applications  
Simplifies board design by allowing the elimination or reduction of discrete high frequency decoupling capacitors  
Enables significant board size reduction in MEMS applications, saving valuable space in mobile devices

### **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Foil Type: Rolled Annealed

# **3M™ Fused Silica Advanced Shell System GM2**

3M Product Number GM2 3M ID B40066378

## **Details**

- Fiber-based shell system creates thicker and faster shell build
- Offers improved permeability to help reduce non-fill and autoclave cracking
- Shell build provides uniform coverage of corners and edges
- Formulation allows for a reduction in the number of dips required
- Optimized slurry rheology substantially shortens drain times and increases foundry output
- Improved knockout simplifies shell removal

## **Typical properties**

eClass 14 Classification Group: 43010200

## **3M™ Fused Silica Advanced Shell System WDS2**

3M Product Number WDS 2 3M ID B40066373

### **Details**

Manufactured on a continuous mill for optimal particle size consistency  
Consistent particle size provides uniform coverage in difficult investment castings  
Optimized slurry flow characteristics result in improved shell build in slots and holes  
Exceptional shell strength under a variety of shell conditions  
Usable at a wide range of slurry viscosities with consistent shell build  
Lower shell weight results in lower shell costs

### **Typical properties**

eClass 14 Classification Group: 43010200

# **3M™ Dyneon™ PTFE Powder TF 1702, 25 kg (55 lb) Box**

3M Product Number TF 1702 3M ID 7000059128 UPC 00051135125502

## **Details**

Service temperature range from (-200(deg)C to 260(deg)C)  
Also sold compounded to enhance properties  
Chemical resistance

## **Typical properties**

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg

# **3M™ Dyneon™ PTFE Dispersion TF 5135GZ**

## **Details**

- Large operating temperature range
- Almost universal chemical resistance
- High shear stability
- Very good film formation
- Very good non-stick properties
- Low settling tendency

## **Typical properties**

- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 88 lb, 3300 lb
- Net Weight (Metric): 40 kg, 1500 kg

# **PTFE Micropowder 9202F, Private Label**

3M ID B10099917

## **3M™ Electron Guns**

3M ID B49000163

### **Details**

3M designs entire electron gun assembly, including cathode, to meet customer requirements

Guns are manufactured with high precision

Assemblies are pre-tested and measured for quality assurance

### **Typical properties**

Application: Avionics

eClass 14 Classification Group: 19081301



## **3M™ Fused Silica Rapid Cast System**

3M ID B5005048086

### **Details**

Designed to improve shell throughput by reducing the number of dips  
Dual thixotropic nature helps build thin shell sections while also building thickness

Requires less frequent liquid additions to maintain slurry viscosity

Helps provide improved knockout for quicker de-shell

System is comprised of 3M™ Fused Silica Rapid Cast Flour and 3M™ Rapid Cast Accelerator

### **Typical properties**

eClass 14 Classification Group: 43010200

# **3M™ Dyneon™ Fluoroplastic FEP FLEX6305Z, 50 kg (110 lb) Box**

3M Product Number FLEX6305Z 3M ID 7100028229

## **Details**

- Excellent dielectric properties
- High thermal stability
- Service temperature range up to more than 200 °C
- Outstanding chemical resistance
- Excellent flex life properties
- Extremely low flammability (high LOI)

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 110.25 lb
- Net Weight (Metric): 50 kg

# **3M™ Dyneon™ PTFE Dispersion TF 5066GZ**

## **Details**

- Excellent film formation
- Very good wetting properties
- Very good non-stick properties
- Almost universal chemical resistance
- Low settling tendency
- Large operating temperature range

## **Typical properties**

- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 88.2 lb, 3300 lb
- Net Weight (Metric): 40 kg, 1500 kg

## **3M™ Controlled Porosity Reservoir Cathodes**

3M ID B49000162

### **Details**

- Elevates cathode performance by making a more uniform electron emission at a much greater density
- Used in specialized vacuum tube applications
- Offers 2 to 4 times the life expectancy of conventional cathodes
- High current densities simplify gun design with less beam compression
- Selectable diffusion rate for current density
- Enables the production of smaller size and dome-shaped cathodes

### **Typical properties**

- Application: Avionics
- eClass 14 Classification Group: 19081301

# 3M™ Dyneon™ Fluoroplastic FEP FLEX6309Z, (110 lb) 50 Kg/Box

3M Product Number FEP FLEX6309Z 3M ID 7000059229 UPC 00051125650403

## Details

- Better balance of extrusion speed and chemical/flexural resistance than standard FEP grades
- Excellent resistance to solvents and chemicals
- Wide processing window
- Extremely low flammability
- Broad use-temperature range
- Very good non-sticking release properties
- Very high weathering and UV stability
- Smooth surface
- Excellent anti-stick properties
- Low coefficient of friction
- Very high weathering and UV stability
- Improved mechanical properties

## Typical properties

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 110.25 lb
- Net Weight (Metric): 50 kg

# **3M™ Dyneon™ TFM™ Modified PTFE Dispersion TFM 5001GZ**

## **Details**

- Excellent transparency of coated films
- High corrosion resistant films
- High shear stability
- Very good film formation
- Low settling tendency
- Very good non-stick properties

## **Typical properties**

- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 88.2 lb, 3300 lb
- Net Weight (Metric): 40 kg, 1500 kg

# **3M™ Dyneon™ Fluoroplastic FEP 6300GZ, 1300 kg (2860 lb) Tote**

3M Product Number FEP 6300GZ 3M ID 7000059166 UPC 00051135896631

## **Details**

- Super smooth fully fluorinated topcoat
- Provides for a thermal-weldable surface
- High degree of transparency of the polymer film
- Provides good chemical stability and broad chemical resistance
- Can be formulated with fluoroplastic dispersion, including PTFE and PFA, as well as a variety of fillers and pigments
- Improves adhesion and corrosion protection
- Cleared for food contact under 21 CFR 177.1550 (FDA) and complies with the requirements of European Regulation (EC) No 1935/2004, Regulation (EU) No 10/2011 and German BfR Recommendation LI
- Dispersion has high shear stability and low settling tendency

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 2860 lb
- Net Weight (Metric): 1300 kg

# 3M™ Dynamar™ Polymer Processing Additive FX 5929

## Details

A high performance polymer at very low levels processing additive (PPA) for use at very low levels

Fast rate of melt fracture elimination at appropriate use level

Robust performance in the presence of anti-block agents, pigments and other inorganic additives

Improves extrusion processing of polyolefin resins

Reduces die build-up

Lowers apparent melt viscosity

## Typical properties

Application: Blown Film Extrusion

Bulk Density (Metric): 0.85 g/cm<sup>3</sup>

Container Type: Bag, Bottle

Factory ISO Certification: No ISO Certification information available

Industries: Rubber and Plastic

Net Weight (Imperial): 1.1 lb., 1056 lb., 1100 lb.

Net Weight (Metric): 0.5 kg, 478.994 kg, 498.952 kg

Product Form: Granular

Shelf Life: 2 Year

eClass 14 Classification Group: 31000000



# **3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 942HB, 10 kg (22 lb) box**

3M Product Number FPO 942HB 3M ID 7100269913

## **Details**

Low metal ion content  
Good compression set  
Excellent chemical resistance

## **Typical properties**

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Net Weight (Imperial): 22 lb  
Net Weight (Metric): 10 kg

**3M™ Nextel™ Fabric EF-13-4500, Heat Cleaned, 4500 D, 36 in Wide,  
per ft**

3M ID 7100245876 UPC 00638060425527

**Typical properties**

Denier: 4500 Denier

Factory ISO Certification: No ISO Certification information available

**Dimensions and Classifications**

Overall Width (Imperial): 36 in Overall Width (Metric): 914.4 mm

## **3M™ Nextel™ Fabric EF-13-4500, 4500 D, 36 in Wide, per ft**

3M Product Number EF-13-4500 3M ID 7100246388 UPC 00638060425534

### **Typical properties**

Brands: Nextel™

Denier: 4500 Denier

Factory ISO Certification: No ISO Certification information available

### **Dimensions and Classifications**

Overall Width (Imperial): 36 in Overall Width (Metric): 914.4 mm

## **Dynatron™ Fiberglass Resin, 694, 1 gal, 4 per case**

3M ID 7000125054 UPC 00076308006945

### **Details**

Durable waterproof resin cures permanently for long-lasting repairs  
Accepts auto and marine paints including gel coats  
Ideal for filling holes caused by rust-outs  
Resin mixed with hardener can be used by itself or with mat or cloth

### **Typical properties**

Brands: 3M™  
Case Quantity: 4.0 Cans per Case  
Consistency: Liquid  
Container Type: Can  
Dry Time: 2 hr  
Handling Time: 10 min  
Material: Polyester Resin  
Maximum Operating Temperature (Celsius): 82.2 °C  
Maximum Operating Temperature (Fahrenheit): 180 °F  
Product Color: Amber  
Sand Time: 2 Hour  
Volume (Imperial): 128 fl oz  
Volume (Metric): 3.78 L  
Work Time: 10 min  
eClass 14 Classification Group: 31450590

## **3M™ Glass Bubbles D32/4500**

### **Details**

Decreases weight, increases buoyancy and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Surface treated to improve properties of the composite  
Improves dimensional stability  
Versatile use – adaptable to a variety of production processes

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 4500 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 31.03 MPa, 31.03 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 1 lb, 9.923 lb, 100 lb  
Net Weight (Metric): 0.454 kg, 4.5 kg, 45.359 kg  
Product Usage: Buoyancy  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.32 g/cc  
Typical Median Particle Diameter: 40 µm

## 3M™ Glass Bubbles S32

### Details

Decreases density and increases buoyancy to help improve efficiency and may lower material costs

Customers report that the use of 3M™ Glass Bubbles in wet pipe insulation coatings result in an insulated flowline that's half the weight of pipe-in-pipe construction

Reduction in overall pipe diameter results in more pipe on reels used for reel-lay pipe installation operations

Provides excellent water and oil resistance for use in underwater applications

Good strength-to-density ratio for use in a variety of applications

Paint formulations with S32 glass bubbles can help reduce burnish and distortions

### Typical properties

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 2000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 13.79 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Construction, Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic

Net Weight (Imperial): 1 lb, 550 lb, 600 lb, 23000 lb

Net Weight (Metric): 0.4 kg, 249 kg, 272.155 kg, 10432.625 kg

Product Usage: Buoyancy, Insulation

Typical Density: 0.32 g/cc

Typical Median Particle Diameter: 40 µm

## **3M™ Nextel™ Fabric AF-12**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 312 High Temperature Continuous Ceramic Oxide Fiber  
Good mechanical properties at high temperatures  
Fabric is thermally and chemically stable  
Thermal shock resistant  
Thin and low areal weight  
Non-hygroscopic for low moisture absorption  
Electrically insulating and low thermal conductivity

### **Typical properties**

Application: Protecting Assemblies, Protecting Parts, Sealing, Thermal Management  
Brands: Nextel™  
Denier: 1200 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1200 D  
Fiber Type Input: Roving  
Industries: Aerospace  
Product Composition: 312  
Thread Count Fill (Imperial): 25 per Inch  
Thread Count Fill (Metric): 10 per Centimetre  
Thread Count Warp (Imperial): 25 per Inch  
Thread Count Warp (Metric): 10 per Centimetre  
Weave: 5 Harness Satin  
Weight (Imperial): 7.9 oz/yd<sup>2</sup>, 8 oz/yd<sup>2</sup>  
Weight (Metric): 270 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.011 in, 0.014 in Overall Thickness (Metric): 0.27 mm, 0.34 mm Overall Width (Imperial): 42 in, 58 in Overall Width (Metric): 106.68 cm, 147.32 cm

## **3M™ Nextel™ Fabric DF-6, 1500 D, 36 in Wide, per ft**

3M Product Number DF-6 3M ID 7100040605 UPC 00051115230417

### **Details**

Woven 3M™ Nextel™ 610 continuous ceramic oxide fiber roving  
A preferred reinforcement for Ox-Ox CMC pre-preg and part  
Good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
High purity alpha-alumina

### **Typical properties**

Brands: Nextel™  
Denier: 1500 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1500 D  
Fiber Type Input: Roving  
Industries: Aerospace, Fuel Cell  
Thread Count Fill (Imperial): 18.5 per Inch  
Thread Count Fill (Metric): 7 per Centimetre  
Thread Count Warp (Imperial): 18.5 per Inch  
Thread Count Warp (Metric): 7 per Centimetre  
Weight (Imperial): 7.5 oz/yd<sup>2</sup>  
Weight (Metric): 250 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.008 in Overall Thickness (Metric): 0.2 mm Overall  
Width (Imperial): 36 in Overall Width (Metric): 91.44 cm



# 3M™ Nextel™ Roving 720

## Details

Roving form of 3M™ Nextel™ 720 continuous ceramic oxide fiber  
Can be converted into textiles  
Very good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
Very low shrinkage after thermal cycling

## Typical properties

Application: Protecting Assemblies, Protecting Parts, Sealing, Thermal Management  
Denier: 1500 Denier, 3000 Denier, 10000 Denier, 20000 Denier  
Density: 3.4 g/cc  
Factory ISO Certification: No ISO Certification information available  
Features: Lightweighting  
Fiber Input Denier: 1500 Denier, 10000 Denier  
Fiber Length (Imperial): 2200 ft  
Fiber Length (Metric): 670.56 m  
Fiber Type Input: Served Roving  
Industries: Aerospace, Industrial  
Melting Point (Celsius): 1800.0 Degree Celsius  
Melting Point (Fahrenheit): 3272.0 Degree Fahrenheit  
Nominal Filament Count: 400 , 2550  
Product Color: Green  
Product Composition: 720  
Product Type: Roving  
eClass 14 Classification Group: 23330211

## **3M™ Dyneon™ PTFE TF 1645**

### **Details**

Meets ASTM D 4894 Type IV, Grade 2

Well-suited for automatic and isostatic molding

Provides good chemical stability and broad chemical resistance

Free flowing powder grade provides good electrical and mechanical properties

Excellent operating temperature range

### **Typical properties**

Factory ISO Certification: No ISO Certification information available

Industries: CPI/Semicon, Electrical, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55.116 lb, 110 lb

Net Weight (Metric): 25 kg, 50 kg

Product Form: Granular

Specific Gravity: 2.15

Tensile Strength (Imperial): 4000.0 lb/ft<sup>2</sup>

# 3M™ Dyneon™ Fluoroelastomer FC 2122

## Details

Versatile use – injection and transfer molding, extrusion and calendaring  
Broad temperature and chemical resistance for product durability and longevity  
Proprietary incorporated cure technology may help save time and increase throughput

## Typical properties

Compression Set: 25 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb, 1320 lb  
Net Weight (Metric): 25 kg, 598.739 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Product Type: Dipolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 1900.0 psi  
Tensile Strength (Metric): 13.1 MPa

## **3M™ Dyneon™ Fluoroelastomer FC 2181, 55 lb (25 kg) box**

3M Product Number FC 2181 3M ID 7000145552

### **Details**

Offers excellent demolding of complex parts  
Medium-viscosity copolymer  
Used in compression molding, transfer molding and calendaring  
Proprietary incorporated cure technology may help save time and increase throughput

### **Typical properties**

Brands: Dyneon™  
Compression Set: 13 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2560.0 psi  
Tensile Strength (Metric): 17.6 MPa

# 3M™ Dyneon™ Fluoroelastomer FE 5640Q

## Details

Improved scorch resistance at high molding temperatures  
Intermediate viscosity fluoroelastomer (FKM) with 66% fluorine  
Proprietary incorporated cure technology may help save time and improve throughput  
Clean running with excellent mold release and improved cure technology, resulting in more consistent part size from successive molding cycles

## Typical properties

Compression Set: 11 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb, 1320 lb  
Net Weight (Metric): 25 kg, 598.739 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2370.0 psi  
Tensile Strength (Metric): 16.3 MPa

# 3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 131T

## Details

High-temperature perfluoroelastomer (FFKM)  
Ideal for dry side (thermal processes) semiconductor applications  
Very low metal ion content with low extractables  
Offers excellent compression set resistance  
Upper continuous use temperature of 315°C (599°F)

## Typical properties

Compression Set: 20 %  
Cure Technology: High Temperature  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 72.5 %  
Net Weight (Imperial): 2.2 lb, 22 lb  
Net Weight (Metric): 1 kg, 10 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 15 min @ 188 °C  
Product Color: White  
Shelf Life: 2 Year  
Specific Gravity: 2.0  
Tensile Strength (Imperial): 2300.0 psi  
Tensile Strength (Metric): 15.9 MPa

# 3M™ Dyneon™ Fluoroelastomer FE 5840Q, 55 lb (25 kg)/Case

3M Product Number FE 5840Q 3M ID 7000006291 UPC 00051135106617

## Details

High fluorine material designed for O-ring, gasket and automotive fuel system applications  
Versatile use – can be used in compression, injection and transfer molding applications  
Proprietary incorporated cure technology may help save time in production process  
Clean running with excellent mold release  
Broad chemical and temperature resistance for product durability and longevity

## Typical properties

Brands: Dyneon™  
Compression Set: 26 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 70.1 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Product Type: Terpolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.89  
Tensile Strength (Imperial): 2000.0 psi  
Tensile Strength (Metric): 13.8 MPa

# 3M™ Dyneon™ Fluoroplastic Granules FEP 6303Z

## Details

- Excellent resistance to solvents and chemicals
- Exceptionally low dielectric constant and dielectric loss
- High stress crack resistance
- Wide service temperature range
- High limiting oxygen index
- Extremely smooth surface

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Industries: CPI/Semicon, Rubber and Plastic
- Melt Flow Index (MFI): 3 MFI
- Net Weight (Imperial): 110.25 lb, 550 lb
- Net Weight (Metric): 50 kg, 250 kg
- Product Form: Pellet
- Specific Gravity: 2.15
- Tensile Strength (Imperial): 4060.0 psi
- Tensile Strength (Metric): 28 MPa



# **3M™ Dyneon™ Fluoroplastic Granules PFA FLEX8515UHPZ**

3M Product Number PFA FLEX8515UHPZ 3M ID B40070144

## **Details**

- Meets SEMI C90-1015
- Extremely low extractable impurities
- Improved ESCR (Stress Crack Resistance)
- Excellent chemical resistance
- Improved surface smoothness
- Injection moldable
- Temperature capability up to 240°C

# **3M™ Dyneon™ Fluoroplastic PVDF 6010/0000, 55 lb (25 kg) bag**

3M Product Number PVDF 6010/0000 3M ID 7000006360 UPC 00051135129760

## **Details**

- Good permeation resistance
- Good chemical resistance
- Suitable for extrusion and compression molding
- High flex modulus relative to other fluoroplastic materials
- Very good tensile strength and dimensional stability

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Fuel Cell, Rubber and Plastic
- Net Weight (Imperial): 55 lb
- Net Weight (Metric): 25 kg
- Product Type: PVDF Homopolymer
- Tensile Strength (Imperial): 6100.0 psi
- Tensile Strength (Metric): 42 MPa

# 3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 191T

3M ID B40070237

## Details

High-temperature perfluoroelastomer (FFKM)  
Ideal for dry side (thermal processes) semiconductor applications  
Very low metal ion content with low extractables  
Upper continuous use temperature of 315°C (599°F)

## **3M™ Dynamar™ Polymer Processing Additive FX 5912, 25 kg (55 lb) Case**

3M Product Number FX 5912 3M ID 7100090858 UPC 00051135896815

### **Details**

- Improves extrusion processing of polymers for wire, cable and fiber applications
- Reduces or eliminates die build-up
- Effective as a process aid over a broad process temperature range
- Broadens extrusion processing capabilities of polyolefin resins
- Excellent thermal stability
- Reduces extrusion pressure
- Reduces the transition time between color changeovers

### **Typical properties**

- Brands: Dynamar™
- Container Type: Bag
- Factory ISO Certification: No ISO Certification information available
- Industries: Construction, Electrical, General Manufacturing, Packaging, Rubber and Plastic
- Melt Flow Index (MFI): 15-25 g/10 min.
- Melting Point (Celsius): 110 °C - 126 °C
- Melting Point (Fahrenheit): 230 °F - 258.8 °F
- Net Weight (Imperial): 55 lb.
- Net Weight (Metric): 25 kg
- Product Form: Free Flowing Granular, Granular
- Shelf Life: 2 Year
- eClass 14 Classification Group: 31000000

# **3M™ DYNAMAR™ RUBBER CURATIVE RC 5251Q, 0.75 LB BOX**

3M Product Number RC 5251Q 3M ID 7010402031 UPC 50051135110220

## **Details**

Functions as an acid receptor for ECO compounds  
Used as part of a cure system for vulcanizing polyepichlorohydrin elastomers  
Delivered in powder form

## **Typical properties**

Brands: Dynamar™  
Cure Technology: Rubber Curative  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 0.75 lb  
Net Weight (Metric): 0.34 kg  
Product Color: White

## **3M™ Glass Bubbles G18/500, Small box (40 lb)**

3M Product Number G18/500 3M ID 7100149511 UPC 00021200224928

### **Details**

Decreases weight and increases buoyancy to improve efficiency and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Reduction in overall pipe diameter results in more pipe on reels used for reel-lay pipe installation operations  
Provides temperature and pressure resistance for versatile use – adaptable to a variety of production processes  
Very good strength-to-density ratio for use in a variety of oil and gas and sporting goods applications

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Brands: 3M™  
Composition: Soda-lime Borosilicate Glass  
Factory ISO Certification: No ISO Certification information available  
Industries: Paints and Coatings  
Net Weight (Imperial): 40 lb  
Net Weight (Metric): 18.144 kg  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.18 g/cc

## **3M™ Glass Bubbles S35**

### **Details**

3M™ Glass Bubbles in flexible flowlines are half the weight of conventional pipe-in-pipe construction

Reduces overall pipe diameter requiring fewer and smaller ships for transportation

Decreases weight and increases buoyancy for lower density in finished parts

Provides excellent water and oil resistance for use in underwater applications

Decreases thermal conductivity in syntactic foam compositions

Good strength-to-density ratio for use in a variety of oil and gas applications

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 3000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 20.68 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic

Net Weight (Imperial): 2.2 lb, 100 lb, 600 lb, 25000 lb

Net Weight (Metric): 0.99 kg, 45.359 kg, 272.155 kg, 11339.809 kg

Typical Density: 0.35 g/cc

Typical Median Particle Diameter: 40 µm

## **3M™ Nextel™ Fabric AF-14**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 312 High Temperature Continuous Ceramic Oxide Fiber  
Good mechanical properties at high temperatures  
Fabric is thermally and chemically stable  
Thermal shock resistant  
Thin and low areal weight  
Non-hygroscopic for low moisture absorption  
Electrically insulating and low thermal conductivity

### **Typical properties**

Application: Protecting Assemblies, Protecting Parts, Sealing, Thermal Management  
Brands: Nextel™  
Denier: 900 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 900 D  
Fiber Type Input: 1/2 Yarn  
Industries: Aerospace, Industrial  
Product Composition: 312  
Thread Count Fill (Imperial): 17 per Inch  
Thread Count Fill (Metric): 6.8 per Centimetre  
Thread Count Warp (Imperial): 20 per Inch  
Thread Count Warp (Metric): 8.1 per Centimetre  
Weight (Imperial): 8.8 oz/yd<sup>2</sup>, 9 oz/yd<sup>2</sup>  
Weight (Metric): 300 g/m<sup>2</sup>, 310 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.014 in, 0.015 in Overall Thickness (Metric): 0.36 mm, 0.38 mm Overall Width (Imperial): 6 in, 38 in, 59 in Overall Width (Metric): 15.24 cm, 96.52 cm, 149.86 cm



## **3M™ Nextel™ Fabric EF-11**

### **Details**

Woven 3M™ Nextel™ 720 continuous ceramic oxide fiber roving  
A preferred reinforcement for Ox-Ox CMC pre-preg and parts  
Good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
Excellent high temperature creep resistance

### **Typical properties**

Brands: Nextel™  
Denier: 1500 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1500 D  
Fiber Type Input: Roving  
Industries: Aerospace, Fuel Cell  
Thread Count Fill (Imperial): 27.5 per Inch  
Thread Count Fill (Metric): 11 per Centimetre  
Thread Count Warp (Imperial): 27.5 per Inch  
Thread Count Warp (Metric): 11 per Centimetre  
Weight (Imperial): 11 oz/yd<sup>2</sup>  
Weight (Metric): 370 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.013 in Overall Thickness (Metric): 0.33 mm  
Overall Width (Imperial): 6 in, 36 in Overall Width (Metric): 15.24 cm, 91.44 cm

## **3M™ Dyneon™ PTFE TF 5050Z**

3M Product Number TF 5050Z 3M ID B40070095

### **Details**

- Bimodal particle size distribution
- Low settling tendency
- Excellent film-forming properties
- Low porosity
- High gloss
- Greater hardness

## **3M™ Dyneon™ PTFE Powder TF 1750, 25 kg (55 lb) box**

3M Product Number TF 1750 3M ID 7000059127 UPC 00051135125489

### **Details**

Meets ASTM D 4894 Type II

Well-suited for large billets and very thin skived film

Provides good chemical stability and broad chemical resistance

Non-free flowing powder grade provides good electrical and mechanical properties

Excellent operating temperature range

### **Typical properties**

Brands: Dyneon™

Factory ISO Certification: No ISO Certification information available

Industries: CPI/Semicon, Electrical, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Product Form: Granular

Specific Gravity: 2.16

Tensile Strength (Imperial): 4000.0 lb/ft<sup>2</sup>

# 3M™ Dyneon™ Fluoroelastomer FC 2123

## Details

Versatile use – injection and transfer molding, extrusion, bonding and calendaring  
Excellent hot tear properties for molding articles with complex geometric profiles  
Excellent compression set resistance for molded goods  
Broad temperature and chemical resistance for product durability and longevity  
Proprietary incorporated cure technology may help save time and increase throughput

## Typical properties

Compression Set: 20 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 55 lb, 1320 lb  
Net Weight (Metric): 1 kg, 25 kg, 598.739 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Product Type: Dipolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2350.0 psi  
Tensile Strength (Metric): 16.2 MPa

## 3M™ Dyneon™ Fluoroelastomer FC 2182

### Details

Intermediate viscosity fluoroelastomer (FKM) suitable for use in a number of applications – injection and transfer molding, and extrusion  
Broad chemical and temperature resistance for product durability and longevity  
Proprietary incorporated cure technology may help save time and increase throughput

### Typical properties

Compression Set: 22 %  
Cure Technology: Incorporated Cure  
Elongation at Break: 265.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 55 lb  
Net Weight (Metric): 1 kg, 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2200.0 psi  
Tensile Strength (Metric): 15.2 MPa

# 3M™ Dyneon™ Fluoroelastomer FE 5641Q

## Details

Intermediate viscosity fluoroelastomer (FKM) with broad chemical and temperature resistance for product durability  
Improved scorch resistance at high molding temperatures  
Proprietary incorporated cure technology may help save time and increase throughput  
Excellent mold release and improved cure technology, resulting in more consistent part size from successive molding cycles

## Typical properties

Compression Set: 11 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 55 lb  
Net Weight (Metric): 1 kg, 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2340.0 psi  
Tensile Strength (Metric): 16.1 MPa

# 3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 132TB, 1 kg (2.2 lb) Case

3M ID 7100238607 UPC 00638060424780

## Details

High-temperature perfluoroelastomer (FFKM)  
Ideal for dry side (thermal processes) semiconductor applications  
Very low metal ion content with low extractables  
Offers excellent compression set resistance  
Upper continuous use temperature of 315°C (599°F)

## Typical properties

Brands: Dyneon™  
Compression Set: 36 %  
Cure Technology: High Temperature  
Elongation at Break: 241.0 %  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 72.5 %  
Net Weight (Imperial): 2.2 lb  
Net Weight (Metric): 1 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 15 min @ 188 °C  
Product Color: White  
Shelf Life: 2 Year  
Specific Gravity: 2.0  
Tensile Strength (Imperial): 2260.0 psi  
Tensile Strength (Metric): 15.6 MPa

## **3M™ Dyneon™ Fluoroelastomer FLS 2530, 55 lb (25 kg) box**

3M Product Number FLS 2530 3M ID 7100098334 UPC 00051135024119

### **Details**

Broad chemical and temperature resistance for durability and product longevity  
Can be used in a number of applications – injection and transfer molding, as well as calendaring

Proprietary incorporated cure technology may help save time and increase throughput

Improved chemical resistance and excellent compression set performance compared with lower percent fluorine fluoropolymers

### **Typical properties**

Brands: Dyneon™

Compression Set: 19 %

Cure Technology: Incorporated Cure

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 69 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 5 min @ 177 °C

Product Color: Off-white

Product Type: Dipolymer Fluoroelastomer

Shelf Life: 3 Year

Specific Gravity: 1.85

Tensile Strength (Imperial): 2200.0 psi

Tensile Strength (Metric): 15.2 MPa



# 3M™ Dyneon™ Fluoroplastic Granules PFA 6515NZ

## Details

- Excellent thermal and mechanical properties
- Excellent chemical and flame resistance
- Extrudable, injection moldable, weldable
- Wide service temperature range
- Enhanced adhesion to metal

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Features: Injection Moldable
- Industries: CPI/Semicon, Electrical, Rubber and Plastic
- Net Weight (Imperial): 110.25 lb, 551.25 lb, 1320 lb
- Net Weight (Metric): 50 kg, 250 kg, 600 kg
- Product Form: Pellet
- Product Usage: General Industrial
- Tensile Strength (Imperial): 3770.0 psi
- Tensile Strength (Metric): 26 MPa

# **3M™ Dyneon™ Fluoroplastic PVDF 6012/0000, 55 lb (25 kg) bag**

3M Product Number PVDF 6012/0000 3M ID 7000059339 UPC 00051135129784

## **Details**

- Refractive index similar to water
- Excellent tensile strength and dimensional stability
- Good permeation resistance
- Good chemical resistance
- Suitable for extrusion and compression molding
- High flex modulus relative to other fluoroplastic materials

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Fuel Cell, Rubber and Plastic
- Net Weight (Imperial): 55 lb
- Net Weight (Metric): 25 kg
- Product Type: PVDF Homopolymer
- Tensile Strength (Imperial): 6100.0 psi
- Tensile Strength (Metric): 42 MPa

# 3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 133TB

## Details

High-temperature perfluoroelastomer (FFKM)  
Ideal for dry side (thermal processes) semiconductor applications  
Very low metal ion content with low extractables  
Offers excellent compression set resistance  
Upper continuous use temperature of 315°C (599°F)

## Typical properties

Compression Set: 26 %  
Cure Technology: High Temperature  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 72.5 %  
Net Weight (Imperial): 2.2 lb, 22 lb  
Net Weight (Metric): 1 kg, 10 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 15 min @ 188 °C  
Product Color: White  
Shelf Life: 2 Year  
Specific Gravity: 2.0  
Tensile Strength (Imperial): 2323.0 psi  
Tensile Strength (Metric): 16 MPa

# 3M™ Dynamar™ Polymer Processing Additive FX 5920A

## Details

- Reduces extrusion pressure
- Broadens extrusion processing capabilities of polyolefin resins
- Ideal for use in polyolefin resins containing antiblocking agents, pigments and other inorganic additives
- Reduces or eliminates melt fracture
- Reduces or eliminates die build-up

## Typical properties

- Application: Blown Film Extrusion
- Bulk Density (Metric): 0.7 g/cm<sup>3</sup>
- Container Type: Bag, Bottle
- Factory ISO Certification: No ISO Certification information available
- Industries: General Manufacturing, Packaging, Rubber and Plastic
- Net Weight (Imperial): 1.1 lb., 44 lb., 1056 lb., 1100 lb., 1125 lb.
- Net Weight (Metric): 0.5 kg, 20 kg, 479 kg, 499 kg, 510.291 kg
- Product Color: White to Off-White
- Product Form: Granular
- Shelf Life: 2 Year
- eClass 14 Classification Group: 31000000

# 3M™ Dynamar™ Polymer Processing Additive FX 5920B, 175 lb Drum

3M Product Number FX 5920B 3M ID 7100035465 UPC 00051135110195

## Details

- Adheres to extruder wall with Barium Sulfate
- Eliminates melt fracture with traceability
- Increased productivity
- Increased consistency capability

## Typical properties

- Application: Blown Film Extrusion
- Brands: Dynamar™
- Bulk Density (Metric): 0.7 g/cm<sup>3</sup>
- Container Type: Drum
- Factory ISO Certification: No ISO Certification information available
- Industries: Rubber and Plastic
- Net Weight (Imperial): 175 lb.
- Net Weight (Metric): 80 kg
- Product Form: Granular
- Shelf Life: 2 Year
- eClass 14 Classification Group: 31000000

# **3M™ Nextel™ Chopped Fiber 312, Style AC-8, 299 Sizing, 1300 D, 1/4 in Long, per lb**

3M Product Number 312 3M ID 7010402879 UPC 00051115074660

## **Details**

Multiple lengths, including custom lengths, available to fit user needs  
Suitable for use as a filler to improve mechanical properties such as fracture toughness  
Can be used as a filler to make different slurry or coatings for electrical and optical applications  
Delivers high-temperature and high-stress resistance when used as a filler or reinforcement material

## **Typical properties**

Application: Thermal Management, Void Filling  
Brands: Nextel™  
Denier: 1300 Denier  
Factory ISO Certification: No ISO Certification information available  
Product Composition: 312  
Product Type: Chopped Fiber  
eClass 14 Classification Group: 23330211

## **Dimensions and Classifications**

Overall Length (Imperial): 0.25 in Overall Length (Metric): 6.35 mm

# **3M™ Nextel™ Chopped Fiber 312, Style AC-8 Calcined, 1/8 in Long, per lb**

3M Product Number 312 3M ID 7010320545 UPC 00051115097171

## **Details**

Multiple lengths, including custom lengths, available to fit user needs  
Suitable for use as a filler to improve mechanical properties such as fracture toughness  
Can be used as a filler to make different slurry or coatings for electrical and optical applications  
Delivers high-temperature and high-stress resistance when used as a filler or reinforcement material

## **Typical properties**

Application: Thermal Management, Void Filling  
Brands: Nextel™  
Denier: 1300 Denier  
Factory ISO Certification: No ISO Certification information available  
Product Composition: 312  
Product Type: Chopped Fiber  
eClass 14 Classification Group: 23330211

## **Dimensions and Classifications**

Overall Length (Imperial): 0.125 in Overall Length (Metric): 3.175 mm

## **3M™ Easy Clean Coating ECC-6000**

3M Product Number ECC-6000 3M ID B40070347

### **Details**

Creates easy-clean coating for nonporous surfaces such as glass and ceramics  
Provides stain resistance, water and oil repellency for nonporous surfaces  
Allows for easy removal of hard water deposits



## **3M™ 10B Enriched Boric Acid**

3M Product Number 10B 3M ID B40066326

### **Details**

Custom enrichments available for applications that require characteristics above standard product offerings or where alternative purity is required  
Meets or exceeds accepted quality standards of the nuclear industry worldwide (NQA-1, ISO 9001)  
Material customization available for individual reactor conditions helps eliminate the need for onsite mixing

### **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ 7Li Enriched Lithium Hydroxide**

3M Product Number 7Li 3M ID B40066320

### **Details**

Offered in monohydrate form with enrichment level greater than 99.9 wt% 7Li  
Meets the requirements of Westinghouse PD Specification 52203B  
Certified under NQA-1 quality system for nuclear safety-related chemicals

### **Typical properties**

eClass 14 Classification Group: 38120100

# **3M™ Castable Ceramic - Radiation Shielding**

3M ID B49000156

## **Details**

Castability increases ease of use and flexibility  
3M castable ceramics can be customized with various formulations and additives to provide application-specific characteristics such as gamma shielding  
Available with either naturally occurring or 10B enriched isotope  
Material can be provided in powder or cast forms

## **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ Silicon Carbide Mechanical Seal Rings**

3M ID B49000176

### **Details**

Offers tribological performance under high load, including pressure, sliding speed, temperature

Exhibits high mechanical strength

Offers excellent thermal conductivity

Provides excellent corrosion resistance

# 3M™ Silicon Nitride Measuring Wheel

3M ID B49000183

## Details

- Offers excellent wear resistance and accuracy in extreme temperature conditions
- An alternative to wheels made with conventional metal alloys
- 60% lighter than steel
- Delivers high strength and fracture toughness
- Excellent thermal shock resistance
- Resistant to wear and erosion
- Exhibits nonmagnetic properties and electrical insulation
- Corrosion and chemical resistant
- Offers design flexibility for a customized solution

# **3M™ Tungsten Dispenser Cathodes**

3M ID B49000202

## **Details**

Built under strict material and data control, with documentation and test data available

Products are built to the highest achievable quality to meet the most demanding applications

Custom design and engineering to meet customer requirements

Low work function allows for lower operational temperatures

Cathode heater assemblies are 100% tested for proper heater operation

## **Typical properties**

Application: Avionics

eClass 14 Classification Group: 19081301

## **3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 40, 1 kg (2.2 lb) Case**

3M ID 7100238537 UPC 00638060424513

### **Details**

- Low Mooney viscosity for improved mold flow and extrusion
- Faster curing
- Higher crosslink density
- Excellent compression set resistance at 200°C
- Excellent mold release properties
- Superb acid, ethylenediamine, steam and water resistance
- Ideal for wet chemical, fluid handling, cleaning, chemical etching processes, and semiconductor manufacturing
- Very low metal ion content with low extractables in a wide range of chemicals
- Upper use temperature of 200°C (392°F)

### **Typical properties**

- Brands: Dyneon™
- Compression Set: 19 %
- Cure Technology: Peroxide
- Factory ISO Certification: No ISO Certification information available
- Fluorine Content: 72.5 %
- Net Weight (Imperial): 2.2 lb
- Net Weight (Metric): 1 kg
- Product Color: White
- Shelf Life: 2 Year
- Specific Gravity: 2.0
- Tensile Strength (Imperial): 2360.0 psi
- Tensile Strength (Metric): 16.3 MPa

## **3M™ Dyneon™ Fluoroelastomer FE 5832**

3M Product Number FE 5832 3M ID B40070303

### **Details**

Low-viscosity, high-fluorine terpolymer raw gum  
Offers process versatility – transfer and compression molding, extrusion,  
calendering and coatings  
Amine or bisphenol curable



## **3M™ Dyneon™ Fluoroelastomer FX 6792**

3M Product Number FX 6792 3M ID B40070328

### **Details**

Designed to develop a higher post-cure modulus than other fluoroelastomers (FKM) currently available

Used in transfer and injection molding

Maintains high press-cured elongation and tear strength

Incorporated cure technology may help save time and increase throughput

## **3M™ Flame Retardant Additive FR-2025, 2 gal container (11 lb, 5 kg)**

3M Product Number FR-2025 3M ID 7100010113 UPC 00051135703823

### **Details**

Flame retardant for polycarbonate  
Not based on brominated or chlorinated compounds  
Can be used to make optically clear flame retardant compounds  
Effective at very low concentrations  
Often used synergistically with fibrillating PTFE to achieve V-0  
Chemically and thermally stable up to 450°C

### **Typical properties**

Application: Flame Retardant Additive  
Brands: 3M™  
Composition: 100% Potassium Perfluorobutane sulfonate  
Container Volume: 2.0 Gallon  
Factory ISO Certification: No ISO Certification information available  
Industries: Electronics  
Net Weight (Imperial): 11.025 lb  
Net Weight (Metric): 5.001 kg  
Product Type: Flame Retardant  
Type: Potassium Salt  
Viscosity: Solid  
Volume (Imperial): 2 gal  
Volume (Metric): 7.57 L  
Weight (Imperial): 11 lb.  
Weight (Metric): 5 kg

## **3M™ 10B Enriched Boron**

3M Product Number 10B 3M ID B40066327

### **Details**

3M™ 10B Enriched Boron is utilized when high densities or loadings of 10B are required

Crystalline structure improves processability for less dust, less handling concerns, and an overall cleaner process

Available in a wide range of isotopic enrichments and particle size distributions

### **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ Ceramic Sand Screen Systems**

3M ID B49000158

### **Details**

Increased well life-cycle longevity helps lower capital expenditures  
Increased production envelope enables higher production rates, especially in fraced wells  
Unlocking wells where sand failure has occurred  
Alternative to gravel packing, with simplified logistic and completion design  
For horizontal, deviated and vertical wells  
Simple deployment via wireline/slickline, coiled tubing or conventional rig system  
Design can be conveyed through existing production tubing or optimized for well work over or new well applications  
Can be suspended from an existing nipple profile, packer, or be straddle deployed

# 3M™ Silicon Carbide Seal Rings for Rotary Unions

3M ID B49000177

## Details

- Tribological performance under high load, including pressure, sliding speed, temperature
- Exhibits high stiffness
- Offers excellent corrosion and wear resistance
- Provides high mechanical strength
- Comes with low density for high-speed applications

## **3M™ Silicon Nitride Metal Forming Roll**

3M ID B40072337

### **Details**

Helps eliminate metal buildup in the formation of copper rod and stainless steel tubing

Helps boost quality while reducing material waste

Used as an alternative to stainless steel, super alloys, tungsten carbides, and first-generation ceramics such as  $\text{Al}_2\text{O}_3$  and  $\text{ZrO}_2$

Resistant to wear and erosion

Excellent thermal shock resistance

Corrosion and chemical resistant

Offers design flexibility for a customized solution

High temperature resistance

# **3M™ Dyneon™ Low Temperature Fluoroelastomer LTFE 6320Z**

3M Product Number LTFE 6320Z 3M ID B40070282

## **Details**

Low temperature peroxide curable for faster processing

Versatile use – injection and transfer molding, extrusion, bonding and calendaring

Improved low temperature performance compared to standard peroxide grades

Excellent physical properties

# **3M™ Dyneon™ Low Temperature Fluoroelastomer LTFE 6350Z**

3M Product Number LTFE 6350Z 3M ID B40070106

## **Details**

Low temperature peroxide curable for faster processing  
Versatile use – injection and transfer molding, extrusion, bonding and calendaring  
Improved low temperature performance compared to standard peroxide grades  
Excellent physical properties



## 3M™ Glass Bubbles K1

### Details

Decreases density and increases buoyancy to help improve efficiency and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Stable voids for low thermal conductivity and reduced dielectric constant  
Versatile use – adaptable to a variety of production processes  
Provides buoyancy in syntactic foam compositions  
Additive can easily be sanded in lightweight wall repair compounds

### Typical properties

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 250 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 1.72 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Insulation and Buoyancy, Mining, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 0.5 lb, 5 lb, 40 lb, 180 lb, 210 lb, 225 lb, 660 lb, 9500 lb  
Net Weight (Metric): 0.2 kg, 2 kg, 18 kg, 81.647 kg, 95 kg, 95.254 kg, 102.058 kg, 300 kg, 4309.128 kg  
Product Usage: Buoyancy, Thermal Insulation  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.125 g/cc  
Typical Median Particle Diameter: 65 µm

## **3M™ Glass Bubbles S38**

### **Details**

Glass bubbles in flexible flowlines are half the weight of conventional pipe-in-pipe construction

Reduces overall pipe diameter requiring fewer and smaller ships for transportation

Decreases weight and increases buoyancy for lower density in finished parts

Provides excellent water and oil resistance for use in underwater applications

Decreases thermal conductivity in syntactic foam compositions

Good strength-to-density ratio for use in a variety of oil and gas applications

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 4000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 27.58 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Construction, Paints and Coatings, Rubber and Plastic, Transportation

Net Weight (Imperial): 1.5 lb, 10 lb, 100 lb, 650 lb, 700 lb, 30000 lb

Net Weight (Metric): 0.68 kg, 4.536 kg, 45.359 kg, 294.835 kg, 317.515 kg, 13607.771 kg

Typical Density: 0.38 g/cc

Typical Median Particle Diameter: 40 µm

## **3M™ Nextel™ Fabric AF-20**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 312 high temperature continuous ceramic oxide roving  
Medium weight and low air permeability  
Offers flame barrier properties  
Fabric is flexible and chemically resistant  
Good mechanical properties at high temperatures

### **Typical properties**

Brands: Nextel™  
Denier: 1800 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1800 D  
Fiber Type Input: Roving  
Industries: Aerospace, Industrial  
Surface Treatment: Heat Cleaned, Heat Treated  
Thread Count Fill (Imperial): 26 per Inch  
Thread Count Fill (Metric): 10 per Centimetre  
Thread Count Warp (Imperial): 31 per Inch  
Thread Count Warp (Metric): 12 per Centimetre  
Weave: 5 Harness Satin  
Weight (Imperial): 13 oz/yd<sup>2</sup>  
Weight (Metric): 440 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.021 in Overall Thickness (Metric): 0.52 mm  
Overall Width (Imperial): 36 in, 63 in Overall Width (Metric): 91.44 cm, 160.02 cm, 914.4 mm

## **3M™ Nextel™ Fabric EF-19**

### **Details**

Woven 3M™ Nextel™ 720 continuous ceramic oxide fiber roving  
A preferred reinforcement for Ox-Ox CMC pre-preg and parts  
Good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
Excellent high temperature creep resistance

### **Typical properties**

Denier: 3000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 3000 D  
Fiber Type Input: Roving  
Industries: Aerospace, Fuel Cell, Industrial  
Thread Count Fill (Imperial): 23.5 per Inch  
Thread Count Fill (Metric): 9 per Centimetre  
Thread Count Warp (Imperial): 23.5 per Inch  
Thread Count Warp (Metric): 9 per Centimetre  
Weight (Imperial): 19 oz/yd<sup>2</sup>  
Weight (Metric): 640 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.023 in Overall Thickness (Metric): 0.58 mm  
Overall Width (Imperial): 36 in Overall Width (Metric): 91.44 m, 91.44 cm

## **3M™ Dyneon™ TFM™ Modified PTFE 1600**

### **Details**

Meets ASTM D 4894 Type III, Grade 2  
Modified PTFE grade  
Well-suited for automatic and isostatic molding  
Low deformation under load  
Good weldability  
Denser polymer structure provides lower permeation  
Provides good chemical stability and broad temperature range  
Exceptional free flowing powder grade provides good electrical and mechanical properties  
Broad operating temperature range

### **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Electrical, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55.116 lb, 110.25 lb  
Net Weight (Metric): 25 kg, 50 kg  
Product Form: Granular  
Specific Gravity: 2.16  
Tensile Strength (Imperial): 4600.0 lb/ft<sup>2</sup>

## **3M™ Dyneon™ Fluoroelastomer FC 2210**

### **Details**

Ultra-low viscosity fluoroelastomer without incorporated curatives  
Versatile use – injection and transfer molding, extrusion, calendaring and coatings  
Can be used as a process aid or a viscosity modifier  
Amine or bisphenol curable

### **Typical properties**

Cure Technology: Raw Gum  
Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Fluorine Content: 65.9 %  
Industries: Rubber and Plastic  
Net Weight (Imperial): 1 lb, 35 lb  
Net Weight (Metric): 0.5 kg, 15.876 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 7 min @ 177 °C  
Product Color: Caramel  
Shelf Life: 3 Year  
Specific Gravity: 1.8

## **3M™ Dyneon™ Fluoroelastomer FE 5642**

### **Details**

Exhibits improved scorch resistance at high molding temperatures  
Targeted for bonded shaft seal applications  
Offers excellent mold release  
Proprietary incorporated cure technology may help save time and increase throughput

### **Typical properties**

Compression Set: 17 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb, 1320 lb  
Net Weight (Metric): 25 kg, 598.739 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 7 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2530.0 psi  
Tensile Strength (Metric): 17.4 MPa

**3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 4131TZ,  
Two 1 kg  
bags per Box**

3M Product Number PFE 4131TZ 3M ID 7000006365 UPC 00051135899397

**Details**

Perfluoroelastomer with upper continuous use temperature of 315°C (599°F)  
Incorporated cure version of PFE 131TZ, for ease in manufacturing  
Ideal for dry side (thermal processes) semiconductor applications  
Low metal ion content with low extractables  
Offers excellent compression set resistance

**Typical properties**

Brands: Dyneon™  
Compression Set: 17 %  
Elongation at Break: 155.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Productivity Improvement  
Fluorine Content: 72.5 %  
Industries: CPI/Semicon, Defense, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 4.409 lb  
Net Weight (Metric): 2 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 15 min @ 188 °C  
Product Color: Off-white  
Shelf Life: 2 Year  
Specific Gravity: 2.0  
Tensile Strength (Imperial): 2480.0 psi  
Tensile Strength (Metric): 17.1 MPa



## 3M™ Dyneon™ Fluoroelastomer FT 2320, 55 lb (25 kg) box

3M Product Number FT 2320 3M ID 7100025280 UPC 00051135022887

### Details

Versatile product can be used in a number of applications, including injection molding, extrusion and calendaring  
Offers very good temperature and chemical resistance for product durability and longevity  
Proprietary incorporated cure technology may help compounders save time and increase throughput  
High fluorine content of 69% offers improved chemical resistance

### Typical properties

Brands: Dyneon™  
Compression Set: 39 %  
Cure Technology: Incorporated Cure  
Elongation at Break: 230.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Productivity Improvement  
Fluorine Content: 69 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.86  
Tensile Strength (Imperial): 2000.0 psi  
Tensile Strength (Metric): 13.8 MPa  
Volume (Imperial): 55 gal  
Volume (Metric): 208.198 L

# 3M™ Dyneon™ Fluoroplastic Granules FEP 6307Z

## Details

- Excellent resistance to solvents and chemicals
- Exceptionally low dielectric constant and dielectric loss
- Outstanding electrical properties
- Broad use-temperature range
- Extremely low flammability
- Very good non-sticking release properties

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Industries: CPI/Semicon, Electrical, Fuel Cell, Oil & Gas, Rubber and Plastic
- Melt Flow Index (MFI): 7 MFI
- Net Weight (Imperial): 110 lb, 2204.62 lb
- Net Weight (Metric): 50 kg, 1000 kg
- Product Form: Pellet
- Specific Gravity: 2.15
- Tensile Strength (Imperial): 2900.0 psi, 3625.0 psi
- Tensile Strength (Metric): 20 MPa, 25 MPa

# **3M™ Dyneon™ Fluoroplastic PFA 6503PAZ, 110 lb (50 kg) box**

3M Product Number 6503PAZ 3M ID 7000059342 UPC 00051135897461

## **Details**

- Engineered particle size distribution for powder coating
- Creates non-stick surfaces
- Excellent thermal and mechanical properties
- Excellent chemical and flame resistance
- Wide service temperature range

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Paints and Coatings
- Net Weight (Imperial): 110 lb
- Net Weight (Metric): 50 kg

# 3M™ Dyneon™ Fluoroplastic PVDF 6108/0001, 55 lb (25 kg) bag

3M Product Number PVDF 6108/0001 3M ID 7000006361 UPC 00051135129807

## Details

- Good permeation resistance
- Good chemical resistance
- Suitable for injection molding with lower shrink for smooth surface parts
- High flex modulus relative to other fluoroplastic materials
- Good tensile strength and dimensional stability

## Typical properties

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Features: Temperature Resistance
- Industries: Fuel Cell, Rubber and Plastic
- Net Weight (Imperial): 55 lb
- Net Weight (Metric): 25 kg
- Tensile Strength (Imperial): 5800.0 psi
- Tensile Strength (Metric): 40 MPa
- Volume (Imperial): 55 gal
- Volume (Metric): 208.198 L

# **3M™ Dyneon™ PTFE TF 5035Z**

3M Product Number TF 5035Z 3M ID B40070302

## **Details**

- Improved film formation
- Far fewer pores
- Better gloss
- Better adhesion
- Lower processing costs
- Higher hardness

# 3M™ Dynamar™ Polymer Processing Additive FX 5927M

## Details

Broad range of polyolefin resins  
Readily Dispersible

## Typical properties

Application: Blown Film Extrusion  
Bulk Density (Metric): 0.7 g/cm<sup>3</sup>  
Container Type: Bag, Bottle  
Factory ISO Certification: No ISO Certification information available  
Industries: Rubber and Plastic  
Net Weight (Imperial): 1.1 lb., 44 lb.  
Net Weight (Metric): 0.5 kg, 20 kg  
Product Form: Granular  
Shelf Life: 2 Year  
eClass 14 Classification Group: 31000000

# **3M™ Dynamar™ Polymer Processing Additive FX 5929M**

3M Product Number FX 5929 3M ID B40064697

## **Details**

A high performance polymer at very low levels processing additive (PPA) for use at very low levels

Fast rate of melt fracture elimination at appropriate use level

Robust performance in the presence of anti-block agents, pigments and other inorganic additives

Improves extrusion processing of polyolefin resins

Reduces die build-up

Lowers apparent melt viscosity

## **Typical properties**

eClass 14 Classification Group: 31000000

## **3M™ Nextel™ Fabric AF-29**

### **Details**

Flexible fabric from 3M™ Nextel™ 312 high temperature continuous ceramic oxide roving  
Medium weight and air permeability  
Offers flame barrier properties  
Fabric is flexible and chemically resistant  
Good mechanical properties at high temperatures

### **Typical properties**

Application: Protecting Assemblies, Protecting Parts, Sealing, Thermal Management  
Brands: Nextel™  
Denier: 3600 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 3600 D  
Fiber Type Input: Roving  
Industries: Aerospace, Industrial  
Product Composition: 312  
Surface Treatment: Heat Cleaned, Heat Treated  
Thread Count Fill (Imperial): 17.5 per Inch  
Thread Count Fill (Metric): 7 per Centimeter  
Thread Count Warp (Imperial): 17.5 per Inch  
Thread Count Warp (Metric): 7 per Centimeter  
Weight (Imperial): 16 oz/yd<sup>2</sup>  
Weight (Metric): 542 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.03 in Overall Thickness (Metric): 0.71 mm Overall Width (Imperial): 50 in Overall Width (Metric): 127 cm, 1270 mm



# **3M™ Dyneon™ Fluoroelastomer FX 9143**

3M Product Number FX 9143 3M ID B40070191

## **3M™ 10B Enriched Boron Carbide**

3M Product Number 10B 3M ID B40070681

### **Details**

Neutron absorber primarily for nuclear control rod applications  
Customized powder variations available to meet customer needs  
Can be converted into final articles with high densities such as pellets, plates or sputtering targets  
Product backed by team with extensive experience fabricating, cutting and grinding high density boron carbide to meet or exceed customer requirements

### **Typical properties**

Product Usage: Neutron Detection, Nuclear Fuel  
eClass 14 Classification Group: 38120100

# **3M™ Silicon Carbide Sliding Bearings**

3M ID B49000178

## **Details**

- Offers tribological performance under high load, including pressure, sliding speed, temperature
- Exhibits excellent corrosion and wear resistance
- Offers high stiffness
- Provides high mechanical strength
- Delivers excellent thermal conductivity

## **Dynatron™ Fiberglass Mat, 688, 8 sq ft, 6 per case**

3M ID 7000125088 UPC 00076308006884

### **Details**

Fiberglass mat reinforces repairs  
Mat adds strength  
Easy-to-cut mat allows for custom shapes and sizes  
Pliable cloth conforms to curves  
Designed to work with fiberglass resin

### **Typical properties**

Brands: 3M™  
Case Quantity: 6.0 Bags per Case  
Material: Fiberglass Mat  
Product Color: White  
eClass 14 Classification Group: 31450590

### **Dimensions and Classifications**

Overall Length (Metric): 2.4 m Overall Width (Metric): 2.4 m

## **3M™ Glass Bubbles A20/1000**

### **Details**

Floated series has 99% floaters by volume to help you achieve lighter composites  
Decreases weight, increases buoyancy and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Surface treated to improve mechanical properties of the composite  
Improves dimensional stability  
Versatile use – adaptable to a variety of production processes

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 1000 psi (88% Minimum Fractional Survival)  
Crush Strength (Metric): 6.89 MPa (88% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 0.5 lb, 10 lb, 50 lb  
Net Weight (Metric): 0.227 kg, 4.536 kg, 22.68 kg  
Typical Density: 0.2 g/cc  
Typical Median Particle Diameter: 60 µm

## **3M™ Glass Bubbles HGS8000X**

### **Details**

Premium Product

Low density-to-strength ratio

Helps reduce the density of control fluids, including cement slurries, completion and workover fluids

Helps to prevent or minimize fluid loss/lost circulation and formation damage

Incompressible and more homogeneous control fluid properties compared with foamed and aerated systems

Virtually eliminates the need for specialized equipment used in foamed and aerated systems

Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 8000 psi (90% Minimum Fractional Survival)

Crush Strength (Metric): 55.16 MPa (90% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Cementing and Drilling Fluids

Net Weight (Imperial): 2 lb, 100 lb, 680 lb, 700 lb, 30000 lb

Net Weight (Metric): 0.91 kg, 45.359 kg, 308.443 kg, 317.5 kg, 13607.771 kg

Product Usage: Cement, Drilling Fluids

Typical Density: 0.42 g/cc

Typical Median Particle Diameter: 22 µm

## **3M™ Nextel™ Fabric AF-10**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 312 High Temperature Continuous Ceramic Oxide Fiber  
Good mechanical properties at high temperatures  
Fabric is thermally and chemically stable  
Thermal shock resistant  
Thin and low areal weight  
Non-hygroscopic for low moisture absorption  
Electrically insulating and low thermal conductivity

### **Typical properties**

Brands: Nextel™  
Denier: 600 Denier, 900 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 600 D  
Fiber Type Input: Served Roving  
Industries: Aerospace  
Thread Count Fill (Imperial): 46 per Inch  
Thread Count Fill (Metric): 18 per Centimetre  
Thread Count Warp (Imperial): 46 per Inch  
Thread Count Warp (Metric): 18 per Centimetre  
Weave: 5 Harness Satin  
Weight (Imperial): 7.2 oz/yd<sup>2</sup>, 8.6 oz/yd<sup>2</sup>  
Weight (Metric): 240 g/m<sup>2</sup>, 250 g/m<sup>2</sup>, 290 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.011 in, 0.016 in Overall Thickness (Metric): 0.28 mm, 0.4 mm Overall Width (Imperial): 6 in, 38 in, 50 in Overall Width (Metric): 15.24 cm, 96.52 cm, 127 cm

## **3M™ Nextel™ Fabric DF-19**

### **Details**

Woven 3M™ Nextel™ 610 continuous ceramic oxide fiber roving  
A preferred reinforcement for Ox-Ox CMC pre-preg and parts  
Good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
High purity alpha-alumina

### **Typical properties**

Brands: Nextel™  
Denier: 3000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 3000 D  
Fiber Type Input: Roving  
Industries: Aerospace, Fuel Cell, Industrial  
Thread Count Fill (Imperial): 23.5 per Inch  
Thread Count Fill (Metric): 9 per Centimetre  
Thread Count Warp (Imperial): 23.5 per Inch  
Thread Count Warp (Metric): 9 per Centimetre  
Weight (Imperial): 19 oz/yd<sup>2</sup>  
Weight (Metric): 640 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.02 in Overall Thickness (Metric): 0.51 mm Overall  
Width (Imperial): 36 in Overall Width (Metric): 91.44 m, 91.44 cm



# 3M™ Nextel™ Roving 610

## Details

Roving made from 3M™ Nextel™ 610 continuous ceramic oxide fiber  
Can be converted into textiles  
Very high extensional modulus at room temperature  
Very good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
Very low shrinkage after thermal cycling

## Typical properties

Application: Protecting Assemblies, Protecting Parts, Sealing, Thermal Management  
Denier: 1500 Denier, 3000 Denier, 4500 Denier, 10000 Denier, 20000 Denier  
Density: 3.9 g/cc  
Factory ISO Certification: No ISO Certification information available  
Features: Lightweighting  
Fiber Input Denier: 1500 Denier, 4500 Denier, 10000 Denier, 20000 Denier  
Fiber Type Input: Served Roving  
Industries: Aerospace, Industrial  
Melting Point (Celsius): 2000.0 Degree Celsius  
Melting Point (Fahrenheit): 3632.0 Degree Fahrenheit  
Nominal Filament Count: 400 , 1125 , 2550 , 5100  
Product Color: Off-white  
Product Composition: 610  
Product Type: Roving  
Yield (Imperial): 223.225 yd/lb, 1453.44 yd/lb  
eClass 14 Classification Group: 23330211

## **3M™ Dyneon™ PTFE Granules TF 1641, 50 kg (110 lb) Box**

3M Product Number TF 1641 3M ID 7100090787 UPC 00051135125533

### **Details**

Meets ASTM D 4894 Type IV, Grade 2  
Well-suited for automatic and isostatic molding  
Provides good chemical stability and broad chemical resistance  
Exceptional free flowing powder grade provides good electrical and mechanical properties

### **Typical properties**

Brands: Dyneon™  
Elongation at Break: 350.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Chemical Resistance, Temperature Resistance  
Industries: CPI/Semicon, Electrical, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 110 lb  
Net Weight (Metric): 50 kg  
Specific Gravity: 2.15  
Tensile Strength (Imperial): 4000.0 lb/ft<sup>2</sup>

# 3M™ Dyneon™ Fluoroelastomer FC 2121, 55 lb (25 kg) box

3M Product Number FC 2121 3M ID 7100149467 UPC 00051135022320

## Details

Low viscosity fluoroelastomer (FKM)

Versatile use – injection and transfer molding, extrusion and calendaring

Broad temperature and chemical resistance for product durability and longevity

Utilizes proprietary incorporated cure technology that may help save time and increase throughput

## Typical properties

Brands: Dyneon™

Compression Set: 14 %

Cure Technology: Incorporated Cure

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 65.9 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 7 min @ 177 °C

Product Color: Off-white

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 2375.0 psi

Tensile Strength (Metric): 16.4 MPa

# 3M™ Dyneon™ Fluoroelastomer FC 2180

## Details

Exhibits lower shrink profiles compared to 3M™ Dyneon Fluoroelastomer FC 2174

Medium-viscosity copolymer

Used in compression and transfer molding, as well as calendaring

Proprietary incorporated cure technology may help save time and increase throughput

## Typical properties

Compression Set: 12 %

Cure Technology: Incorporated Cure

Elongation at Break: 180.0 %

Factory ISO Certification: No ISO Certification information available

Features: Temperature Resistance

Fluorine Content: 65.9 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 2.2 lb, 55 lb

Net Weight (Metric): 1 kg, 25 kg

Post Cure: 24 hr @ 250 °C

Press Cure: 7 min @ 177 °C

Product Color: Off-white

Product Usage: Coatings

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 2370.0 psi

Tensile Strength (Metric): 16.3 MPa

## **3M™ Dyneon™ Fluoroelastomer FE 5623, 55 lb (25 kg) box**

3M Product Number FE 5623 3M ID 7100149470 UPC 00051135110737

### **Details**

Low viscosity fluoroelastomer (FKM) can be used in a number of applications – injection and transfer molding, extrusion and calendaring  
Improved scorch resistance at high molding temperatures  
Proprietary incorporated cure technology may help save time and improve throughput  
Clean running with excellent mold release for use in automated injection molding equipment  
Improved cure technology resulting in more consistent part size from successive molding cycles

### **Typical properties**

Brands: Dyneon™  
Compression Set: 13 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2300.0 psi  
Tensile Strength (Metric): 15.8 MPa

## **3M™ Dyneon™ Clear Perfluoroelastomer System PFE 300Z, Kit**

3M Product Number PFE 300Z 3M ID 7100044589 UPC 00051135897577

### **Details**

Proprietary system enables the manufacture of optically clear finished parts  
Phosphorous-free and silica-free formulation reduces the potential for contamination

Excellent temperature resistance optimizes performance in extreme environments

Delivers low extractables, outgassing, and particle generation for ultra-high purity applications

Excellent compression set offers enhanced sealing force retention and seal life

Proportionate polymer and catalyst simplify the mixing process

### **Typical properties**

Brands: Dyneon™

Compression Set: 16 %

Cure Technology: High Temperature

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 72.5 %

Industries: CPI/Semicon, Rubber and Plastic

Post Cure: Step Cure

Press Cure: 10 min @ 165 °C

Shelf Life: 2 Year

Specific Gravity: 2.0

Tensile Strength (Imperial): 2660.0 psi

Tensile Strength (Metric): 17.9 MPa

## 3M™ Dyneon™ Fluoroelastomer FE 5830Q

### Details

Highest fluorine level (70.5%) extrusion grade 3M™ Dyneon™ Fluoroelastomer available

Broad chemical and temperature resistance for durability and product longevity

Proprietary incorporated cure technology may help save time during production

Produces smooth extrudates without the use of processing aids

Can be formulated to meet -40°C (-40°F) mandrel bend fuel hose specifications

Can be formulated to yield good permeation resistance to automotive fuels

### Typical properties

Compression Set: 44 %

Cure Technology: Incorporated Cure

Elongation at Break: 250.0 %

Factory ISO Certification: No ISO Certification information available

Features: Productivity Improvement

Fluorine Content: 70.5 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 2.2 lb, 55 lb, 1320 lb

Net Weight (Metric): 1 kg, 25 kg, 598.739 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 7 min @ 177 °C

Product Color: Off-white

Shelf Life: 3 Year

Specific Gravity: 1.9

Tensile Strength (Imperial): 1600.0 psi

Tensile Strength (Metric): 11 MPa

# 3M™ Dyneon™ Fluoroplastic FEP 6301Z, 50 kg (110 lb) box

3M Product Number FEP 6301Z 3M ID 7000059147

## Details

Highest molecular weight FEP in the 3M portfolio  
High stress crack resistance  
Wide service temperature range  
High limiting oxygen index

## Typical properties

Brands: Dyneon™  
Elongation at Break: 350.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Chemical Resistance, Temperature Resistance  
Industries: CPI/Semicon, Rubber and Plastic  
Net Weight (Imperial): 110.25 lb  
Net Weight (Metric): 50 kg  
Specific Gravity: 2.14  
Tensile Strength (Imperial): 4350.0 psi  
Tensile Strength (Metric): 30 MPa  
Volume (Imperial): 110 gal  
Volume (Metric): 416.395 L



# **3M™ Dyneon™ Fluoroplastic Granules PFA FLEX8502UHPZ**

3M Product Number PFA FLEX8502UHPZ 3M ID B40070177

## **Details**

- Meets SEMI C90-1015
- Extremely low extractable impurities
- Improved ESCR (Stress Crack Resistance)
- Excellent chemical resistance
- Improved surface smoothness
- Improved clarity
- Temperature capability up to 240°C

# 3M™ Dyneon™ Fluoroplastic PVDF 6008/0001

## Details

- Good permeation resistance
- Good chemical resistance
- Suitable for extrusion and injection molding for smooth surface parts
- High flex modulus relative to other fluoroplastic materials
- Good tensile strength and dimensional stability

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Industries: Fuel Cell, Rubber and Plastic
- Net Weight (Imperial): 55 lb, 2204 lb
- Net Weight (Metric): 25 kg, 1000 kg
- Tensile Strength (Imperial): 6090.0 psi
- Tensile Strength (Metric): 42 MPa

# 3M™ Dyneon™ PTFE TF 5033Z

## Details

- Suitable for manufacturing compounds
- Almost universal chemical resistance
- Excellent matrix composite
- Almost residue-free precipitation
- Very good dry lubrication properties
- Very good non-stick properties
- Large service temperature range

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Paints and Coatings, Rubber and Plastic  
Net Weight (Imperial): 72.765 lb, 2425.5 lb  
Net Weight (Metric): 33 kg, 1100 kg

# 3M™ Dynamar™ Polymer Processing Additive FX 5911

## Details

Broadens extrusion processing capabilities of polyolefin resins  
Reduces or eliminates die build-up  
Ideal for use in high viscosity, high molecular weight polyolefins  
Excellent thermal stability for high temperature processing  
Lowers apparent melt viscosity  
For use at very low levels

## Typical properties

Bulk Density (Imperial): 67.422 lb/ft<sup>3</sup>  
Bulk Density (Metric): 1.08 g/cm<sup>3</sup>  
Container Type: Bag, Bottle  
Factory ISO Certification: No ISO Certification information available  
Industries: Construction, General Manufacturing, Packaging, Rubber and Plastic  
Melt Flow Index (MFI): 5-14 g/10 min.  
Melting Point (Celsius): 110 °C - 126 °C  
Melting Point (Fahrenheit): 230 °F - 258.8 °F  
Net Weight (Imperial): 1.1 lb., 55 lb.  
Net Weight (Metric): 0.5 kg, 25 kg  
Product Form: Free Flowing Granular, Granular  
Shelf Life: 2 Year  
eClass 14 Classification Group: 31000000

## **3M™ Dynamar™ Rubber Curative RC 5125, 7 lb (3 kg) drum**

3M Product Number RC 5125 3M ID 7100148240 UPC 00051135291375

### **Details**

Fluoroelastomer (FKM) curative for use in solvent-based solution coatings  
Liquid form for fast incorporation of curatives  
Exhibits excellent curative dispersion characteristics  
Can also act as an adhesion promoter  
Clear/yellow in color

### **Typical properties**

Brands: Dynamar™  
Cure Technology: Rubber Curative  
Factory ISO Certification: No ISO Certification information available  
Features: Increased Production Throughput  
Industries: Rubber and Plastic  
Net Weight (Imperial): 7 lb  
Net Weight (Metric): 3 kg  
Product Color: Transparent, Yellow  
Shelf Life: 12 Month  
Specific Gravity: 0.91  
Volume (Imperial): 1 gal  
Volume (Metric): 3.785 L

# 3M™ Dyneon™ Perfluoroelastomer PFE 194T

## Details

High-temperature perfluoroelastomer (FFKM)  
Ideal for dry side (thermal processes) semiconductor applications  
Very low metal ion content with low extractables  
Upper continuous use temperature of 315°C (599°F)

## Typical properties

Cure Technology: High Temperature  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 72.5 %  
Net Weight (Imperial): 2.2 lb, 22 lb  
Net Weight (Metric): 1 kg, 10 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 15 min @ 188 °C  
Product Color: White  
Shelf Life: 2 Year  
Specific Gravity: 2.0  
Tensile Strength (Imperial): 2300.0 psi  
Tensile Strength (Metric): 15.6 MPa

# **3M™ Dyneon™ Fluoroelastomer FX 3729**

3M Product Number FX 3729 3M ID B40070297

## **Details**

Low viscosity fluoroelastomer (FKM)

Versatile use – injection and transfer molding, extrusion and calendaring

Broad temperature and chemical resistance for product durability and longevity

Proprietary incorporated cure technology may help save time and increase throughput

## **3M™ 6Ns Ultra High Purity Boron**

3M Product Number 6Ns 3M ID B40066323

### **Details**

Available in a crystalline form with a wide range of available customized particle characteristics

### **Typical properties**

eClass 14 Classification Group: 38120100



## **3M™ Castable Ceramic**

3M ID B49000155

### **Details**

Castability increases ease of use and flexibility  
3M castable ceramics can be customized with various formulations and additives to provide application-specific characteristics  
Available with either naturally occurring or 10B enriched isotope  
Material can be provided in powder or cast forms

### **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ Silicon Carbide Materials**

3M ID B49000175

### **Details**

Exhibits extremely high hardness

Offers high wear and chemical resistance

Tribological performance under high load, including pressure, sliding speed, temperature

Provides corrosion resistance

# **3M™ Titanium Diboride Powders**

3M ID B49000201

## **Details**

High hardness  
Extremely high electrical conductivity  
Thermal stability  
Inert to nonferrous metals

## **Typical properties**

eClass 14 Classification Group: 38120102

## **3M™ Silicon Nitride Tile**

3M ID B5005303015

### **Details**

- Offered in standard geometries with as-fired surfaces
- An economical option in mining and wear applications
- Hard, tough, and wear-resistant
- Corrosion and chemical resistant
- Resistant to wear and erosion
- Delivers high strength and fracture toughness
- Excellent thermal shock resistance
- Exhibits nonmagnetic properties and electrical insulation

# 3M™ Silicon Nitride Gas Seal Ring

3M ID B5005310098

## Details

- High mechanical strength enables higher speeds and reliability
- Helps minimize leakages and maintenance
- Improved performance thanks to high stiffness
- Resistant to wear and erosion
- Corrosion and chemical resistant
- Excellent thermal shock resistance
- Offers design flexibility for a customized solution
- High temperature resistance

## **3M™ Dyneon™ Fluoroelastomer FPO 3620, 25 kg (55 lb) box**

3M Product Number FPO 3620 3M ID 7100156062

### **Details**

Peroxide-curable, low-viscosity fluoroelastomer (FKM)  
Curable without metal oxides  
Offers high resistance against chemical fluids  
Exhibits good physical properties right out of the press  
Suitable for injection molding, compression and transfer molding, extrusion and calendaring  
Levels can be blended to achieve desired properties

### **Typical properties**

Brands: Dyneon™  
Cure Technology: Peroxide  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 67.3 %  
Industries: Rubber and Plastic  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Press Cure: 10 min @ 177 °C  
Product Color: White  
Product Type: Terpolymer Fluoroelastomer  
Specific Gravity: 1.81  
Tensile Strength (Imperial): 3331.0 psi  
Tensile Strength (Metric): 23 MPa

## **3M™ Nextel™ Fabric DF-13-4500**

### **Details**

Woven 3M™ Nextel™ 610 continuous ceramic oxide fiber roving  
A preferred reinforcement for Ox-Ox CMC pre-preg and parts  
Good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
High purity alpha-alumina

### **Typical properties**

Brands: Nextel™  
Denier: 4500 Denier  
Density (Metric): 3.9 g/cm<sup>3</sup>  
Factory ISO Certification: No ISO Certification information available  
Fiber Type Input: Roving  
Industries: Aerospace, Fuel Cell, Industrial  
Melting Point (Celsius): 2000.0 Degree Celsius  
Melting Point (Fahrenheit): 3632.0 Degree Fahrenheit  
Product Composition: 610  
Surface Treatment: Heat Cleaned, Sized  
Weave: 5 Harness Satin  
Weight (Imperial): 13.8 oz/yd<sup>2</sup>, 14.1 oz/yd<sup>2</sup>  
Weight (Metric): 470 g/m<sup>2</sup>, 480 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.014 in, 0.019 in Overall Thickness (Metric): 0.36 mm, 0.48 mm Overall Width (Imperial): 36 in Overall Width (Metric): 914.4 mm

# **3M™ Dyneon™ TFM™ Modified PTFE 1635, 50 kg (110 lb) Box**

3M ID 7100090835 UPC 00051135895627

## **Details**

- Meets ASTM D 4894 - Type IV, Grade 2 classification
- Homogenous mould filling and reduced moulding pressure
- Substantially lower deformation under load ("cold flow")
- Improved particle coalescence
- Better surface finish
- Dense polymer structure with very low void content
- Low permeability
- Improved flex life
- Good electrical and mechanical properties

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 110 lb
- Net Weight (Metric): 50 kg



# **Dynatron™ Fiberglass Cloth**

3M ID B40068267

## **Details**

Fiberglass cloth reinforces repairs  
Woven fabric adds strength  
Easy-to-cut fabric allows for custom shapes and sizes  
Pliable cloth conforms to curves  
Designed to work with fiberglass resin

## **Typical properties**

eClass 14 Classification Group: 31450590

## **3M™ Glass Bubbles A16/500**

### **Details**

Floated series has 99% floaters by volume to help you achieve lighter composites  
Decreases weight, increases buoyancy and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Surface treated to improve properties of the composite  
Improves dimensional stability  
Versatile use – adaptable to a variety of production processes

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 500 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 3.45 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 0.5 lb, 9.923 lb, 50.715 lb  
Net Weight (Metric): 0.2 kg, 4.5 kg, 23 kg  
Product Usage: Buoyancy, Thermal Insulation  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.16 g/cc  
Typical Median Particle Diameter: 60 µm

## **3M™ Silicon Nitride Wear Plate**

3M ID B5005303016

### **Details**

- Offered in standard geometries with as-fired surfaces
- A quick and economical option in a wide variety of applications
- Hard, tough and wear resistant
- Corrosion and chemical resistant
- Resistant to wear and erosion
- 60% lighter than steel
- Delivers high strength and fracture toughness
- Excellent thermal shock resistance
- Exhibits nonmagnetic properties and electrical insulation
- High temperature resistance

## **3M™ Nextel™ Fabric DF-11**

### **Details**

Woven 3M™ Nextel™ 610 continuous ceramic oxide fiber roving  
A preferred reinforcement for Ox-Ox CMC pre-preg and parts  
Good mechanical properties at high temperatures  
Electrically insulating with good electromagnetic transparency  
Ideal as a ceramic fiber reinforcement for composites  
Non-hygroscopic and non-oxidizing  
High purity alpha-alumina

### **Typical properties**

Brands: Nextel™  
Denier: 1500 Denier, 3000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1500 D  
Fiber Type Input: Roving  
Industries: Aerospace, Fuel Cell  
Thread Count Fill (Imperial): 27.5 per Inch  
Thread Count Fill (Metric): 11 per Centimetre  
Thread Count Warp (Imperial): 27.5 per Inch  
Thread Count Warp (Metric): 11 per Centimetre  
Weight (Imperial): 11 oz/yd<sup>2</sup>  
Weight (Metric): 370 g/m<sup>2</sup>, 373 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.01 in, 0.012 in Overall Thickness (Metric): 0.25 mm, 0.3 mm Overall Width (Imperial): 6 in, 36 in Overall Width (Metric): 15.24 cm, 91.44 m, 91.44 cm

## **3M™ Nextel™ Yarn 440**

### **Details**

Multi-strand twisted yarn made from 3M™ Nextel™ 440 continuous ceramic oxide fiber  
Flexible and chemically resistant strand is suitable for textile processing  
Offers flame resistance properties and is electrically insulating  
Excellent mechanical properties at high temperatures  
Non-hygroscopic and non-oxidizing  
Good abrasion resistance  
Very low shrinkage after thermal cycling

### **Typical properties**

Brands: Nextel™  
Denier: 200 Denier, 1000 Denier, 2000 Denier  
Density: 3.05 g/cc  
Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Fiber Input Denier: 1000 Denier, 2000 Denier  
Fiber Twist (Imperial): 2.7 twists/in, 4 twists/in  
Fiber Twist (Metric): 0.069 twists/m, 0.106 twists/m, 0.157 twists/m  
Fiber Type Input: 1/2 Yarn, 2/5 Yarn, 3/4 Yarn, 4/5 Yarn  
Industries: Aerospace, Electrical, Industrial  
Melting Point (Celsius): 1800.0 Degree Celsius  
Melting Point (Fahrenheit): 3272.0 Degree Fahrenheit  
Product Color: Coral  
Product Composition: 440  
Product Type: Yarn  
Yield (Imperial): 104.171 yd/lb  
eClass 14 Classification Group: 23330211

## **3M™ Dyneon™ PTFE TF 1620**

### **Details**

Meets ASTM D4894 Type IV, Grade 2 resin  
Well-suited for billets and thin walled isostatic moldings  
Provides good chemical stability and broad chemical resistance  
Semi-free-flowing compression molding powder with high bulk density  
Provides good electrical and mechanical properties  
Able to mold at lower pressures compared with free-flowing grades

### **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Electrical, Oil & Gas, Rubber and Plastic,  
Transportation  
Net Weight (Imperial): 55 lb, 110 lb  
Net Weight (Metric): 25 kg, 50 kg  
Product Form: Granular  
Specific Gravity: 2.15  
Tensile Strength (Imperial): 4000.0 lb/ft<sup>2</sup>

# 3M™ Dyneon™ Fluoroelastomer FC 2120, 55 lb (25 kg)/Case

3M Product Number FC 2120 3M ID 7000006282 UPC 00051135095621

## Details

Low viscosity fluoroelastomer (FKM)

Versatile use – injection and transfer molding, extrusion and calendaring

Broad temperature and chemical resistance for product durability and longevity

Proprietary incorporated cure technology may help save time and increase throughput

## Typical properties

Brands: Dyneon™

Compression Set: 16 %

Cure Technology: Incorporated Cure

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 65.9 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Post Cure: 24 hr @ 250 °C

Press Cure: 7 min @ 177 °C

Product Color: Off-white

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 2140.0 psi

Tensile Strength (Metric): 14.7 MPa

# 3M™ Dyneon™ Fluoroelastomer FC 2179, 55 lb (24.9 kg) Box

3M Product Number FC 2179 3M ID 7100000508 UPC 00051135092132

## Details

High viscosity fluoroelastomer (FKM) grade  
Broad chemical and temperature resistance for durability and product longevity  
Excellent compression set resistance  
Proprietary incorporated cure technology may help save time and improve throughput

## Typical properties

Brands: Dyneon™  
Compression Set: 10 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2475.0 psi  
Tensile Strength (Metric): 17.1 MPa



## **3M™ Dyneon™ Fluoroelastomer FE 5622Q**

### **Details**

Offers improved scorch resistance at high molding temperatures  
Targeted for bonded shaft seal applications  
Excellent mold release – can be used in automated injection molding equipment  
Proprietary incorporated cure technology may help save time and increase throughput

### **Typical properties**

Compression Set: 18 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb, 1320 lb  
Net Weight (Metric): 25 kg, 598.739 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2350.0 psi  
Tensile Strength (Metric): 16.2 MPa

## 3M Fluoropolymers

# 3M™ Dyneon™ Fluoroelastomer FE 5730

## Details

Proprietary incorporated cure technology may help save time and increase throughput

Bimodal polymer produces smooth extrudates without the use of processing aids

Can be formulated to meet -40°C (-40°F) mandrel bend fuel hose specifications

Can be formulated to yield good permeation resistance to automotive fuels

Broad chemical and temperature resistance

## Typical properties

Compression Set: 45 %

Cure Technology: Incorporated Cure

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 69.2 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 2.2 lb, 55 lb

Net Weight (Metric): 1 kg, 25 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 7 min @ 177 °C

Product Color: Off-white

Shelf Life: 3 Year

Specific Gravity: 1.87

Tensile Strength (Imperial): 1460.0 psi

Tensile Strength (Metric): 10.5 MPa

# **3M™ Dyneon™ Fluoroplastic Granules PFA 6515UHPZ**

3M Product Number PFA 6515UHPZ 3M ID B40070216

## **Details**

- Meets SEMI C90-1015
- Extremely low extractable impurities
- Excellent chemical resistance
- Temperature capability up to 260°C
- Injection moldable

# **3M™ Dyneon™ Fluoroplastic PVDF 2066/0002**

3M Product Number PVDF 2066/0002 3M ID B40070178

## **Details**

- Refractive index similar to water
- Excellent tensile strength and dimensional stability
- Good permeation resistance
- Good chemical resistance
- Suitable for extrusion
- High flex modulus relative to other fluoroplastic materials

# 3M™ Dyneon™ Fluoroplastic Granules THVP 2030GZ

## Details

Highest THV flexibility, optical clarity and light transmission  
Bondable to itself and many other elastomers and plastics  
Resistant to many chemicals and solvents  
Designed for extrusion and molding  
Relatively low temperature processing with a wide processing window  
Co-processable with olefinic plastics and elastomers  
Excellent weatherability

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Industries: Rubber and Plastic  
Net Weight (Imperial): 2.2 lb, 110.25 lb  
Net Weight (Metric): 1 kg, 50 kg  
Product Form: Pellet  
Product Type: THV 200  
Tensile Strength (Imperial): 3300.0 psi, 3370.0 psi  
Tensile Strength (Metric): 23 MPa

## **3M™ Dyneon™ Fluoroelastomer FC 1650, 1485 lb (673.5 kg) box**

3M Product Number FC 1650 3M ID 7100100941 UPC 00051125650618

### **Details**

Medium-viscosity raw gumstock

Used in transfer and injection molding, extrusion, calendering and coatings

Amine or bisphenol curable

### **Typical properties**

Brands: Dyneon™

Compression Set: 15 %

Cure Technology: Bisphenol

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 65.9 %

Industries: Transportation

Net Weight (Imperial): 1485 lb

Net Weight (Metric): 673.581 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 7 min @ 177 °C

Product Color: Straw, White

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 2000.0 psi

Tensile Strength (Metric): 13.8 MPa

# 3M™ Dynamar™ Rubber Curative RC 5120, 7 lb (3 kg) Drum

3M Product Number RC 5120 3M ID 7100148148 UPC 00051135291405

## Details

Fluoroelastomer (FKM) curative for use in solvent-based solution coatings  
Liquid form for fast incorporation of curatives  
Exhibits excellent curative dispersion characteristics  
Light orange in color

## Typical properties

Brands: Dynamar™  
Cure Technology: Rubber Curative  
Factory ISO Certification: No ISO Certification information available  
Features: Increased Production Throughput  
Industries: Rubber and Plastic  
Net Weight (Imperial): 7 lb  
Net Weight (Metric): 3 kg  
Product Color: Light Orange  
Shelf Life: 12 Month  
Specific Gravity: 0.93  
Volume (Imperial): 1 gal  
Volume (Metric): 3.785 L



# **3M Nextel Chopped Fiber 720, Style EC-11, 299 Sizing, 10000 D, 1/4 in Long, per lb**

3M Product Number 720 3M ID 7100217193 UPC 00638060423578

## **Details**

Durable chopped fiber improves mechanical and thermal properties  
Multiple lengths, including custom lengths, available to fit user needs  
Very high creep resistance makes 3M™ Nextel™ Chopped Fiber 720 an excellent choice when making panels  
Chopped fibers help improve thermal shock resistance

## **Typical properties**

Application: Thermal Management, Void Filling  
Brands: Nextel™  
Factory ISO Certification: No ISO Certification information available  
Industries: Aerospace, Industrial  
eClass 14 Classification Group: 23330211

# **3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 932HB**

3M Product Number FPO 932HB 3M ID B40070135

## **Details**

Peroxide-curable, high-fluorine fluoroelastomer (FKM)

Offers improved water, steam, and base resistance when compared to bisphenol cured fluoroelastomers

Possesses good press cure physical properties

Excellent flow properties

## **3M™ 5Ns Ultra High Purity Boron**

3M Product Number 5Ns 3M ID B40066329

### **Details**

Meets specialized needs of silicon wafer industry with 99.999% purity  
Available in a crystalline form with a wide range of available customized particle characteristics  
P-dopant for silicon is one of the best neutron transparent materials available  
Produced by a global leader in enriched boron products

### **Typical properties**

eClass 14 Classification Group: 38120100

# **3M™ Calcium Hexaboride Powders**

3M ID B49000154

## **Details**

Does not reduce electrical conductivity of copper  
Exhibits outstanding heat resistance  
Good chemical resistance

## **Typical properties**

eClass 14 Classification Group: 38120100

# 3M™ Silicon Carbide Gas Seal Rings

3M ID B49000174

## Details

High mechanical strength delivers reliability

Excellent thermal conductivity provides heat tolerance

Tribological performance under high load, including pressure, sliding speed, temperature

Corrosion resistance extends service life

High stiffness improves performance

## **3M™ Silicon Nitride Fuel Pump Roller**

3M ID B40070807

### **Details**

A more durable alternative to conventional rollers

For use in high contact stress applications for light and heavy-duty diesel engines

Provides excellent mechanical reliability at high speeds and loads

60% lighter than steel

Delivers high strength and fracture toughness

Excellent thermal shock resistance

Resistant to wear and erosion

Corrosion and chemical resistant

Offers design flexibility for a customized solution

## **3M™ Titanium Diboride**

3M ID B49000200

### **Details**

Available in powder and final article high density forms

### **Typical properties**

eClass 14 Classification Group: 38120102

# **Bondo® Fiberglass Resin Jelly Kit**

3M ID B40068248

## **Details**

Includes hardener, cloth and spreader for repairing vehicle surfaces  
Features Bondo® Fiberglass Resin Jelly, reinforced with milled fiberglass  
Non-drip resin jelly spreads easily and won't run for cleaner and easier repairs  
Sandable in as little as 20 minutes  
Compatible with most paints  
Waterproof formula works for cars and boats  
Includes Bondo® Red Cream Hardener  
Use during the Fill stage of the 3M™ Body Repair System

## **Typical properties**

Brands: Bondo®  
eClass 14 Classification Group: 31450590



## **3M™ Glass Bubbles HGS5000**

### **Details**

Helps reduce the density of control fluids, including cement slurries, completion and workover fluids

Helps to prevent or minimize fluid loss/lost circulation and formation damage

Incompressible and more homogeneous control fluid properties compared with foamed and aerated systems

Virtually eliminates the need for specialized equipment used in foamed and aerated systems

Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 5500 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 37.92 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Cementing and Drilling Fluids, Mining

Net Weight (Imperial): 3.2 lb, 100 lb, 700 lb

Net Weight (Metric): 1.4 kg, 45.359 kg, 317 kg

Product Usage: Cement, Drilling Fluids

Typical Density: 0.38 g/cc

Typical Median Particle Diameter: 40 µm

## **3M™ Glass Bubbles K46**

### **Details**

Decreases weight and increases buoyancy to improve efficiency and may lower material costs

Decreases thermal conductivity in syntactic foam compositions

Provides excellent water and oil resistance for use in underwater applications

Good strength-to-density ratio for use in a variety of oil and gas applications, including in deep sea oil and gas projects (up to 10,000 ft. /3,000 m.)

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 6000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 41.37 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Construction, Paints and Coatings, Rubber and Plastic, Transportation

Net Weight (Imperial): 2 lb, 10 lb, 125 lb, 785 lb, 825 lb

Net Weight (Metric): 0.9 kg, 4.536 kg, 56.7 kg, 356.07 kg, 374.214 kg

Product Usage: Thermal Insulation

Shape: Thin-walled Hollow Spheres

Typical Density: 0.46 g/cc

Typical Median Particle Diameter: 40 µm

## **3M™ Nextel™ Fabric BF-40, 2000 D, 30 in Wide, per ft**

3M Product Number BF-40 3M ID 7010400941 UPC 00051115230660

### **Details**

Flexible fabric woven from 3M™ Nextel™ 440 High Temperature Continuous Ceramic Oxide Fiber  
Medium weight and air permeability  
Offers flame barrier properties  
Fabric is flexible and chemically resistant  
Good mechanical properties at high temperatures

### **Typical properties**

Brands: Nextel™  
Denier: 2000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 2000 D  
Fiber Type Input: 1/2 Yarn  
Industries: Industrial  
Product Composition: 440  
Thread Count Fill (Imperial): 20 per Inch  
Thread Count Fill (Metric): 8 per Centimetre  
Thread Count Warp (Imperial): 32 per Inch  
Thread Count Warp (Metric): 13 per Centimetre  
Weave: 5 Harness Satin  
Weight (Imperial): 27 oz/yd<sup>2</sup>  
Weight (Metric): 900 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.038 in Overall Thickness (Metric): 0.97 mm  
Overall Width (Imperial): 30 in Overall Width (Metric): 76.2 cm

## **3M™ Nextel™ Fabric BF-40, 2000 D, 36 in Wide, per ft**

3M Product Number BF-40 3M ID 7010402865 UPC 00051115038167

### **Details**

Flexible fabric woven from 3M™ Nextel™ 440 High Temperature Continuous Ceramic Oxide Fiber  
Medium weight and air permeability  
Offers flame barrier properties  
Fabric is flexible and chemically resistant  
Good mechanical properties at high temperatures

### **Typical properties**

Brands: Nextel™  
Denier: 2000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 2000 D  
Fiber Type Input: 1/2 Yarn  
Industries: Industrial  
Product Composition: 440  
Thread Count Fill (Imperial): 20 per Inch  
Thread Count Fill (Metric): 8 per Centimetre  
Thread Count Warp (Imperial): 32 per Inch  
Thread Count Warp (Metric): 13 per Centimetre  
Weave: 5 Harness Satin  
Weight (Imperial): 27 oz/yd<sup>2</sup>  
Weight (Metric): 900 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.038 in Overall Thickness (Metric): 0.97 mm  
Overall Width (Imperial): 36 in Overall Width (Metric): 91.44 cm

## **3M™ Nextel™ Roving 440**

### **Details**

Roving made from 3M™ Nextel™ 440 continuous ceramic oxide fiber  
Flexible and chemically resistant strand is suitable for textile processing  
Offers flame resistance properties and is electrically insulating  
Excellent mechanical properties at high temperatures  
Non-hygroscopic and non-oxidizing  
Good abrasion resistance  
Very low shrinkage after thermal cycling

### **Typical properties**

Brands: Nextel™  
Denier: 20000 Denier  
Factory ISO Certification: No ISO Certification information available  
Industries: Aerospace, Industrial  
Nominal Filament Count: 750  
Product Composition: 440  
Product Type: Roving  
eClass 14 Classification Group: 23330211

# **3M™ Dyneon™ TFM™ Modified PTFE Fine Powder TFM 2001Z, 25 kg (55 lb) Drum**

3M Product Number TFM 2001Z 3M ID 7100090839 UPC 00051135895450

## **Details**

- High molecular weight
- Isotropic mechanical properties
- Smooth surfaces and high transparency
- Very good weldability
- Emulsion polymerization PTFE
- High stress cracking resistance

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: CPI/Semicon, Electrical, Rubber and Plastic, Transportation
- Net Weight (Imperial): 55 lb
- Net Weight (Metric): 25 kg
- Specific Gravity: 2.15
- Tensile Strength (Imperial): 4931.0 lb/ft<sup>2</sup>

# 3M™ Dyneon™ Base Resistant Elastomer BRE 7231

## Details

Improved resistance to many new amine-containing automotive fluids and other basic chemicals  
Offers excellent processability and metal adhesion  
Delivers improved low-temperature sealing performance  
Proprietary incorporated cure technology may help save time and increase throughput  
Categorized as a type 4 FKM per ASTM D1418

## Typical properties

Cure Technology: Incorporated Cure  
Elongation at Break: 210.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Fluorine Content: 60 %  
Industries: Rubber and Plastic  
Net Weight (Imperial): 2.2 lb, 55 lb  
Net Weight (Metric): 1 kg, 25 kg  
Post Cure: 16 hr @ 232 °C  
Press Cure: 10 min @ 177 °C  
Product Color: Straw  
Shelf Life: 3 Year  
Specific Gravity: 1.6  
Tensile Strength (Imperial): 2000.0 psi  
Tensile Strength (Metric): 13.8 MPa

## **3M™ Dyneon™ Fluoroelastomer FC 2178**

### **Details**

High-viscosity gumstock without incorporated curatives  
Used in compression molding  
Can be used to increase viscosity and green strength  
Amine or bisphenol curable

### **Typical properties**

Compression Set: 10 %  
Cure Technology: Raw Gum  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb, 1320 lb  
Net Weight (Metric): 25 kg, 598.739 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 7 min @ 177 °C  
Product Color: Translucent Amber  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2275.0 psi  
Tensile Strength (Metric): 15.7 MPa



## **3M™ Dyneon™ Fluoroelastomer FE 5621**

### **Details**

Low-shrinkage version of 3M™ Dyneon™ Fluoroelastomer FE 5620Q  
Excellent mold release – can be used in automated injection molding equipment  
Improved cure technology resulting in more consistent part size from successive molding cycles  
Offers improved scorch resistance at high molding temperatures

### **Typical properties**

Compression Set: 13 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 55 lb  
Net Weight (Metric): 1 kg, 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2240.0 psi  
Tensile Strength (Metric): 15.4 MPa

# 3M™ Dyneon™ Ultra High Viscosity Fluoroelastomer FC 2299, 25 lb (11 kg) box

3M Product Number FC 2299 3M ID 7100150011 UPC 00051125648714

## Details

Ultra-high viscosity raw gumstock with a Mooney viscosity of approximately 150  
Targeted for compression molding of O-rings, gaskets and seals  
Suitable for use in Oil and Gas applications  
Diamine or bisphenol curable

## Typical properties

Brands: Dyneon™  
Compression Set: 14 %  
Cure Technology: Raw Gum  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: Rubber and Plastic  
Net Weight (Imperial): 25 lb  
Net Weight (Metric): 11.34 kg  
Post Cure: 16 hr @ 250 °C  
Press Cure: 10 min @ 177 °C  
Shelf Life: 3 Year  
Tensile Strength (Imperial): 2139.0 psi  
Tensile Strength (Metric): 14.8 MPa

# 3M™ Dyneon™ Translucent Perfluoroelastomer System PFE 301Z, Kit

3M Product Number PFE 301Z 3M ID 7100044590 UPC 00051135897584

## Details

Phosphorous-free and silica-free formulation reduces the potential for contamination  
Excellent temperature resistance optimizes performance in extreme environments  
Delivers low extractables, outgassing, and particle generation for ultra-high purity applications  
Excellent compression set offers enhanced sealing force retention and seal life  
Proportionate polymer and catalyst simplify the mixing process  
Optically transparent

## Typical properties

Brands: Dyneon™  
Cure Technology: High Temperature  
Elongation at Break: 295.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Productivity Improvement  
Fluorine Content: 72.5 %  
Industries: CPI/Semicon, Rubber and Plastic  
Post Cure: Step Cure  
Press Cure: 10 min @ 165 °C  
Product Color: White  
Shelf Life: 2 Year  
Specific Gravity: 2.1  
Tensile Strength (Imperial): 2750.0 psi  
Tensile Strength (Metric): 18.9 MPa

# **3M™ Dyneon™ Fluoroplastic Agglomerate ET 6210AZ**

3M Product Number ET 6210AZ 3M ID B40070115

## **Details**

- Agglomerate powder form for blended compounds
- Excellent thermal and mechanical properties
- Good chemical resistance
- Low flammability
- Good weldability
- Wide service temperature range
- Good resistance to radiation

# **3M™ Dyneon™ Fluoroplastic PFA 6505TZ, 50 kg (110 lb) box**

3M Product Number PFA 6505TZ 3M ID 7000031894

## **Details**

- Excellent thermal and mechanical properties
- Excellent chemical and flame resistance
- Extrudable, injection moldable, weldable
- Wide service temperature range
- Enhanced color stability in processing

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Electrical, Fuel Cell, Rubber and Plastic
- Net Weight (Imperial): 110.25 lb
- Net Weight (Metric): 50 kg
- Specific Gravity: 2.15
- Tensile Strength (Imperial): 4350.0 psi
- Tensile Strength (Metric): 30 MPa

# 3M™ Dyneon™ Fluoroplastic PVDF 32008/0009

## Details

Excellent flame resistance  
Excellent low flex modulus relative to PVDF homopolymer materials  
Excellent cold brittleness properties  
Suitable for extrusion and injection molding processes

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Industries: Electrical, Rubber and Plastic  
Net Weight (Imperial): 55 lb, 2204 lb  
Net Weight (Metric): 25 kg, 1000 kg  
Tensile Strength (Imperial): 2900.0 psi  
Tensile Strength (Metric): 20 MPa  
Volume (Imperial): 1000 gal  
Volume (Metric): 3785.412 L

# 3M™ Dyneon™ Fluoroplastic Granules THV 815GZ

## Details

- Excellent permeation resistance to hydrocarbon fuels and other chemicals
- Good flexibility, optical clarity and light transmission
- Bondable to itself and many other elastomers and plastics
- Very good resistance to many chemicals
- Broader temperature use range compared to other THV polymers
- Designed for extrusion and molding
- Moderate processing temperature with a wide processing window
- Excellent weatherability
- High transparency
- Bondable to itself and other substrates (for multi-layer constructions)
- Processing profile allows co-processing with other plastics and hydrocarbon elastomers

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Industries: Oil & Gas, Rubber and Plastic, Transportation
- Net Weight (Imperial): 2.2 lb, 110 lb, 440.925 lb
- Net Weight (Metric): 1 kg, 50 kg, 200 kg
- Product Form: Pellet
- Product Type: THV 815
- Tensile Strength (Imperial): 4210.0 psi, 4200.0 psi
- Tensile Strength (Metric): 29 MPa

# 3M™ Dyneon™ Fluoroelastomer FC 1643

## Details

Low-to-medium-viscosity raw gumstock  
Used in transfer and injection molding, extrusion, calendaring and coatings  
Amine or bisphenol curable

## Typical properties

Compression Set: 15 %  
Cure Technology: Bisphenol  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: Transportation  
Net Weight (Imperial): 27.5 lb, 1485 lb  
Net Weight (Metric): 12.474 kg, 673.581 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 7 min @ 177 °C  
Product Color: Straw, White  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 1995.0 psi  
Tensile Strength (Metric): 13.7 MPa



## **3M™ Dynamar™ Rubber Curative RC 5115, 7 lb (3 kg) Drum**

3M Product Number RC 5115 3M ID 7100148140 UPC 00051135291399

### **Details**

Curative has wide range of uses in fluoroelastomer as FKM curative (for use in solvent based solution coatings)

Fast incorporation of curative for more increased production throughput

3M technical service is available for developing custom compound formulations

Excellent curative dispersion characteristics in coatings for improved finished product

### **Typical properties**

Brands: Dynamar™

Cure Technology: Rubber Curative

Factory ISO Certification: No ISO Certification information available

Features: Increased Production Throughput

Industries: Rubber and Plastic

Net Weight (Imperial): 7 lb

Net Weight (Metric): 3 kg

Product Color: Pink

Shelf Life: 12 Month

Specific Gravity: 1.04

Volume (Imperial): 1 gal

Volume (Metric): 3.785 L

# 3M™ Silicon Carbide Blasting Nozzles

3M ID B49000171

## Details

- High resistance to wear extends service life
- Offers resistance to corrosion in aggressive media
- Thermal shock resistance
- Low distortion under thermal loads
- Tribological performance under high load, including pressure, sliding speed, temperature

## **3M™ Silicon Nitride Cam Roller**

3M ID B40070806

### **Details**

Used as part of rocker arm or roller lifter assemblies

Performs well in high-stress environments where traditional metal rollers fail due to galling and contact fatigue

Can be produced to net or near-net shape with close tolerances that can be finish-machined

Resistant to wear and erosion

Delivers high strength and fracture toughness

Excellent thermal shock resistance

Corrosion and chemical resistant

Offers design flexibility for a customized solution

# **3M™ Standard Modular Sliding Bearing Systems**

3M ID B49000199

## **Details**

Attractive pricing due to volume production  
Available in 12 different bearing sizes

# **3M™ Dyneon™ Fluoroplastic PFA 6525TZ, (110 lb), 50 Kg/Box**

3M Product Number PFA 6525T 3M ID 7100089685

## **Details**

- Excellent flame resistance
- Very low dielectric loss
- Good thermal and mechanical properties
- Good chemical resistance
- Extrudable, injection moldable, weldable
- Wide service temperature range
- Enhanced color stability in processing

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Features: Injection Moldable
- Net Weight (Imperial): 110.231 lb
- Net Weight (Metric): 50 kg
- Product Form: Pellet
- Product Usage: General Industrial

## **3M™ Glass Bubbles K42HS**

### **Details**

Reduces thermal expansion and may contribute to cost savings  
Reduces noise and vibration for improved acoustics  
Improved dimensional stability through improved mold filling  
Broad applications in diverse markets for versatile use  
Improves processing throughput for increased, and more, efficient production  
Reduces final part weight without compromising mechanical integrity of the finished product

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 7500 psi (90% Minimum Fractional Survival)  
Crush Strength (Metric): 51.71 MPa (90% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Compounding, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 100 lb, 680 lb, 700 lb  
Net Weight (Metric): 45.359 kg, 308.443 kg, 317.515 kg  
Typical Density: 0.42 g/cc  
Typical Median Particle Diameter: 22 µm

## **3M™ Glass Bubbles XLD3000**

### **Details**

Decreases weight and increases buoyancy for lower density in finished parts  
Versatile use – adaptable to a variety of production processes including high shear liquid mixing systems  
Delivers stable voids for reduced thermal conductivity and dielectric constant in syntactic foams  
Provides excellent water and oil resistance for use in underwater applications  
Very good strength-to-density ratio for use in a variety of construction and oil and gas applications  
Good choice for dead-pressing resistant emulsion explosives

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 3000 psi (90% Minimum Fractional Survival)  
Crush Strength (Metric): 20.68 MPa (90% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic  
Net Weight (Imperial): 1 lb, 10 lb, 50 lb, 330 lb, 375 lb, 14000 lb  
Net Weight (Metric): 0.45 kg, 4.536 kg, 22.68 kg, 149.685 kg, 170.097 kg, 6350.293 kg  
Product Usage: Buoyancy, Thermal Insulation  
Typical Density: 0.23 g/cc  
Typical Median Particle Diameter: 30 µm

## **3M™ Nextel™ Fabric BF-30**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 440 High Temperature Continuous Ceramic Oxide Fiber  
Medium weight and air permeability  
Offers flame barrier properties  
Fabric is flexible and chemically resistant  
Good mechanical properties at high temperatures

### **Typical properties**

Brands: Nextel™  
Denier: 2000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 2000 D  
Fiber Type Input: 1/2 Yarn  
Industries: Aerospace, Industrial  
Thread Count Fill (Imperial): 20 per Inch  
Thread Count Fill (Metric): 8 per Centimetre  
Thread Count Warp (Imperial): 21 per Inch  
Thread Count Warp (Metric): 8 per Centimetre  
Weight (Imperial): 20 oz/yd<sup>2</sup>  
Weight (Metric): 680 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.032 in Overall Thickness (Metric): 0.81 mm  
Overall Width (Imperial): 36 in, 63 in Overall Width (Metric): 91.44 cm, 160 cm, 914.4 mm



## **3M™ Nextel™ Yarn 312**

### **Details**

Multi-strand twisted yarn made from 3M™ Nextel™ 312 continuous ceramic oxide fiber  
Flexible and chemically resistant strand is useful in textile processing  
Offers flame resistance properties and is electrically insulating  
Good mechanical properties at high temperatures  
Non-hygroscopic and non-oxidizing  
Good abrasion resistance  
Low shrinkage after thermal cycling

### **Typical properties**

Denier: 600 Denier, 900 Denier, 1800 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Twist (Imperial): 0.5 twists/in, 1.5 twists/in, 2.4 twists/in, 2.7 twists/in, 4 twists/in  
Fiber Twist (Metric): 0.02 twists/m, 0.059 twists/m, 0.095 twists/m, 0.106 twists/m, 0.157 twists/m  
Fiber Type Input: 1/2 Yarn, 1/4 Yarn, 2/5 Yarn, 4/5 Yarn  
Industries: Aerospace, Electrical, Fuel Cell, Industrial  
Nominal Filament Count: 750  
Product Composition: 312  
Product Type: Roving, Yarn  
eClass 14 Classification Group: 23330211

# 3M™ Dyneon™ PTFE Fine Powder TF 2073Z, 25 kg (55 lb) Drum

3M Product Number TF 2073Z 3M ID 7100090838 UPC 00051135895443

## Details

Emulsion polymerization PTFE suited for paste extrusion processing  
Fine powder grade for extremely high reduction ratio  
Can be used to produce fine extrusions  
Meets ASTM D4895-04 Type 1, Grade 1, Class C classification  
PTFE has broad chemical and high temperature resistance

## Typical properties

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Electrical, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Specific Gravity: 2.17  
Tensile Strength (Imperial): 5076.0 lb/ft<sup>2</sup>

## **3M™ Dyneon™ PTFE Micropowder TF 9207Z, 25 kg (55 lb)/Case**

3M Product Number TF 9207Z 3M ID 7100090844

### **Details**

- Lowers coefficient of friction when blended into other polymers or liquids
- Excellent rheological modifier (thickening agent) for fluid systems
- Improves non-stick properties when blended into formulations
- Broad chemical and thermal stability
- Can be used to improve abrasion resistance
- Highly hydrophobic filler
- Complies with U.S. Food and Drug Administration (FDA) for food contact
- Complies with EU-directive 2002/72/EC for food contact

### **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Paints and Coatings, Rubber and Plastic
- Net Weight (Imperial): 55 lb
- Net Weight (Metric): 25 kg
- Product Form: Micronized Powder

# 3M™ Dyneon™ Fluoroelastomer FE 5620Q

## Details

Low-viscosity version of 3M™ Dyneon™ Fluoroelastomer FE 5640Q  
Excellent mold release – can be used in automated injection molding equipment  
Improved cure technology resulting in more consistent part size from successive molding cycles  
Offers improved scorch resistance at high molding temperatures

## Typical properties

Compression Set: 13 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 55 lb, 1320 lb  
Net Weight (Metric): 1 kg, 25 kg, 598.739 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2240.0 psi  
Tensile Strength (Metric): 15.4 MPa

## **3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 90**

### **Details**

Ideal for various processes for Chemical Processing (CPI), Oil and Gas, and Aerospace

Good compression set resistance

Very low metal ion content with low extractables in a wide range of chemicals

Upper use temperature of 220°C (428°F)

### **Typical properties**

Compression Set: 40 %

Cure Technology: Peroxide

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 72.5 %

Net Weight (Imperial): 2.2 lb, 22 lb

Net Weight (Metric): 1 kg, 10 kg

Post Cure: 16 hr @ 232 °C

Press Cure: 10 min @ 177 °C

Product Color: White

Shelf Life: 2 Year

Specific Gravity: 2.0

Tensile Strength (Imperial): 3035.0 psi

Tensile Strength (Metric): 21.2 MPa

# **3M™ Dyneon™ Fluoroplastic Granules PFA 6502UHPZ**

3M Product Number PFA 6502UHPZ 3M ID B40070157

## **Details**

- Meets SEMI C90-1015
- Extremely low extractable impurities
- Excellent chemical resistance
- Temperature capability up to 260°C
- Wide service temperature range

# 3M™ Dyneon™ Fluoroplastic PVDF 31508/0009

## Details

Excellent flame resistance  
Very low flex modulus relative to PVDF homopolymer materials  
Good cold brittleness properties  
Suitable for extrusion and injection molding processes

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Industries: Electrical, Rubber and Plastic  
Net Weight (Imperial): 55 lb, 2204 lb  
Net Weight (Metric): 25 kg, 1000 kg  
Tensile Strength (Imperial): 4900.0 psi  
Tensile Strength (Metric): 34 MPa  
Volume (Imperial): 1000 gal  
Volume (Metric): 3785.412 L

# 3M™ Dyneon™ Fluoroplastic Granules THV 610GZ

## Details

Very good permeation resistance to hydrocarbon fuels and other chemicals  
High flexibility, optical clarity and light transmission  
Bondable to itself and many other elastomers and plastics  
Good resistance to many chemicals  
Designed for extrusion and molding  
Relatively low temperature processing with a wide processing window  
Excellent weatherability

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Industries: Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 55 lb, 110 lb  
Net Weight (Metric): 1 kg, 25 kg, 50 kg  
Product Form: Pellet  
Product Type: THV 610  
Tensile Strength (Imperial): 4060.0 psi  
Tensile Strength (Metric): 28 MPa



## **3M™ Dyneon™ Fluoroelastomer FC 1630, 1485 lb (673.5 kg) box**

3M Product Number FC 1630 3M ID 7100100940 UPC 00051125650571

### **Details**

Low-viscosity raw gumstock

Used in transfer and injection molding, extrusion, calendering and coatings

Amine or bisphenol curable

### **Typical properties**

Brands: Dyneon™

Compression Set: 16 %

Cure Technology: Bisphenol

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 65.9 %

Industries: Transportation

Net Weight (Imperial): 1485 lb

Net Weight (Metric): 673.581 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 7 min @ 177 °C

Product Color: Straw, White

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 1765.0 psi

Tensile Strength (Metric): 12.2 MPa

# 3M™ Dynamar™ Rubber Curative RC 5110, 7 lb (3 kg) Drum

3M Product Number RC 5110 3M ID 7100148157 UPC 00051135291412

## Details

Fluoroelastomer (FKM) curative for use in solvent-based solution coatings  
Liquid form for fast incorporation of curatives  
Exhibits excellent curative dispersion characteristics  
Amber in color

## Typical properties

Brands: Dynamar™  
Cure Technology: Rubber Curative  
Factory ISO Certification: No ISO Certification information available  
Industries: Rubber and Plastic  
Net Weight (Imperial): 7 lb  
Net Weight (Metric): 3 kg  
Shelf Life: 12 Month  
Specific Gravity: 0.98

## **3M™ Ceramic Microspheres White Grade W-610**

### **Details**

Increase solids and reduce resin demand while maintaining desired properties  
Allows improved viscosity control  
May allow formulations with lower Volatile Organic Compounds (VOCs)  
Scrub, burnish and sag resistance for longevity and improved paint performance  
Enhanced packing and higher filler loading to help reduce costs  
UV transparent down to 250 nm and radiation curable

### **Typical properties**

Color (unaided eye): White, powdery  
Composition: Alkali Alumino Silicate Ceramic  
Crush Strength: >60,000  
Density: 2.4 g/cc  
Factory ISO Certification: No ISO Certification information available  
Net Weight (Imperial): 9 lb, 50 lb, 55 lb, 250 lb, 1000 lb, 2000 lb, 2205 lb  
Net Weight (Metric): 4 kg, 23 kg, 24.945 kg, 113.398 kg, 453.952 kg, 907.185 kg, 1000 kg  
Particle Size (D90 Micron): 32  
Product Color: White  
Shape: Solid Spheroids

## **3M™ Silicon Nitride Valve Ball & Seat**

3M ID B5005310097

### **Details**

Excellent for valves in chemical processing and other industries  
Performs well in harsh conditions where challenging fluids exist  
Corrosion and chemical resistant  
Delivers high strength and fracture toughness  
Resistant to wear and erosion  
Offers design flexibility for a customized solution

# **3M™ Nextel™ Chopped Fiber 610, Style DC-11, 324 Sizing, 10000 D, 1/4 in Long, per lb**

3M Product Number 610 3M ID 7100053443 UPC 00051115166631

## **Details**

Durable chopped fiber improves mechanical and thermal properties  
Multiple lengths, including custom lengths, available to fit user needs  
Chopped fibers help improve thermal shock resistance

## **Typical properties**

Application: Thermal Management, Void Filling  
Brands: Nextel™  
Denier: 10000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 10000 Denier  
Industries: Aerospace, Industrial  
Product Composition: 610  
Product Type: Chopped Fiber  
eClass 14 Classification Group: 23330211

## **Dimensions and Classifications**

Overall Length (Imperial): 0.25 in Overall Length (Metric): 6.35 mm

# **3M™ Dyneon™ Fluoroplastic PVDF 31008/0009, 55 lb (25 kg) bag**

3M Product Number PVDF 31008/0009 3M ID 7100150377 UPC 00051135129678

## **Details**

- Excellent flame resistance
- Good chemical resistance
- Suitable for extrusion and injection molding processes
- Lower flex modulus relative to PVDF homopolymer materials
- Good tensile strength and dimensional stability

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 55 lb
- Net Weight (Metric): 25 kg

# **3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3600ULV**

3M Product Number FPO 3600ULV 3M ID B40070198

## **Details**

- Peroxide curable with good steam and water resistance
- Exhibits excellent flow for molding complex shapes
- Good for making a high solid fluoroelastomer solution with solvents
- Excellent viscosity modifier
- Capable of low-temperature curing

## **3M™ 11B Enriched Boron Trifluoride**

3M Product Number 11B 3M ID B40066322

### **Details**

Greater than 99.9% purity and 99.8% 11B enrichment  
Primarily used in the semiconductor industry, including solar applications  
Excellent p-type dopant

### **Typical properties**

eClass 14 Classification Group: 38120100



# **3M™ Boron Carbide Powders as Boron Source**

3M ID B49000153

## **Typical properties**

eClass 14 Classification Group: 38120102

## **3M™ Friction Shims**

3M ID B49000165

### **Details**

Offers up to 5X increase in the coefficient of static friction even with dissimilar counterparts  
Allows same bolted connection to transmit significantly higher torque loads  
Increases design freedom by enabling higher loads and shear forces without the need to change parts or component sizes  
Simple drop-in solution typically requires no modifications to component design  
Enables downsized components by using smaller and lighter bolts and fasteners

### **Typical properties**

Brands: 3M™  
eClass 14 Classification Group: 21040244

## **3M™ Natural Boron Carbide**

3M ID B40070682

### **Details**

Extensive experience fabricating, cutting and grinding high density boron carbide to meet or exceed customer requirements

Meets existing industry specifications such as ASTM C750 and ASTM C751

Custom synthesis is available for naturally occurring isotopic materials to meet customer specific purity and stoichiometry requirements

### **Typical properties**

Product Usage: Neutron Absorber, Nuclear Fuel, Research  
eClass 14 Classification Group: 38120100

# **3M™ Space Qualified Dispenser Cathodes**

3M ID B49000186

## **Details**

Complete backward and forward material and process traceability  
Certified dimensional data on every cathode produced  
Certified chemical and physical analysis of all involved materials  
100% double inspection ensures that rigid specifications are fully met

## **Typical properties**

Application: Avionics  
eClass 14 Classification Group: 19081301

# 3M™ Evaporation Boat Dimet

3M ID B49000136

## Details

Two-component evaporation boat  
Excellent temperature resistance  
Good corrosion resistance  
High evaporation rate of at least  $0.35 \text{ g} \cdot \text{min}^{-1} \cdot \text{cm}^{-2}$   
Allows for high optical density and web-speed

## Typical properties

eClass 14 Classification Group: 32110400

## **3M™ Fluoro additives LJ-205010, 100 g, 1 Bottle/Case**

3M Product Number ECC-1000 3M ID 7100002329

### **Details**

Creates easy-clean coating for nonporous surfaces such as glass, ceramics and ophthalmic lenses

Provides stain resistance, water and oil repellency for nonporous surfaces

Allows for easy removal of hard water deposits

### **Typical properties**

Application: Non Porous Surface Coating

Brands: 3M™

Composition: 100% Fluorosilane Polymer

Container Volume: 100.0 g

Factory ISO Certification: No ISO Certification information available

Freeze/Thaw Stability: Protect from freezing

Industries: Paints and Coatings

Net Weight (Imperial): 3.527 oz

Net Weight (Metric): 100 g

Product Type: Coating

Type: Fluorinated Silane

Viscosity: 200 - 500

Volume (Imperial): 100 gal

Volume (Metric): 378.541 L

# **Bondo® Fiberglass Resin Jelly**

3M ID B40068250

## **Details**

Fills small holes and can be used with backing strips, fiberglass mat or cloth  
Non-drip resin jelly spreads easily and won't run for cleaner and easier repairs  
Sandable in as little as 20 minutes  
Compatible with most paints  
Waterproof formula works for cars and boats  
Includes Bondo® Red Cream Hardener  
Use during the Fill stage of the 3M™ Body Repair System

## **Typical properties**

Brands: Bondo®  
eClass 14 Classification Group: 31450590

# **3M™ Evaporation Boat 3.0**

3M ID B5005248015

## **Details**

Robustness even under harsh process conditions and high temperatures  
New cavity design/evaporation surface for minimum spitting  
Energy consumption reduced versus 3M legacy boats

## **Typical properties**

eClass 14 Classification Group: 32110400



## **3M™ Glass Bubbles K37**

### **Details**

Decreases weight in paints and thermosets to improve efficiency and may lower costs

Provides excellent water and oil resistance for use in underwater applications

Low surface area enables higher filler loading in paint formulations for reduced costs

Delivers stable voids for reduced thermal conductivity and dielectric constant

Versatile use – adaptable to a variety of production processes including high shear liquid mixing systems

Lightweight filler adds durability and scrub resistance to paint formulations

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 3000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 20.68 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Construction, Mining, Paints and Coatings, Rubber and Plastic, Transportation

Net Weight (Imperial): 1.5 lb, 10 lb, 100 lb, 630 lb

Net Weight (Metric): 0.68 kg, 4.536 kg, 45.4 kg, 285.763 kg, 285.8 kg

Product Usage: Buoyancy, Thermal Insulation

Shape: Thin-walled Hollow Spheres

Typical Density: 0.37 g/cc

Typical Median Particle Diameter: 45 µm

## **3M™ Glass Bubbles S60HS**

### **Details**

Reduce final part weight by 15% or more without compromising mechanical integrity of finished product  
High strength-to-density ratio glass bubble survives high shear, high pressure processes like injection molding and extrusion  
Faster cooling times of melt processed polymers (injection molding and extrusion), typically 15-25% cycle time improvement  
Improved dimensional stability and reduced warpage and sink marks  
Lightweighting helps create more environmentally sustainable products

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 18000 psi (90% Minimum Fractional Survival)  
Crush Strength (Metric): 124.11 MPa (90% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Compounding, Construction, Defense, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 125 lb, 850 lb  
Net Weight (Metric): 0.5 kg, 56.699 kg, 385.554 kg  
Product Usage: Cabin Components  
Typical Density: 0.6 g/cc  
Typical Median Particle Diameter: 30 µm

## **3M™ Nextel™ Fabric BF-20**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 440 High Temperature Continuous Ceramic Oxide Fiber  
Medium weight and low air permeability  
Offers flame barrier properties  
Fabric is flexible and chemically resistant  
Good mechanical properties at high temperatures

### **Typical properties**

Brands: Nextel™  
Denier: 2000 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 2000 D  
Fiber Type Input: Roving  
Industries: Aerospace, Industrial  
Surface Treatment: Heat Cleaned  
Thread Count Fill (Imperial): 26 per Inch  
Thread Count Fill (Metric): 10 per Centimetre  
Thread Count Warp (Imperial): 30 per Inch  
Thread Count Warp (Metric): 12 per Centimetre  
Weave: 5 Harness Satin  
Weight (Imperial): 15 oz/yd<sup>2</sup>  
Weight (Metric): 510 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.02 in, 0.021 in Overall Thickness (Metric): 0.51 mm, 0.53 mm Overall Width (Imperial): 36 in, 63 in Overall Width (Metric): 91.44 cm, 160 cm, 914.4 mm

## **3M™ Nextel™ Roving 312**

### **Details**

Roving form of 3M™ Nextel™ 312 continuous ceramic oxide fiber  
Flexible and chemically resistant strand is useful in textile processing  
Offers flame resistance properties and is electrically insulating  
Very good mechanical properties at high temperatures  
Non-hygroscopic and non-oxidizing  
Good abrasion resistance  
Low shrinkage after thermal cycling

### **Typical properties**

Denier: 600 Denier, 900 Denier, 1800 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Type Input: Served Roving  
Industries: Aerospace, Industrial  
Nominal Filament Count: 400  
Product Composition: 312  
Product Type: Roving  
eClass 14 Classification Group: 23330211

## **3M™ Dyneon™ PTFE Fine Powder TF 2072Z, 25 kg (55 lb) drum**

3M Product Number TF 2072Z 3M ID 7100090837 UPC 00051135895436

### **Details**

Emulsion polymerization PTFE suited for paste extrusion processing  
Fine powder grade for very high reduction ratio  
Can be used to produce fine extrusions  
Meets ASTM D4895-04 Type 1, Grade 1, Class C classification  
PTFE has broad chemical and high temperature resistance

### **Typical properties**

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Electrical, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Specific Gravity: 2.17  
Tensile Strength (Imperial): 5076.0 lb/ft<sup>2</sup>

## **3M™ Dyneon™ PTFE TF 9205**

### **Details**

- Lowers coefficient of friction when blended into other polymers or liquids
- Good rheological modifier (thickening agent) for fluid systems
- Improves non-stick properties when blended into formulations
- Broad chemical and thermal stability
- Can be used to improve abrasion resistance
- Highly hydrophobic filler

### **Typical properties**

- Factory ISO Certification: No ISO Certification information available
- Industries: Paints and Coatings, Rubber and Plastic
- Net Weight (Imperial): 55 lb, 880 lb
- Net Weight (Metric): 25 kg, 400 kg
- Product Form: Micronized Powder

## 3M™ Dyneon™ Fluoroelastomer FC 2176

### Details

Possesses the ability for fast cure cycles with excellent processing safety  
Medium-viscosity copolymer  
Used in compression and transfer molding, extrusion and calendaring  
Proprietary incorporated cure technology may help save time and increase throughput

### Typical properties

Compression Set: 22 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 2.2 lb, 55 lb  
Net Weight (Metric): 1 kg, 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2175.0 psi  
Tensile Strength (Metric): 15 MPa

# 3M™ Dyneon™ Fluoroelastomer FE 5610, 55 lb (25 kg) box

3M Product Number FE 5610 3M ID 7000059283 UPC 00638060426722

## Details

Low viscosity fluoroelastomer (FKM) suitable for use in injection and transfer molding  
Proprietary incorporated cure technology may help save time and increase throughput  
Improved mold release properties and better cure response to higher molding temperatures  
Can be used as a viscosity modifier

## Typical properties

Brands: Dyneon™  
Compression Set: 21 %  
Cure Technology: Incorporated Cure  
Elongation at Break: 210.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 1930.0 psi  
Tensile Strength (Metric): 13.3 MPa



## **3M™ Dyneon™ Fluoroelastomer FX 11818, 55 lb (25 kg) box**

3M Product Number FX 11818 3M ID 7000031921 UPC 00051135029442

### **Details**

Intermediate-fluorine terpolymer for improved fuel resistance over standard copolymers  
Cure level adjusted for applications requiring higher levels of elongation  
Used in extrusion and calendering  
Proprietary incorporated cure technology may help save time and increase throughput

### **Typical properties**

Brands: Dyneon™  
Compression Set: 34 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 68.6 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.86  
Tensile Strength (Imperial): 1800.0 psi  
Tensile Strength (Metric): 12.4 MPa

## **3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 80Z, 2 kg box**

3M Product Number PFE 80Z 3M ID 7000006363

### **Details**

Can be compounded for good acid resistance  
Ideal for wet chemical, fluid handling, cleaning, chemical etching processes, and semiconductor manufacturing  
Very low metal ion content with low extractables in a wide range of chemicals  
Upper use temperature of 200°C (392°F)

### **Typical properties**

Brands: Dyneon™  
Compression Set: 49 %  
Cure Technology: Peroxide  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 72.5 %  
Industries: CPI/Semicon, Rubber and Plastic  
Net Weight (Imperial): 4.41 lb  
Net Weight (Metric): 2 kg  
Post Cure: 16 hr @ 232 °C  
Press Cure: 10 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 2 Year  
Specific Gravity: 2.0  
Tensile Strength (Imperial): 1590.0 psi  
Tensile Strength (Metric): 11 MPa

# 3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3740, 55 lb (25 kg) box

3M Product Number FPO 3740 3M ID 7100148147 UPC 00051135332269

## Details

Peroxide-curable, high-fluorine fluoroelastomer (FKM)  
Offers improved water, steam, and base resistance when compared to bisphenol cured fluoroelastomers  
Possesses good press cure physical properties  
Excellent flow properties

## Typical properties

Brands: Dyneon™  
Compression Set: 40 %  
Cure Technology: Peroxide  
Elongation at Break: 220.0 %  
Factory ISO Certification: No ISO Certification information available  
Features: Productivity Improvement  
Fluorine Content: 69.5 %  
Industries: Rubber and Plastic  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 232 °C  
Press Cure: 10 min @ 177 °C  
Product Color: Translucent  
Shelf Life: 3 Year  
Specific Gravity: 1.88  
Tensile Strength (Imperial): 3300.0 psi  
Tensile Strength (Metric): 22.7 MPa

# **3M™ Dyneon™ Fluoroplastic PFA 6910GZ, 40 kg (88 lb) drum**

3M Product Number PFA 6910GZ 3M ID 7000043051 UPC 00051125647298

## **Details**

- Very fine particle size
- Good thermoplastic machinability
- Outstanding soil and dirt repellency
- Excellent UV stability

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Paints and Coatings, Rubber and Plastic
- Net Weight (Imperial): 88.2 lb
- Net Weight (Metric): 40 kg
- Specific Gravity: 2.15

# 3M™ Dyneon™ Fluoroplastic PVDF 31508/0003

## Details

Very good flame resistance  
Very low flex modulus relative to PVDF homopolymer materials  
Very good cold brittleness properties  
Suitable for extrusion and injection molding processes

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Features: Temperature Resistance  
Industries: Electrical, Rubber and Plastic  
Net Weight (Imperial): 55 lb, 2204 lb  
Net Weight (Metric): 25 kg, 1000 kg  
Tensile Strength (Imperial): 5200.0 psi  
Tensile Strength (Metric): 36 MPa  
Volume (Imperial): 1000 gal  
Volume (Metric): 3785.412 L

# 3M™ Dyneon™ Fluoroplastic THV 505ESDZ, 50 kg (110 lb) Box

3M Product Number THV 505ESDZ 3M ID 7000059162

## Details

- Electrostatic dissipative grade
- Very good permeation resistance to hydrocarbon fuels and other chemicals
- Highly flexible fluoroplastic
- Bondable to itself and many other elastomers and plastics
- Designed for extrusion and molding
- Relatively low temperature processing with a wide processing window
- Co-processable with olefinic plastics and elastomers

## Typical properties

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Rubber and Plastic, Transportation
- Net Weight (Imperial): 110.25 lb
- Net Weight (Metric): 50 kg
- Tensile Strength (Imperial): 2900.0 psi
- Tensile Strength (Metric): 15 MPa

# **3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3730 25 kg (55 lb) box**

3M Product Number FPO 3730 3M ID 7000117409

## **Details**

High-fluorine, peroxide-curable terpolymer  
Intermediate-viscosity fluoroelastomer (FKM) with good processability  
Produces excellent physical properties  
Offers broad chemical resistance  
Can be used in compression, transfer or injection molding, and extrusion processes

## **Typical properties**

Brands: Dyneon™  
Compression Set: 28 %  
Cure Technology: Peroxide  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 69.8 %  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Press Cure: 6 min @ 177 °C  
Product Color: Translucent  
Product Type: Terpolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.9

# 3M™ Dynamar™ Rubber Curative RC 5105, 7 lb (3 kg) Drum

3M Product Number RC 5105 3M ID 7100148141 UPC 00051135291382

## Details

Fluoroelastomer (FKM) curative for use in solvent-based solution coatings  
Liquid form for fast incorporation of curatives  
Exhibits excellent curative dispersion characteristics  
Wine colored

## Typical properties

Brands: Dynamar™  
Cure Technology: Rubber Curative  
Factory ISO Certification: No ISO Certification information available  
Industries: Rubber and Plastic  
Net Weight (Imperial): 7 lb  
Net Weight (Metric): 3 kg  
Shelf Life: 12 Month  
Specific Gravity: 1.19



## **3M™ Ceramic Microspheres White Grade W-410**

### **Details**

Increase solids and reduce resin demand while maintaining desired properties  
Allows improved viscosity control  
May allow formulations with lower Volatile Organic Compounds (VOCs)  
Scrub, burnish and sag resistance for longevity and improved paint performance  
Enhanced packing and higher filler loading to help reduce costs  
UV transparent down to 250 nm and radiation curable

### **Typical properties**

Color (unaided eye): White, powdery  
Composition: Alkali Alumino Silicate Ceramic  
Crush Strength: >60,000  
Density: 2.4 g/cc  
Factory ISO Certification: No ISO Certification information available  
Median Particle Diameter: 4 µm  
Net Weight (Imperial): 9 lb, 50 lb, 55 lb, 1000 lb, 2000 lb, 2205 lb  
Net Weight (Metric): 4 kg, 22.7 kg, 24.945 kg, 453.952 kg, 909 kg, 1000.171 kg  
Particle Size (D90 Micron): 21  
Product Color: White  
Shape: Solid Spheroids

## **3M™ Nextel™ Sewing Thread 440, Style BT-30, per lb**

3M Product Number 440 3M ID 7100037701 UPC 00051115113482

### **Details**

Made from 3M™ Nextel™ 440 high temperature continuous ceramic oxide fiber and containing rayon support fiber

Sewing thread is resilient, abrasion resistant and has good sewing ability

Ideal for use with Nextel 440 textiles including woven fabrics, tapes and braided sleeving

### **Typical properties**

Brands: Nextel™

Breaking Strength (Imperial): 49 lb/in

Breaking Strength (Metric): 22.226 Kilogram per Centimetre

Denier: 1400 Denier

Factory ISO Certification: No ISO Certification information available

Fiber Input Denier: 1400 D

Fiber Type Input: 1/4 Yarn

Product Composition: 440

Thread Yield (Imperial): 720 yd/lb

Thread Yield (Metric): 1451.45 m/kg

# **3M™ Dyneon™ Fluoroplastic PVDF 31008/0003**

3M Product Number PVDF 31008/0003 3M ID B40070331

## **Details**

Very good flame resistance

Good chemical resistance

Suitable for extrusion and injection molding processes

Lower flex modulus relative to PVDF homopolymer materials

Good tensile strength and dimensional stability

## **3M™ Dyneon™ Fluoroelastomer FE 5540**

3M Product Number FE 5540 3M ID B40070264

### **Details**

Low fluorine content terpolymer

Improved low-temperature flexibility over standard copolymers and terpolymers

Used in compression and transfer molding

Delivers good compression set resistance

Clean running with excellent mold release

Proprietary incorporated cure technology may help save time and increase throughput

## **3M™ Dynamar™ Rubber Curative FC 2172**

3M Product Number FC 2172 3M ID B40070131

### **Details**

Fluoroelastomer (FKM) curative accelerator

Can be used to adjust cure speed in bisphenol cured fluoroelastomer grades

## **3M™ 11B Enriched Boron Carbide**

3M Product Number 11B 3M ID B49000145

### **Details**

Extensive experience fabricating, cutting and grinding high density boron carbide to meet or exceed customer requirements

Where necessary, naturally occurring isotopic materials can be synthesized in 3M's high quality process to comply with unique purity and stoichiometry requirements

### **Typical properties**

Product Usage: Nuclear Fuel, Research  
eClass 14 Classification Group: 38120100

## **3M™ Boron Carbide Powders**

3M ID B49000152

### **Details**

Protects carbon-bonded refractory materials against oxidation  
Boron carbide powders exhibit high chemical resistance  
Offers high heat resistance  
High-purity powder

### **Typical properties**

eClass 14 Classification Group: 38120102

# 3M™ Silicon Nitride Electrical Insulator

3M ID B49000181

## Details

For jet engine igniters in applications where aluminum oxide insulators fail  
An excellent choice for components in both aircraft engines and hydraulic systems

Excellent thermal shock resistance

60% lighter than steel

Delivers high strength and fracture toughness

Resistant to wear and erosion

Exhibits nonmagnetic properties and electrical insulation

Corrosion and chemical resistant

Offers design flexibility for a customized solution

High temperature resistance



# **3M™ Silicon Nitride Wear Component**

3M ID B40063148

## **Details**

- Light weight (60% lighter than steel)
- Extremely high hardness
- Contact fatigue resistance
- Excellent fracture toughness
- Superior thermal shock behavior
- Exceptional wear resistance
- High dielectric strength
- Tribological compatibility with metals – low coefficient of friction
- Excellent high temperature oxidation resistance
- High chemical corrosion resistance

## **Typical properties**

Application: Engine

## **3M™ Evaporation Boat Trimet**

3M ID B49000135

### **Details**

Three-component evaporation boat  
Suitable for all machine generations  
Easy wetting and control of operating parameters  
Evaporation rate of  $0.25 \text{ g} \cdot \text{min}^{-1} \cdot \text{cm}^{-2}$   
Only possible alternative for boats longer than 200 mm

### **Typical properties**

eClass 14 Classification Group: 32110400

## **3M™ Nextel™ Fabric AF-8**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 312 High Temperature Continuous Ceramic Oxide Fiber  
Good mechanical properties at high temperatures  
Fabric is thermally and chemically stable  
Thermal shock resistant  
Open leno weave fabric  
Non-hygroscopic for low moisture absorption  
Electrically insulating and low thermal conductivity

### **Typical properties**

Brands: Nextel™  
Denier: 600 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 600 D  
Fiber Type Input: Served Roving  
Industries: Industrial  
Product Composition: 312  
Thread Count Fill (Imperial): 10 per Inch  
Thread Count Fill (Metric): 3.9  
Thread Count Warp (Imperial): 20 per Inch  
Thread Count Warp (Metric): 7.9 per Centimetre  
Weight (Imperial): 2.4 oz/yd<sup>2</sup>, 3.3 oz/yd<sup>2</sup>  
Weight (Metric): 81 g/m<sup>2</sup>, 110 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.009 in, 0.015 in Overall Thickness (Metric): 0.23 mm, 0.38 mm Overall Width (Imperial): 38 in Overall Width (Metric): 10.16 cm, 96.52 cm

## **3M™ Nextel™ Tape BP-18**

### **Details**

Made of woven Nextel™ 440 high temperature continuous oxide ceramic fiber  
Woven tapes are permeable, lightweight, flexible and chemically inert  
Has stabilized edges due to weave design (closed selvage)  
Designed to maintain flexibility at extremely high temperatures

### **Typical properties**

Brands: Nextel™  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1000  
Fiber Type Input: 1/2 Yarn  
Product Composition: 440  
Weight (Metric): 15.2 g/m<sup>2</sup>  
eClass 14 Classification Group: 23330211

### **Dimensions and Classifications**

Overall Length (Imperial): 300 ft Overall Length (Metric): 91.44 m Overall  
Thickness (Imperial): 0.019 in, 0.02 in Overall Thickness (Metric): 0.48 mm, 0.51  
mm Overall Width (Imperial): 1 in, 1.5 in, 2 in Overall Width (Metric): 2.54 cm,  
5.08 cm, 38.1 mm

# **3MT DyneonT PTFE Fine Powder TF 2071USZ, 25 kg (55 lb) Drum**

3M Product Number TF 2071USZ 3M ID 7000145547 UPC 00051135895375

## **Details**

Tailored for extrusion of wire and cable insulation, tapes, tubes, liners and profiles

Includes standard grades of unmodified PTFE as well as modified grades of TFM™ PTFE

## **Typical properties**

Brands: Dyneon™

Factory ISO Certification: No ISO Certification information available

Features: Chemical Resistance, Temperature Resistance

Industries: CPI/Semicon, Electrical, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

# **3M™ Dyneon™ PTFE Micropowder TF 9201Z, 25 kg (55 lb)/Case**

3M Product Number TF 9201Z 3M ID 7000059145 UPC 00051135896570

## **Details**

Additive to improve non-stick properties

## **Typical properties**

Brands: Dyneon™

Factory ISO Certification: No ISO Certification information available

Industries: Paints and Coatings, Rubber and Plastic

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Product Form: Micronized Powder

# 3M™ Dyneon™ Fluoroelastomer FC 2174

## Details

Offers excellent compression set resistance  
Medium-viscosity copolymer  
Used in compression and transfer molding, extrusion and calendaring  
Proprietary incorporated cure technology may help save time and increase throughput

## Typical properties

Compression Set: 12 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb, 1320 lb  
Net Weight (Metric): 25 kg, 598.739 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2450.0 psi  
Tensile Strength (Metric): 16.9 MPa

# 3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 60

3M ID B40070300

## Details

Ideal for wet chemical, fluid handling, cleaning and chemical etching processes  
Low viscosity provides good mold flow, and is ideal for molding large parts  
Offers improved mold flow and knitting over 3M™ Dyneon™ PFE 80Z and PFE 90  
Delivers good compression set resistance  
Very low metal ion content with low extractables in a wide range of chemicals  
Upper use temperature of 220°C (428°F)



# 3M™ Dyneon™ Peroxide Cure Fluoroelastomer FLS 2650, 25 kg (55 lb)/Case

3M Product Number FLS 2650 3M ID 7000006288 UPC 00051135028346

## Details

High-fluorine, peroxide-curable terpolymer  
Offers improved water and steam resistance over conventional fluoroelastomers (FKM)  
Can be used in blends with fluorosilicone, silicone, EDPM and other peroxide-curable elastomers  
Used in transfer and compression molding  
Allows for vulcanization of thick cross-section parts without fissuring

## Typical properties

Brands: Dyneon™  
Compression Set: 28 %  
Cure Technology: Peroxide  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 70.3 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 15 min @ 177 °C  
Product Color: Translucent Amber  
Product Type: Terpolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.89  
Tensile Strength (Imperial): 2600.0 psi  
Tensile Strength (Metric): 18 MPa

# **3M™ Dyneon™ Fluoroplastic Dispersion PFA 6900GZ**

## **Details**

- Large operating temperature range
- Almost universal chemical resistance
- Approved for use with repeated food contact
- Dispersion has a high shear stability
- Low settling tendency
- Improved film formation
- Non-stick properties

## **Typical properties**

- Factory ISO Certification: No ISO Certification information available
- Industries: Fuel Cell, Paints and Coatings, Rubber and Plastic
- Net Weight (Imperial): 88.2 lb, 2200 lb
- Net Weight (Metric): 40 kg, 1000 kg
- Product Form: Dispersion
- Specific Gravity: 2.15

# **3M™ Dyneon™ Fluoroplastic PVDF 11010/0000**

## **Details**

Good permeation resistance  
Good chemical resistance  
Suitable for extrusion and compression/injection molding applications  
Lower flex modulus relative to PVDF homopolymer materials  
Very good tensile strength compared to other PVDF copolymers

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Industries: Fuel Cell, Rubber and Plastic  
Net Weight (Imperial): 55 lb, 2204 lb  
Net Weight (Metric): 25 kg, 1000 kg  
Tensile Strength (Imperial): 5800.0 psi  
Tensile Strength (Metric): 40 MPa

# 3M™ Dyneon™ Fluoroplastic Granules THV 500GZ

## Details

- Very good permeation resistance to hydrocarbon fuels and other chemicals
- High flexibility, optical clarity and light transmission
- Bondable to itself and many other elastomers and plastics
- Good resistance to many chemicals
- Designed for extrusion and molding
- Relatively low temperature processing with a wide processing window
- Co-processable with olefinic plastics and elastomers
- Excellent weatherability
- E-beam curable with or without pro-rads
- Bondability to many elastomers and plastics
- Good chemical resistance
- Low temperature processability

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Industries: Electrical, Oil & Gas, Rubber and Plastic, Transportation
- Net Weight (Imperial): 2.2 lb, 110 lb, 1102.5 lb
- Net Weight (Metric): 1 kg, 50 kg, 500 kg
- Product Form: Pellet
- Product Type: THV 500
- Tensile Strength (Imperial): 4060.0 psi
- Tensile Strength (Metric): 28 MPa

# **3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3520, Low F Peroxide, 55 lb Box**

3M Product Number FPO 3520 3M ID 7100010257 UPC 00051125649964

## **Details**

Offers improved water, steam and base resistance over conventional fluoroelastomers

Processes comparably to other peroxide-cured elastomers

Can be used in blends with other peroxide-curable elastomers

Can be vulcanized by peroxides, diphenols and diamines

## **Typical properties**

Brands: Dyneon™

Compression Set: 28 %

Cure Technology: Peroxide

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 65.5 %

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Post Cure: 16 hr @ 230 °C

Press Cure: 10 min @ 177 °C

Product Color: Translucent

Shelf Life: 3 Year

Specific Gravity: 1.75

# 3M™ Dynamar™ Rubber Curative FX 5166

## Details

Functions as a cure accelerator for fluoroelastomers (FKM) and ECO  
Used as part of a cure system for vulcanizing polyepichlorohydrin elastomers  
Delivered in pellet form

## Typical properties

Cure Technology: Rubber Additive, Rubber Curative  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 0.22 lb, 25 lb, 48 lb  
Net Weight (Metric): 11.3 kg, 21.7 kg, 100 g  
Product Color: White  
Product Type: Rubber Chemical  
Shelf Life: 2 Year  
Tensile Strength (Imperial): 1848.0 psi  
Tensile Strength (Metric): 12.73 MPa

## **3M™ Nextel™ Sewing Thread 312**

### **Details**

Made from 3M™ Nextel™ 312 high temperature continuous ceramic oxide fiber and wrapped with rayon support fiber

Sewing thread is resilient, abrasion resistant and has good sewing ability

Ideal for use with Nextel 312 textiles including woven fabrics, tapes and braided sleeving

### **Typical properties**

Breaking Strength (Imperial): 33 lb/in, 50 lb/in

Breaking Strength (Metric): 14.969 Kilogram per Centimetre, 22.68 Kilogram per Centimetre

Denier: 600 Denier, 1200 Denier

Factory ISO Certification: No ISO Certification information available

Fiber Input Denier: 600 D, 1200 D

Fiber Type Input: 1/4 Yarn

Product Composition: 312

Thread Yield (Imperial): 820 yd/lb, 1590 yd/lb

Thread Yield (Metric): 1430.6 m/kg, 3205.292 m/kg

# 3M™ Dyneon™ Fluoroplastic PVDF 6133

3M Product Number PVDF 6133 3M ID B40070188

## Details

- Refractive index similar to water
- Excellent tensile strength and dimensional stability
- Good permeation resistance
- Good chemical resistance
- Suitable for extrusion
- High flex modulus relative to other fluoroplastic materials



# **3M™ Dyneon™ Fluoroplastic PFA 8502ESDZ**

3M Product Number PFA 8502ESDZ 3M ID B40070272

## **Details**

- Electrostatic dissipative compound
- Good stress-crack resistance
- Good thermal and mechanical properties
- Extrudable, moldable, weldable
- Wide service temperature range

# 3M™ Dyneon™ Fluoroplastic Powder FEP 6322PZ

## Details

- High thermal stability
- Wide processing window
- Excellent chemical resistance
- Good non-stick performance
- Low friction

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 35 lb, 180 lb
- Net Weight (Metric): 15.876 kg, 81.6 kg
- Product Form: Powder

## **3M™ 11B Enriched Boron**

3M Product Number 11B 3M ID B40066328

### **Details**

Crystalline products enriched in 10B are also manufactured at 3M Quapaw, which is a high purity elemental product and is available in a wide variety of enrichments

11B enriched boron is also suitable for unique applications in the nuclear power industry where neutron transparency and material purity is of critical importance

### **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ Boron Carbide Fillers**

3M ID B49000151

### **Details**

High hardness (9.5+ Mohs)  
High boron content (almost 80%)  
High heat and chemical resistance  
Available in grain sizes from 0.8 µm to over 20 µm

### **Typical properties**

eClass 14 Classification Group: 38120102

# 3M™ Silicon Nitride Cylindrical Roller Component

3M ID B40070805

## Details

Designed to operate at lower noise levels, faster speeds, and higher stress levels than metal rollers — with less lubrication required

Exhibits high tribological compatibility, helping them experience reduced friction when in contact with cast iron or steel

60% lighter than steel

Enables electrically insulating bearings

Delivers high strength and fracture toughness

Resistant to wear and erosion

Corrosion and chemical resistant

Offers design flexibility for a customized solution

## **3M™ Glass Bubbles HGS4K28**

### **Details**

Lowest density 4,000 psi product in the 3M™ Glass Bubble HGS Series portfolio offering

Premium Product

Low density-to-strength ratio

Helps reduce the density of cement slurries

Helps to prevent or minimize fluid loss/lost circulation and formation damage

Incompressible and more homogeneous cement slurry properties compared with foamed cements

Virtually eliminates the need for specialized equipment used in foamed systems

Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 4000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 0.028 MPa, 27.58 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Cementing and Drilling Fluids

Net Weight (Imperial): 88.185 lb, 99.208 lb, 462.971 lb, 507.15 lb

Net Weight (Metric): 40 kg, 45 kg, 210 kg, 230 kg

Product Usage: Cement, Drilling Fluids

Typical Density: 0.28 g/cc

Typical Median Particle Diameter: 30 µm

# **3M™ Advanced Metal Matrix Composite**

3M ID B5005056390

## **Details**

- High 10B areal density
- High thermal conductivity
- Excellent clad-to-core-bonding
- Very low porosity

## **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ Boron Nitride Cooling Filler Platelets**

3M ID B5005473002

### **Details**

Single platelets for increased in-plane thermal conductivity  
Excellent for thermally conductive thermoplastics and thermosets  
Available in grades optimized for injection molded parts  
Highly crystalline particle sizes start at 0.5 - 15µm  
High electrical insulation properties with low Dk and Df

### **Typical properties**

Application: Increasing Thermal Conductivity  
Product Usage: Adhesives, Coatings, Electronic Overmoldings, Gap Fillers,  
Greases, Heat Sinks, Housings, Prepregs, TIM Foils  
eClass 14 Classification Group: 38120131



# **3M™ Boron Nitride Cooling Filler Flakes**

3M ID B5005473001

## **Details**

Hard agglomerates from oriented platelets increase in-plane and through-plane thermal conductivity of finished plastic parts  
Used for adding thermal conductivity to thermoplastic polymers, thermosets and elastomers  
High electrical insulation properties with low Dk and Df  
Grades available for controlled low viscosity  
Excellent as secondary fillers for boosting thermal conductivity in compounds

## **Typical properties**

Application: Electrical Insulating  
Product Usage: Heat Sinks, Housings, Potting Resins  
eClass 14 Classification Group: 38120131

# **3M™ Boron Nitride Cooling Filler Agglomerates**

3M ID B5005473000

## **Details**

Randomly orientated agglomerated single platelets for high through-plane thermal conductivity  
Delivers excellent heat dissipation for protection of sensitive components  
Isotropic heat transfer compared to platelets  
Soft bulk agglomerates adapt to matrix, helping maintain flexibility  
Excellent for conformable thermal interface materials (TIMs)  
High electrical insulation properties with low Dk and Df

## **Typical properties**

Application: Increasing Thermal Conductivity  
Product Usage: Electronic Overmoldings, Gap Fillers, Greases, Potting Resins, TIM Foils, TIM Pads  
eClass 14 Classification Group: 38120131

## 3M™ Glass Bubbles K20

### Details

Decreases density and increases buoyancy to help improve efficiency and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Stable voids for low thermal conductivity and reduced dielectric constant  
Versatile use – adaptable to a variety of production processes  
Low density, chemically stable bubbles are ideal additives for emulsion explosives

### Typical properties

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 500 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 3.45 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Insulation and Buoyancy, Mining, Paints and Coatings, Transportation  
Net Weight (Imperial): 0.5 lb, 10 lb, 60 lb, 335 lb, 340 lb, 360 lb, 12800 lb  
Net Weight (Metric): 0.2 kg, 4.536 kg, 27 kg, 152 kg, 154.221 kg, 163 kg, 5805.982 kg  
Product Usage: Buoyancy, Insulation  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.2 g/cc  
Typical Median Particle Diameter: 60 µm

## **3M™ Nextel™ Fabric AF-62**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 312 high temperature continuous ceramic oxide yarn  
Good mechanical properties at high temperatures  
Thermally and chemically stable  
Thermal shock resistant  
Electrically insulating and low thermal conductivity

### **Typical properties**

Brands: Nextel™  
Denier: 1800 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1800 D  
Fiber Type Input: 1/2 Yarn  
Industries: Industrial  
Product Composition: 312  
Thread Count Fill (Imperial): 20 per Inch  
Thread Count Fill (Metric): 8 per Centimetre  
Thread Count Warp (Imperial): 40 per Inch  
Thread Count Warp (Metric): 16 per Centimetre  
Weight (Imperial): 29 oz/yd<sup>2</sup>  
Weight (Metric): 980 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.055 in Overall Thickness (Metric): 1.4 mm Overall Width (Imperial): 4 in, 12 in, 30 in Overall Width (Metric): 10.16 cm, 30.48 cm, 76.2 cm

## **3M™ Nextel™ Tape AP-18**

### **Details**

Made of woven 3M™Nextel™ 312 high temperature continuous oxide ceramic fiber

Woven tapes are permeable, lightweight, flexible and chemically inert

Has stabilized edges due to weave design (closed selvage)

Designed to maintain flexibility at high temperatures

### **Typical properties**

Breaking Strength without Sizing (Imperial): 160 lb/ft<sup>2</sup>

Breaking Strength without Sizing (Metric): 29 Kilogram per Centimetre

Density: 2.7 g/cc

Factory ISO Certification: No ISO Certification information available

Fiber Input Denier: 900

Fiber Type Input: 1/2 Yarn

Product Composition: 312

Weight (Imperial): 0.31 oz/yd<sup>2</sup>, 0.45 oz/yd<sup>2</sup>, 0.6 oz/yd<sup>2</sup>

Weight (Metric): 9.6 g/m<sup>2</sup>, 14 g/m<sup>2</sup>, 18.6 g/m<sup>2</sup>

eClass 14 Classification Group: 23330211

### **Dimensions and Classifications**

Overall Length (Imperial): 300 ft Overall Length (Metric): 91.44 m Overall

Thickness (Imperial): 0.019 in, 0.02 in Overall Thickness (Metric): 0.48 mm, 0.51

mm Overall Width (Imperial): 1 in, 1.5 in, 2 in Overall Width (Metric): 2.54 cm,

5.08 cm, 38.1 mm

## **3M™ Dyneon™ PTFE Fine Powder TF 2053Z, 25 kg (55 lb) Drum**

3M Product Number TF 2053Z 3M ID 7000059141 UPC 00051135895368

### **Details**

Emulsion polymerization PTFE suited for paste extrusion processing  
Fine powder grade for medium reduction ratio with high green strength  
Meets ASTM D4895-04 Type 1, Grade 1, Class C classification  
PTFE has broad chemical and high temperature resistance

### **Typical properties**

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Electrical, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Specific Gravity: 2.16  
Tensile Strength (Imperial): 4641.0 lb/ft<sup>2</sup>

# 3M™ Dyneon™ Fluoroelastomer FC 2170, 55 lb (25 kg) box

3M Product Number FC 2170 3M ID 7100020163 UPC 00051135091494

## Details

Low permeation, 66% fluorine and intermediate viscosity

Proprietary incorporated cure technology may help save time and improve throughput

Broad chemical and temperature resistance for durability and product longevity

## Typical properties

Brands: Dyneon™

Compression Set: 16 %

Cure Technology: Incorporated Cure

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 65.9 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 7 min @ 177 °C

Product Color: Off-white

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 2150.0 psi

Tensile Strength (Metric): 14.8 MPa

## 3M™ Dyneon™ Fluoroelastomer FC 2260, 55 lb (25 kg)/Case

3M Product Number FC 2260 3M ID 7000006284 UPC 00051135022214

### Details

Offers improved water and steam resistance over conventional fluoroelastomers (FKM)

Can be used in blends with fluorosilicone, silicone, EDPM and other peroxide-curable elastomers

Used in transfer molding, compression molding and calendaring

Vulcanization of thick cross-section parts without fissuring

Peroxide-curable fluoroelastomer with 65.9% fluorine content

### Typical properties

Brands: Dyneon™

Compression Set: 25 %

Cure Technology: Raw Gum

Elongation at Break: 225.0 %

Factory ISO Certification: No ISO Certification information available

Features: Temperature Resistance

Fluorine Content: 65.9 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Post Cure: 24 hr @ 233 °C

Press Cure: 7 min @ 177 °C

Product Color: Translucent Amber

Product Usage: Coatings

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 2345.0 psi

Tensile Strength (Metric): 16.2 MPa



## **3M™ Dyneon™ Fluoroelastomer FT 2481, 55 lb (25 kg) box**

3M Product Number FT 2481 3M ID 7100023086 UPC 00051135095591

### **Details**

Made of terpolymer gumstock without incorporated curatives, allowing compounders to create their own cure package  
Improved retention of elongation after long-term heat aging, compared with conventional 66% fluorine fluoropolymers  
3M™ Dyneon™ Fluoroelastomer FT 2481 is amine or bisphenol curable and can be used in compression molding  
Improved acid resistance, and resistance to volume swell by organic solvents, compared with conventional 66% fluorine fluoropolymers

### **Typical properties**

Brands: Dyneon™  
Compression Set: 24 %  
Cure Technology: Raw Gum  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 68.6 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 7 min @ 177 °C  
Product Color: Translucent Amber  
Product Type: Terpolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.86  
Tensile Strength (Imperial): 2200.0 psi  
Tensile Strength (Metric): 15.2 MPa

# 3M™ Dyneon™ Fluoroplastic Granules PFA 6502TZ

## Details

- Excellent thermal and mechanical properties
- Excellent chemical and flame resistance
- Extrudable, moldable, weldable
- Wide service temperature range
- Enhanced color stability in processing

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Features: Injection Moldable
- Industries: CPI/Semicon, Rubber and Plastic
- Net Weight (Imperial): 110 lb, 1984.5 lb
- Net Weight (Metric): 50 kg, 900 kg
- Product Form: Pellet
- Product Usage: General Industrial
- Specific Gravity: 2.15
- Tensile Strength (Imperial): 4350.0 psi
- Tensile Strength (Metric): 30 MPa

# 3M™ Dyneon™ Fluoroplastic PVDF 11008/0003

## Details

- Very good flame resistance
- Good chemical resistance
- Suitable for extrusion and injection molding processes
- Lower flex modulus relative to PVDF homopolymer materials
- Good tensile strength and dimensional stability

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Industries: Electrical, Rubber and Plastic
- Net Weight (Imperial): 55 lb, 2204.62 lb
- Net Weight (Metric): 25 kg, 1000 kg
- Product Type: PVDF-HFP Copolymer
- Tensile Strength (Imperial): 5800.0 psi
- Tensile Strength (Metric): 40 MPa

# 3M™ Dyneon™ Fluoroplastic Granules THV 221GZ

## Details

Exceptional flexibility, optical clarity and light transmission  
Bondable to itself and many other elastomers and plastics  
Resistant to many chemicals  
Designed for extrusion and molding  
Relatively low temperature processing with a wide processing window  
Co-processable with olefinic plastics and elastomers  
Excellent weatherability

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Industries: Rubber and Plastic  
Net Weight (Imperial): 2.2 lb, 55 lb, 110 lb  
Net Weight (Metric): 1 kg, 25 kg, 50 kg  
Product Form: Pellet  
Product Type: THV 200  
Tensile Strength (Imperial): 2900.0 psi  
Tensile Strength (Metric): 20 MPa

# **3M™ Dyneon™ Modified PTFE Powder TFM 1700, 25 kg (55 lb) box**

3M Product Number TFM 1700 3M ID 7100090786 UPC 00051135125519

## **Details**

Meets ASTM D 4894 Type III, Grade 1  
Modified PTFE grade  
Well-suited for large billets and very thin skived film  
Provides good chemical stability and broad chemical resistance  
Non-free flowing powder grade provides good electrical and mechanical properties  
Excellent operating temperature range

## **Typical properties**

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Rubber and Plastic  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Product Form: Granular

# **3M™ Dynamar™ High Performance Rubber Additive RA 5300**

## **Details**

High-performance rubber additive for fluoroelastomer (FKM) compounds  
Provides improved smoothness and mold release for FKM extrusions and compounds  
Delivers exceptional processing performance with limited property loss  
Exhibits excellent thermal stability  
Ideal for many FKM tube, profile and pre-form extrusions, plus injection and transfer molding

## **Typical properties**

Factory ISO Certification: No ISO Certification information available  
Features: Increased Production Throughput  
Industries: Rubber and Plastic  
Net Weight (Imperial): 2 lb, 25 lb  
Net Weight (Metric): 0.907 kg, 11 kg  
Product Color: White

## **3M™ 11B Enriched Boric Acid**

3M Product Number 11B 3M ID B40066321

### **Details**

Custom enrichments are available for applications that require characteristics above standard product offerings or where higher purity is required

### **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ Ion Laser Cathodes**

3M ID B49000168

### **Details**

Typical discharge currents range from 5 to 50 amps  
Customized lead size and configuration for easy installation  
Available in various custom configurations to meet your application requirements

### **Typical properties**

Application: Avionics  
eClass 14 Classification Group: 19081301



## **3M™ Silicon Nitride Check Valve Ball**

3M ID B10452761

### **Details**

- Designed for excellent performance in tough underwater conditions
- Material helps provide longer component lifecycle
- Tolerates extreme temperatures and crushing pressures
- Resistant to wear and erosion
- Corrosion and chemical resistant
- Excellent thermal shock resistance
- Exhibits nonmagnetic properties and electrical insulation
- Offers design flexibility for a customized solution
- High temperature resistance

# **3M™ Silicon Nitride Telemetry Tooling**

3M ID B40070804

## **Details**

Provides high dielectric strength

Exhibits nonmagnetic properties

Silicon nitride offers high strength and fracture toughness

Resists corrosion and wear in extreme environments

Weighs less than metal, yet offers exceptional strength

# 3M™ Dyneon™ Cure-in-Place Gasket CIPG 1951

3M ID B40070088

## Details

Outstanding permeation resistance to oxygen and hydrogen gas - helps extend fuel cell service life

Excellent chemical resistance (exceptions include amines, bases and polar organic solvents)

Contains no silicones

High service temperature (up to 200°C)

Smooth surface lays flat to allow a level fuel stack

Roll format ideal for automation and scaling

## **3M™ Neutron Quench (Experimental Product\*)**

3M ID B49000205

### **Details**

Boron content up to 80 wt% (compared to 16 wt% for boric acid and sodium pentaborate)

High water solubility allows smaller footprint for emergency shutdown pools

High solubility may reduce crystallization and deposition in power plant systems decreasing corrosion

May reduce or eliminate need for pool heating and heat tracing of lines

Thermally stable at temperatures >500°C

### **Typical properties**

eClass 14 Classification Group: 38120100

## **3M™ Glass Bubbles K15**

### **Details**

Decreases density and increases buoyancy and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Stable voids for low thermal conductivity and reduced dielectric constant  
Versatile use – adaptable to a variety of production processes  
Low density, chemically stable bubbles are ideal additives for emulsion explosives

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 300 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 2.07 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Mining, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 0.5 lb, 10 lb, 50 lb, 250 lb, 260 lb, 9500 lb  
Net Weight (Metric): 0.2 kg, 4.536 kg, 23 kg, 113 kg, 113.398 kg, 117.934 kg, 4309.128 kg  
Product Usage: Buoyancy  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.15 g/cc  
Typical Median Particle Diameter: 60 µm

# **3M™ Boron Carbide Abrasive Powders**

3M ID B49000148

## **Details**

Achieves high removal rates in lapping, wire sawing and ultrasonic drilling  
Narrow grain-size distribution delivers high surface quality  
High removal rates allow rapid machining  
Provides uniform grinding, even at high temperatures

## **Typical properties**

Application: Finishing, Grinding  
eClass 14 Classification Group: 38120102

# **3M™ Hydrodynamic Thrust Bearings**

3M ID B40070814

## **Details**

Lower frictional losses improve motor efficiency  
Extended bearing service life  
High temperature capability (>650°F)  
Operates in oil process fluid or contaminated lubricants

## **Typical properties**

eClass 14 Classification Group: 37010301

# **3M™ Silicon Nitride Ball Bearing Component**

3M ID B49000180

## **Details**

A highly effective material for use in hybrid and ceramic ball bearings

Enables electrically insulating bearings

Unique combination of material properties helps them enable higher speeds, better performance and longer life

Able to be polished to excellent finishes

60% lighter than steel

Delivers high strength and fracture toughness

Resistant to wear and erosion

Corrosion and chemical resistant



## **3M™ Silicon Nitride Sand Blast Nozzle Liner**

3M ID B40070809

### **Details**

- For use in both wet and dry blasting operations
- Allows a higher exit velocity when sand blasting larger surfaces areas
- 60% lighter than steel for easier manual handling
- Delivers high strength and fracture toughness
- Excellent thermal shock resistance
- Resistant to wear and erosion
- Corrosion and chemical resistant
- Offers design flexibility for a customized solution

## **3M™ Vortex Generators**

3M ID B5005112064

### **Details**

Made of a highly durable thermoplastic with dimensional stability, strength, and excellent weathering resistance  
Equipped with 3M Acrylic Foam Tape die-cuts that provide long-term durability and holding power

## **3M™ Glass Bubbles K11**

### **Details**

Decreases weight, increases buoyancy and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Stable voids for low thermal conductivity and reduced dielectric constant  
Versatile use – adaptable to a variety of production processes  
Enhances features in sporting goods for improved product

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 200 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 1.38 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Paints and Coatings, Transportation  
Net Weight (Imperial): 180 lb, 225 lb  
Net Weight (Metric): 81.647 kg, 102.058 kg  
Typical Density: 0.11 g/cc  
Typical Median Particle Diameter: 65 µm

## **3M™ Nextel™ Fabric AF-30**

### **Details**

Flexible fabric woven from 3M™ Nextel™ 312 high temperature continuous ceramic oxide yarn  
Medium weight and medium-high air permeability  
Offers flame barrier properties  
Fabric is flexible and chemically resistant  
Good mechanical properties at high temperatures

### **Typical properties**

Brands: Nextel™  
Denier: 1800 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 1800 D  
Fiber Type Input: 1/2 Yarn  
Industries: Aerospace, Industrial  
Surface Treatment: Heat Cleaned, Heat Treated  
Thread Count Fill (Imperial): 18 per Inch  
Thread Count Fill (Metric): 7 per Centimetre  
Thread Count Warp (Imperial): 19 per Inch  
Thread Count Warp (Metric): 7 per Centimetre  
Weight (Imperial): 18 oz/yd<sup>2</sup>  
Weight (Metric): 610 g/m<sup>2</sup>

### **Dimensions and Classifications**

Overall Thickness (Imperial): 0.03 in, 0.032 in Overall Thickness (Metric): 0.76 mm, 0.81 mm Overall Width (Imperial): 36 in Overall Width (Metric): 91 cm, 91.44 cm, 914.4 mm

# 3M™ Nextel™ Sleeving AS-40

## Details

Flexible braided sleeving from 3M™ Nextel™ 312 high temperature continuous ceramic oxide yarn  
Protective and conformable tubular shape  
Good chemical and flame resistance  
Maintains mechanical properties at high temperatures  
Electrically insulative  
Multiple diameters and internal diameter (ID) wall thicknesses available to meet user needs

## Typical properties

Application: Protecting Assemblies, Protecting Parts  
Brands: Nextel™  
Density: 2.7 g/cc  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 900 D  
Fiber Type Input: 1/2 Yarn  
Industries: Aerospace, Electrical, Fuel Cell, Industrial  
Inner Diameter (Imperial): 0.0625 in, 0.125 in, 0.25 in, 0.5 in, 0.75 in, 1 in, 1.5 in, 2 in, 2.5 in  
Inner Diameter (Metric): 1.586 mm, 3.175 mm, 6.35 mm, 12.7 mm, 19.05 mm, 25.4 mm, 38.1 mm, 50.8 mm, 63.5 mm  
Length Coverage Factor: 0.6 , 0.7 , 0.8 , 0.9  
Melting Point (Celsius): 1800.0 Degree Celsius  
Melting Point (Fahrenheit): 3272.0 Degree Fahrenheit  
Picks Per Centimeter: 3.1, 4.1, 4.5, 4.6, 5, 7.2  
Picks Per Inch: 10, 11, 12, 13, 7.9  
Product Color: White  
Product Composition: 312  
Wall Thickness (Imperial): 0.028 in, 0.033 in, 0.037 in, 0.038 in  
Wall Thickness (Metric): 0.71 mm, 0.84 mm, 0.94 mm, 0.97 mm  
Yield as Packaged (Imperial): 4.5 yd/lb, 5.4 yd/lb, 9.6 yd/lb, 16 yd/lb, 29 yd/lb, 43 yd/lb, 88 yd/lb  
Yield as Packaged (Metric): 9 m/kg, 11 m/kg, 19 m/kg, 33 m/kg, 58 m/kg, 87 m/kg, 178 m/kg  
Yield on Nominal Diameter Mandrel (Imperial): 3.1 yd/lb, 3.5 yd/lb, 7.5 yd/lb, 12 yd/lb, 25 yd/lb, 39 yd/lb, 83 yd/lb  
Yield on Nominal Diameter Mandrel (Metric): 6.2 m/kg, 7.1 m/kg, 15 m/kg, 25 m/kg, 50 m/kg, 79 m/kg, 168 m/kg  
eClass 14 Classification Group: 27430303

## Dimensions and Classifications

Overall Diameter (Imperial): 0.0625 in, 0.125 in, 0.25 in, 0.5 in, 1 in, 2 in, 2.5 in  
Overall Diameter (Metric): 1.6 mm, 3.2 mm, 6.4 mm, 13 mm, 25 mm, 25.04 mm, 51 mm, 64 mm  
Overall Length (Imperial): 25 ft, 50 ft, 75 ft, 100 ft, 150 ft, 300 ft  
Overall Le

# 3M™ Dyneon™ PTFE Fine Powder TF 2025Z, 25 kg (55 lb) Drum

3M Product Number TF 2025Z 3M ID 7000059138 UPC 00051135895344

## Details

Emulsion polymerization PTFE suited for paste extrusion processing  
Fine powder grade for low to medium reduction ratio  
Meets ASTM D4895-04 Type 1, Grade 1, Class B classification  
Can be expanded with a high stretch ratio  
PTFE has broad chemical and high temperature resistance

## Typical properties

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Defense, Electrical, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Tensile Strength (Imperial): 4931.0 lb/ft<sup>2</sup>

## **3M™ Dyneon™ Modified PTFE Powder TFM 1705, 25 kg (55 lb) box**

3M Product Number TFM 1705 3M ID 7000031885 UPC 00051135125496

### **Details**

Meets ASTM D 4894 Type III, Grade 1  
Modified PTFE grade  
Higher stability in gel state  
Well-suited for large billets and very thin skived film  
Provides good chemical stability and broad chemical resistance  
Non-free flowing powder grade provides good electrical and mechanical properties  
Excellent operating temperature range

### **Typical properties**

Brands: Dyneon™  
Factory ISO Certification: No ISO Certification information available  
Industries: CPI/Semicon, Electrical, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Product Form: Granular  
Specific Gravity: 2.16  
Tensile Strength (Imperial): 4800.0 lb/ft<sup>2</sup>

## **3M™ Dyneon™ Fluoroelastomer FC 2145, 55 lb (25 kg) box**

3M Product Number FC 2145 3M ID 7100053702 UPC 00051135092293

### **Details**

Low-viscosity raw gumstock

Used in transfer and injection molding, extrusion, calendaring and coatings

Amine or bisphenol curable

### **Typical properties**

Brands: Dyneon™

Compression Set: 16 %

Cure Technology: Raw Gum

Factory ISO Certification: No ISO Certification information available

Fluorine Content: 65.9 %

Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation

Net Weight (Imperial): 55 lb

Net Weight (Metric): 25 kg

Post Cure: 24 hr @ 260 °C

Press Cure: 7 min @ 177 °C

Product Color: Straw

Product Type: Dipolymer Fluoroelastomer

Shelf Life: 3 Year

Specific Gravity: 1.8

Tensile Strength (Imperial): 1765.0 psi

Tensile Strength (Metric): 12.2 MPa



## 3M™ Dyneon™ Fluoroelastomer FC 2211, 25 kg (55 lb)/Case

3M Product Number FC 2211 3M ID 7000006287 UPC 00051135027882

### Details

Ultra-low viscosity gumstock without an incorporated curative  
Offers greater flow and filler loadings compared to conventional high-viscosity 66% fluoropolymers  
Used in transfer and injection molding, extrusion, calendaring and coatings  
Can be used as a viscosity modifier  
Amine or bisphenol curable

### Typical properties

Brands: Dyneon™  
Compression Set: 17 %  
Cure Technology: Raw Gum  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 7 min @ 177 °C  
Product Color: Off-white, Translucent  
Product Type: Dipolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 1870.0 psi  
Tensile Strength (Metric): 12.9 MPa

## **3M™ Dyneon™ Fluoroelastomer FE 5643Q**

3M Product Number FE 5643Q 3M ID B40070102

### **Details**

3M™ Dyneon™ Fluoroelastomer FE 5643Q is a faster curing version of 3M™ Dyneon™ Fluoroelastomer FE 5640Q  
Intermediate viscosity fluorelastomer (FKM) with 66% fluorine  
Excellent mold release may help to improve the quality of finished parts  
Brilliant cure technology and scorch resistance at high molding temperatures, resulting in more consistent part size from successive molding cycles

# 3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 81T, 1 kg (2.2 lb) Case

3M ID 7100238535 UPC 00638060424575

## Details

High-temperature perfluoroelastomer (FFKM)  
Ideal for dry side (thermal processes) semiconductor applications  
Very low metal ion content with low extractables  
Upper continuous use temperature of 315°C (599°F)

## Typical properties

Brands: Dyneon™  
Compression Set: 27 %  
Cure Technology: High Temperature  
Elongation at Break: 230.0 %  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 72.5 %  
Net Weight (Imperial): 2.2 lb  
Net Weight (Metric): 1 kg  
Post Cure: 24 hr @ 250 °C  
Press Cure: 15 min @ 188 °C  
Product Color: White  
Shelf Life: 2 Year  
Specific Gravity: 2.0  
Tensile Strength (Imperial): 1720.0 psi  
Tensile Strength (Metric): 11.9 MPa

## 3M™ Dyneon™ Fluoroelastomer FT 2350, 55 lb (25 kg) box

3M Product Number FT 2350 3M ID 7100080166 UPC 00051135095690

### Details

Broad chemical and temperature resistance for product longevity  
Terpolymer has very good tensile strength; increases overall product durability  
Versatile use in a number of applications – compression molding, transfer molding and calendaring  
Proprietary incorporated cure technology may help create more consistent part size from successive molding cycles

### Typical properties

Brands: Dyneon™  
Compression Set: 36 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 68.6 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Product Type: Terpolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.86  
Tensile Strength (Imperial): 2210.0 psi  
Tensile Strength (Metric): 15.2 MPa

# 3M™ Dyneon™ Fluoroplastic Granules FEP 6322Z

## Details

- Ultra-high extrusion speed
- Exceptionally low dielectric constant and dielectric loss
- Wide processing window
- Extremely low flammability (high LOI)
- High thermal stability
- Very good weathering and UV stability

## Typical properties

- Factory ISO Certification: No ISO Certification information available
- Industries: Electrical, Oil & Gas, Rubber and Plastic
- Net Weight (Imperial): 110 lb, 551.25 lb
- Net Weight (Metric): 50 kg, 250 kg
- Specific Gravity: 2.15
- Tensile Strength (Imperial): 2900.0 psi
- Tensile Strength (Metric): 20 MPa

# **3M™ Dyneon™ PFA 6503PBZ & 6515PBZ Fluoroplastic Powder**

## **Details**

- Engineered particle size distribution for powder coating
- Creates enhanced durable non-stick surfaces
- Excellent thermal and mechanical properties
- Excellent chemical and flame resistance
- Wide service temperature range

## **Typical properties**

- Factory ISO Certification: No ISO Certification information available
- Industries: Paints and Coatings
- Net Weight (Imperial): 110 lb
- Net Weight (Metric): 49.895 kg
- Product Form: Pellet

# 3M™ Dyneon™ Fluoroplastic Agglomerate THV 221AZ, (110 lb) 50 Kg/Box

3M Product Number THV 221AZ 3M ID 7100090861 UPC 00051135897348

## Details

- Very flexible grade of THV
- High transparency
- Low flammability
- Weldable with all common methods including high-frequency welding
- Excellent weatherability

## Typical properties

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Industries: Paints and Coatings, Rubber and Plastic
- Net Weight (Imperial): 110 lb
- Net Weight (Metric): 50 kg
- Product Form: Agglomerate
- Product Type: THV 200
- Tensile Strength (Imperial): 2900.0 psi
- Tensile Strength (Metric): 20 MPa

# 3M™ Dyneon™ PTFE TF 5060GZ

## Details

Excellent wetting and film forming performance  
Often used as a glass cloth formulation providing excellent non-stick properties  
Provides good chemical stability and broad chemical resistance  
Broad temperature range  
Sintered coatings are cleared for food contact under 21 CFR 177.1550 (FDA)  
and German Federal Ministry of Health (BGA)

## Typical properties

Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Fuel Cell, Paints and Coatings, Rubber and Plastic  
Net Weight (Imperial): 88.2 lb, 3300 lb  
Net Weight (Metric): 40 kg, 1500 kg



# 3M™ Dynamar™ Polymer Processing Additive FX 9613

## Details

- Eliminates melt fracture
- Improves extrusion processing of polyolefin resins
- Excellent thermal stability for high temperature processing
- Reduces or eliminates die build-up
- Reduces waste and equipment downtime
- Reduces extrusion pressure
- Reduces or eliminates die build-up
- Lowers apparent melt viscosity
- For use at very low levels
- Free-flowing fluoropolymer based processing aid
- Can offer performance and cost advantages

## Typical properties

- Application: Wire & Cable Extrusion
- Bulk Density (Metric): 0.8 g/cm<sup>3</sup>
- Container Type: Bag, Bottle
- Factory ISO Certification: No ISO Certification information available
- Industries: General Manufacturing, Packaging, Rubber and Plastic
- Net Weight (Imperial): 1.1 lb., 55 lb., 1320 lb.
- Net Weight (Metric): 0.5 kg, 25 kg, 599 kg
- Product Color: Off-white
- Product Form: Granular
- Shelf Life: 2 Year
- eClass 14 Classification Group: 31000000

# **3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3850**

3M Product Number FPO 3850 3M ID B5005057055

## **Details**

High fluorine content for excellent resistance against chemical fluids  
Peroxide-curable, medium-viscosity fluoroelastomer (FKM)  
Curable without metal oxides  
Exhibits good physical properties right out of the press  
Suitable for compression and transfer molding, extrusion and calendaring  
Levels can be blended to achieve desired properties

# **3M™ Dyneon™ Fluoroplastic PFA 6502NZ, 50 kg (110 lb) Box**

3M Product Number PFA 6502NZ 3M ID 7000043053

## **Typical properties**

Brands: Dyneon™

Factory ISO Certification: No ISO Certification information available

Net Weight (Imperial): 110 lb

Net Weight (Metric): 50 kg

# **3M™ Dyneon™ Fluoroplastic Dispersion FEP 6300GZ, (88 lb), 40 Kg/drum**

3M Product Number FEP 6300GZ 3M ID 7100090836 UPC 00051135895276

## **Details**

- Super smooth fully fluorinated topcoat
- Provides for a thermal-weldable surface
- High degree of transparency of the polymer film
- Provides good chemical stability and broad chemical resistance
- Can be formulated with fluoroplastic dispersion, including PTFE and PFA, as well as a variety of fillers and pigments
- Improves adhesion and corrosion protection
- Cleared for food contact under 21 CFR 177.1550 (FDA) and complies with the requirements of European Regulation (EC) No 1935/2004, Regulation (EU) No 10/2011 and German BfR Recommendation LI
- Dispersion has high shear stability and low settling tendency

## **Typical properties**

- Brands: Dyneon™
- Factory ISO Certification: No ISO Certification information available
- Net Weight (Imperial): 88.2 lb
- Net Weight (Metric): 40 kg
- Product Form: Dispersion

## **3M™ Hollow Cathodes**

3M ID B49000167

### **Details**

Built under strict material and data control, with documentation and test data available

Products are built to the highest achievable quality to meet the most demanding applications

Custom design and engineering to meet customer requirements

Hollow insert may include a reliable potted heater assembly and additional support structures

### **Typical properties**

Application: Avionics

eClass 14 Classification Group: 19081301

## **3M™ Evaporation Boat 4.0**

3M ID B5005298007

### **Details**

The trapezoidal shape of EB 4.0 results in up to 20% energy savings compared to rectangular boats

Due to its optimized trapezoidal shape, EB 4.0 offer up to 5% energy savings compared to other trapezoidal designs

Robustness even under harsh process conditions

Proven cavity design/evaporation surface for minimum spitting

### **Typical properties**

eClass 14 Classification Group: 32110400

## **3M™ Dyneon™ Fluoroelastomer FPO 3820, 675 kg (1485 lb) box**

3M Product Number 3820 3M ID 7100156026

### **Details**

High fluorine content for excellent resistance against chemical fluids  
Peroxide-curable, low-viscosity fluoroelastomer (FKM)  
Curable without metal oxides  
Exhibits good physical properties right out of the press  
Suitable for injection molding, compression and transfer molding, extrusion and calendaring  
Levels can be blended to achieve desired properties

### **Typical properties**

Brands: Dyneon™  
Cure Technology: Peroxide  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 70.1 %  
Industries: Rubber and Plastic  
Net Weight (Imperial): 1485 lb  
Net Weight (Metric): 675 kg  
Press Cure: 10 min @ 177 °C  
Product Color: White  
Specific Gravity: 1.89  
Tensile Strength (Imperial): 3525.0 psi  
Tensile Strength (Metric): 24.3 MPa

# 3M™ Dyneon™ Fluoroelastomer FPO 3820, 25 kg (55 lb) box

3M Product Number 3820 3M ID 7100156095

## Details

High fluorine content for excellent resistance against chemical fluids  
Peroxide-curable, low-viscosity fluoroelastomer (FKM)  
Curable without metal oxides  
Exhibits good physical properties right out of the press  
Suitable for injection molding, compression and transfer molding, extrusion and calendaring  
Levels can be blended to achieve desired properties

## Typical properties

Brands: Dyneon™  
Cure Technology: Peroxide  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 70.1 %  
Industries: Rubber and Plastic  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Press Cure: 10 min @ 177 °C  
Product Color: White  
Product Type: Terpolymer Fluoroelastomer  
Specific Gravity: 1.89  
Tensile Strength (Imperial): 3525.0 psi  
Tensile Strength (Metric): 24.3 MPa



## **3M™ Glass Bubbles S4630**

### **Details**

Manufactured to reduce occurrences of non-bubble contaminants  
Lowers DK of resins proportional to amount added (Dk of glass bubble = 1.5)  
D95 of < 40 microns with top size less than 56 microns  
Reduces CTLE and weight of resins proportional to amount added  
Improved moisture stability over conventional industrial grade glass bubbles

### **Typical properties**

Crush Strength (Imperial): 16000 psi (90% Minimum Fractional Survival)  
Crush Strength (Metric): 110.32 MPa (90% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Electronics  
Net Weight (Imperial): 8.356 lb, 99 lb  
Net Weight (Metric): 3.79 kg, 45 kg  
Typical Density: 0.46 g/cc  
Typical Median Particle Diameter: 20 µm

# 3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3650

3M Product Number FPO 3650 3M ID B5005057053

## Details

Peroxide-curable, medium-viscosity fluoroelastomer (FKM)

Curable without metal oxides

Offers high resistance against chemical fluids

Exhibits good physical properties right out of the press

Suitable for injection molding, compression and transfer molding, extrusion and calendaring

Levels can be blended to achieve desired properties

# Bondo® Liquid Resin for Fiberglass

3M ID B40068242 UPC 00076308004040

## Details

SEAL CRACKS, REPAIR BREAKS, and recreate or join surfaces for auto, boat, and home applications  
INTERIOR OR EXTERIOR use  
DESIGNED TO USE on fiberglass, metal, wood, and masonry surfaces  
USE WITH BONDO® Fiberglass Cloth or Mat for larger repairs and long-term strength  
100% WATERPROOF creates strong, durable seal for concrete, showers, boats, and more  
TWO-PART FORMULA creates extremely strong chemical bond to surfaces  
SANDABLE in 2 hours  
PAINTABLE FORMULA is compatible with most paints and gel coats  
BONDO® CLEAR LIQUID Hardener included  
MIXES TRANSLUCENT LIGHT BROWN when liquid hardener drops and resin are mixed thoroughly and ready to use  
WORKABLE for 8-12 minutes once resin and hardener drops are mixed together  
FILL STAGE of 3M™ Body Repair System

## Typical properties

Application: Rust Repair  
Brands: Bondo®  
Case Quantity: 4.0 Cans per Case, 2.0 Cans per Case, 6.0 Cans per Case  
Factory ISO Certification: No ISO Certification information available  
Material: Polyester Resin  
Maximum Operating Temperature (Celsius): 82.2 °C  
Maximum Operating Temperature (Fahrenheit): 180 °F  
Product Category: Fiberglass Fabric and Resins  
Product Color: Amber  
eClass 14 Classification Group: 31450590

## **3M™ Glass Bubbles HGS10000**

### **Details**

Helps reduce the density of cement slurries  
Helps to prevent or minimize fluid loss/lost circulation and formation damage  
Incompressible and more homogeneous cement slurry properties compared with foamed cements  
Virtually eliminates the need for specialized equipment used in foamed and aerated systems  
Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 6000 psi (90% Minimum Fractional Survival)  
Crush Strength (Metric): 41.37 MPa (90% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Cementing and Drilling Fluids  
Net Weight (Imperial): 5 lb, 125 lb, 1000 lb, 37000 lb  
Net Weight (Metric): 2.268 kg, 56.699 kg, 453.592 kg, 16782.918 kg  
Product Usage: Cement, Drilling Fluids  
Typical Density: 0.6 g/cc  
Typical Median Particle Diameter: 30 µm

## **3M™ Glass Bubbles S28HS**

3M Product Number S28HS 3M ID B40064646

### **Details**

Decreases weight and increases buoyancy for lower density in finished parts  
Versatile use – adaptable to a variety of production processes including high shear liquid mixing systems  
Delivers stable voids for reduced thermal conductivity and dielectric constant in syntactic foams  
Provides excellent water and oil resistance for use in underwater applications  
Very good strength-to-density ratio for use in a variety of construction and oil and gas applications  
Good choice for dead-pressing resistant emulsion explosives

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 3000 psi (90% Minimum Fractional Survival)  
Crush Strength (Metric): 20.68 MPa (90% Minimum Fractional Survival)  
Industries: Construction, Insulation and Buoyancy, Paints and Coatings  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.28 g/cc  
Typical Median Particle Diameter: 30 µm

## **3M™ Dyneon™ Fluoroelastomer FC 2152, 55 lb (25 kg)/Case**

3M Product Number FC 2152 3M ID 7000006301 UPC 00051135112700

### **Details**

Offers excellent demolding of complex geometric profiles  
Medium-viscosity copolymer  
Used in compression and transfer molding, as well as calendaring  
Proprietary incorporated cure technology may help save time and increase throughput

### **Typical properties**

Brands: Dyneon™  
Compression Set: 22 %  
Cure Technology: Incorporated Cure  
Factory ISO Certification: No ISO Certification information available  
Fluorine Content: 65.9 %  
Industries: CPI/Semicon, Defense, Electrical, Mining, Oil & Gas, Rubber and Plastic, Transportation  
Net Weight (Imperial): 55 lb  
Net Weight (Metric): 25 kg  
Post Cure: 24 hr @ 260 °C  
Press Cure: 5 min @ 177 °C  
Product Color: Off-white  
Product Type: Dipolymer Fluoroelastomer  
Shelf Life: 3 Year  
Specific Gravity: 1.8  
Tensile Strength (Imperial): 2100.0 psi  
Tensile Strength (Metric): 14.5 MPa

## **3M™ Glass Bubbles S60**

3M Product Number S60 3M ID B40064607

### **Details**

- Reduce weight of plastics, coatings and other composites
- Reduces thermal expansion
- Glass bubbles fill molds better for improved dimensional stability
- Broad applications in diverse markets for versatile use
- Improves processing throughput for increased, and more efficient production

### **Typical properties**

- Appearance (Unaided Eye): White Powder
- Composition: Soda-lime Borosilicate Glass
- Crush Strength (Imperial): 6000 psi (90% Minimum Fractional Survival)
- Crush Strength (Metric): 41.37 MPa (90% Minimum Fractional Survival)
- Industries: Rubber and Plastic
- Typical Density: 0.6 g/cc
- Typical Median Particle Diameter: 30  $\mu\text{m}$

# 3M™ Glass Bubbles K20HS

3M ID B5005217016

## Details

- Reduction of density and improving buoyancy
- Thermal conductivity reduction
- Higher filler loading feasible and lower VOC for paints and coatings
- Good strength-to-density ratio
- Reduced dielectric constant
- Temperature resistance
- Chemical stability and inertness

## Typical properties

- Crush Strength (Imperial): 750 psi (90% Minimum Fractional Survival)
- Crush Strength (Metric): 5.17 MPa (90% Minimum Fractional Survival)
- Typical Density: 0.2 g/cc



## **3M™ Glass Bubbles HGS6000**

### **Details**

Helps reduce the density of control fluids, including cement slurries, completion and workover fluids

Helps to prevent or minimize fluid loss/lost circulation and formation damage

Incompressible and more homogeneous control fluid properties compared with foamed and aerated systems

Virtually eliminates the need for specialized equipment used in foamed and aerated systems

Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 6000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 41.37 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Cementing and Drilling Fluids

Net Weight (Imperial): 3.4 lb, 125 lb, 824.529 lb, 825 lb, 36000 lb

Net Weight (Metric): 1.5 kg, 56.699 kg, 374 kg, 374.214 kg, 16329.325 kg

Product Usage: Cement, Drilling Fluids

Shape: Thin-walled Hollow Spheres

Typical Density: 0.46 g/cc

Typical Median Particle Diameter: 40 µm

## **3M™ Glass Bubbles S38HS**

### **Details**

Glass bubbles in flexible flowlines are half the weight of conventional pipe-in-pipe construction

Reduces overall pipe diameter requiring fewer and smaller ships for transportation

Decreases weight and increases buoyancy for lower density in finished parts

Provides excellent water and oil resistance for use in underwater applications

Decreases thermal conductivity in syntactic foam compositions

Good strength-to-density ratio for use in a variety of oil and gas applications

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 5500 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 37.92 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Paints and Coatings, Rubber and Plastic, Transportation

Net Weight (Imperial): 1.5 lb, 100 lb, 650 lb, 700 lb, 30000 lb

Net Weight (Metric): 0.68 kg, 45.4 kg, 294.835 kg, 317.515 kg, 13607.771 kg

Product Usage: Thermal Insulation

Shape: Thin-walled Hollow Spheres

Typical Density: 0.38 g/cc

Typical Median Particle Diameter: 40 µm

## **3M™ Glass Bubbles HGS19K46**

### **Details**

Premium Product

Low density-to-strength ratio

Helps reduce the density of control fluids, including cement slurries, completion and workover fluids

Helps to prevent or minimize fluid loss/lost circulation and formation damage

Incompressible and more homogeneous control fluid properties compared with foamed and aerated systems

Virtually eliminates the need for specialized equipment used in foamed and aerated systems

Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 19000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 131 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Cementing and Drilling Fluids

Net Weight (Imperial): 798 lb

Net Weight (Metric): 361.967 kg

Product Usage: Cement, Drilling Fluids

Typical Density: 0.46 g/cc

Typical Median Particle Diameter: 20 µm

## **3M™ Glass Bubbles S22**

### **Details**

Ease of machinability and precision when added to tooling board  
Decreases weight and increases buoyancy for lower density in finished parts  
Provides excellent water and oil resistance for use in underwater applications  
Provides buoyancy for driller risers, buoyancy modules and remote operated vehicles  
Decreases thermal conductivity in syntactic foam compositions

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 400 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 2.76 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 1 lb, 10 lb, 60 lb, 385 lb  
Net Weight (Metric): 0.454 kg, 4.536 kg, 27 kg, 175 kg  
Product Usage: Buoyancy  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.22 g/cc  
Typical Median Particle Diameter: 35 µm

## **3M™ Glass Bubbles S15**

### **Details**

Lightweight 3M™ Glass Bubbles can easily be sanded in auto body repair fillers  
Decreases weight and increases buoyancy for lower density in finished parts  
Provides excellent water and oil resistance for use in underwater applications  
Provides buoyancy for driller risers, buoyancy modules and remote operated vehicles  
Decreases thermal conductivity in syntactic foam compositions

### **Typical properties**

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 300 psi (85% Minimum Fractional Survival)  
Crush Strength (Metric): 2.07 MPa (85% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 0.5 lb, 10 lb, 50 lb, 260 lb, 265 lb, 10000 lb  
Net Weight (Metric): 0.2 kg, 4.5 kg, 23 kg, 117.934 kg, 120.2 kg, 4535.924 kg  
Product Usage: Buoyancy  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.15 g/cc  
Typical Median Particle Diameter: 55 µm

## **3M™ Glass Bubbles HGS7K32**

### **Details**

Premium Product

Low density-to-strength ratio

Helps reduce the density of control fluids, including cement slurries, completion and workover fluids

Helps to prevent or minimize fluid loss/lost circulation and formation damage

Incompressible and more homogeneous control fluid properties compared with foamed and aerated systems

Virtually eliminates the need for specialized equipment used in foamed and aerated systems

Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Factory ISO Certification: No ISO Certification information available

Industries: Cementing and Drilling Fluids

Net Weight (Imperial): 2.2 lb, 10 lb, 88 lb, 507 lb, 23000 lb

Net Weight (Metric): 0.5 kg, 39.916 kg, 230 kg

Product Usage: Cement, Drilling Fluids

Typical Density: 0.32 g/cc

Typical Median Particle Diameter: 25 µm

## **Bondo® Fiberglass Cloth, 00499, 8 sq ft, 6 per case**

3M ID 60455056766 UPC 00076308004996

### **Details**

Interlocking strands of fiberglass allows for bridging holes and gaps

Cloth pattern provides reinforcement for a strong repair

.20 mm cloth is generally cut to fit with scissors for uniform repairs

Product repairs multiple surfaces, including concrete, wood, fiberglass, metal and more

Versatile cloth works on automobiles, boats, tubs, showers, sinks, pools, hot tubs and more

Cloth will not rust or rot

Use during the Fill stage of the 3M™ Body Repair System

### **Typical properties**

Application: Fiberglass

Brands: Bondo®

Case Quantity: 6.0 Sheets per Case

Factory ISO Certification: No ISO Certification information available

Material: Fiberglass Cloth

Product Category: Reinforced Fillers

Product Color: White

eClass 14 Classification Group: 31450590

### **Dimensions and Classifications**

Overall Length (Imperial): 8 ft Overall Length (Metric): 2.5 m

## **3M™ Glass Bubbles iM16K**

### **Details**

Reduce final part weight by 15% or more without compromising mechanical integrity of finished product

Extremely high strength-to-density ratio glass bubble survives high shear, high pressure processes like injection molding and extrusion

Faster cooling times of melt processed polymers (injection molding and extrusion), typically 15-25% cycle time improvement

Improved dimensional stability and reduced warpage and sink marks

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 16000 psi (90% Minimum Fractional Survival)

Crush Strength (Metric): 110.32 MPa (90% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Construction, Paints and Coatings, Rubber and Plastic, Transportation

Net Weight (Imperial): 2.2 lb, 99 lb, 100 lb, 775 lb, 781 lb, 798 lb

Net Weight (Metric): 0.5 kg, 44.906 kg, 45.4 kg, 351.534 kg, 354.256 kg, 361.967 kg

Product Usage: Cabin Components

Shape: Thin-walled Hollow Spheres

Typical Density: 0.46 g/cc

Typical Median Particle Diameter: 20 µm



## **Bondo® Fiberglass Mat, 00488, 6 per case**

3M ID 60455056758 UPC 00076308004880

### **Details**

Fiberglass mat offers additional thickness to provide structural reinforcement for stronger repairs

.30 mm mat can be hand torn for quick backside repairs

Flexible mat allows for easy repairs to contoured surfaces

Versatile product works for repairing automobiles, boats, tubs, showers, sinks, pools, hot tubs and more

Fiberglass mat repairs multiple surfaces including concrete, wood, fiberglass, metal and more

Creates a waterproof repair that will not rust or rot

Use during the Fill stage of the 3M™ Body Repair System

### **Typical properties**

Application: Rust Repair

Brands: Bondo®

Case Quantity: 6.0 Bags per Case

Factory ISO Certification: No ISO Certification information available

Material: Fiberglass Mat

Product Category: Cloth

Product Color: White

eClass 14 Classification Group: 31450590

### **Dimensions and Classifications**

Overall Length (Imperial): 37.5 in Overall Length (Metric): 95.25 cm Overall Width (Imperial): 31.5 in Overall Width (Metric): 80.01 cm

## **3M™ Glass Bubbles IM30K**

### **Details**

Reduce final part weight by 15% or more without compromising mechanical integrity of finished product

3M's highest strength-to-density ratio glass bubble survives high shear, high pressure processes like injection molding and extrusion

Faster cooling times of melt processed polymers (injection molding and extrusion), typically 15-25% cycle time improvement

Improved dimensional stability and reduced warpage and sink marks

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 27000 psi (90% Minimum Fractional Survival)

Crush Strength (Metric): 186.16 MPa (90% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Construction, Paints and Coatings, Rubber and Plastic, Transportation

Net Weight (Imperial): 3 lb, 10 lb, 125 lb, 850 lb

Net Weight (Metric): 1.36 kg, 4.54 kg, 56.7 kg, 385.554 kg

Product Usage: Cabin Components, Thermal Insulation

Shape: Thin-walled Hollow Spheres

Typical Density: 0.6 g/cc

Typical Median Particle Diameter: 18 µm

## 3M™ Glass Bubble S32HS

3M Product Number S32HS 3M ID B5005035032

### Details

Additive used for density reduction in sheet and bulk molded composite vehicle parts

Helps reduce weight of composite parts by up to 40 percent with a density below 1.0g/cc

Used as a raw material in syntactic foam for pipes and risers in deepwater oil and gas recovery operations

Low thermal conductivity ideal for demanding deepwater conditions

Allows greater density reduction at lower filler loadings to maintain composite strength of automotive parts

Enables automotive parts with Class A paintable finishes

Can significantly help improve fuel economy and extend electric vehicle battery range

Spherical shape and moderate hardness help reduce production equipment wear

Enables production of ultra-lightweight composite parts that may offer a lower cost alternative to aluminum in many applications

In thermal insulation, reduces oil and gas pipeline weight by >50% compared to pipe-in-pipe constructions

High strength-to-density ratio enables maximum net buoyancy for deepwater applications

### Typical properties

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 6000 psi (90% Minimum Fractional Survival)

Crush Strength (Metric): 41.37 MPa (90% Minimum Fractional Survival)

Industries: Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic

Typical Density: 0.32 g/cc

Typical Median Particle Diameter: 25 µm

## **3M™ Glass Bubbles HGS4000**

### **Details**

Helps reduce the density of control fluids, including cement slurries, completion and workover fluids

Helps to prevent or minimize fluid loss/lost circulation and formation damage

Incompressible and more homogeneous control fluid properties compared with foamed and aerated systems

Virtually eliminates the need for specialized equipment used in foamed and aerated systems

Potential for reduced Non Productive Time (NPT), improved well integrity and increased well productivity

### **Typical properties**

Appearance (Unaided Eye): White Powder

Composition: Soda-lime Borosilicate Glass

Crush Strength (Imperial): 4000 psi (80% Minimum Fractional Survival)

Crush Strength (Metric): 27.58 MPa (80% Minimum Fractional Survival)

Factory ISO Certification: No ISO Certification information available

Industries: Cementing and Drilling Fluids

Net Weight (Imperial): 3.2 lb, 100 lb, 700 lb, 30000 lb

Net Weight (Metric): 1.4 kg, 45.359 kg, 317.5 kg, 317.51 kg, 13607.771 kg

Product Usage: Cement, Drilling Fluids

Typical Density: 0.38 g/cc

Typical Median Particle Diameter: 40 µm

## 3M™ Glass Bubbles K25

### Details

Decreases density and increases buoyancy to help improve efficiency and may lower material costs  
Provides excellent water and oil resistance for use in underwater applications  
Stable voids for low thermal conductivity and reduced dielectric constant  
Versatile use – adaptable to a variety of production processes  
Low density, chemically stable bubbles are ideal additives for buoyancy applications

### Typical properties

Appearance (Unaided Eye): White Powder  
Composition: Soda-lime Borosilicate Glass  
Crush Strength (Imperial): 750 psi (80% Minimum Fractional Survival)  
Crush Strength (Metric): 5.17 MPa (80% Minimum Fractional Survival)  
Factory ISO Certification: No ISO Certification information available  
Industries: Construction, Insulation and Buoyancy, Paints and Coatings, Rubber and Plastic, Transportation  
Net Weight (Imperial): 1 lb, 10 lb, 80 lb, 385.809 lb, 400 lb, 410 lb, 18000 lb  
Net Weight (Metric): 0.4 kg, 4.5 kg, 36 kg, 36.287 kg, 175 kg, 181.437 kg, 186 kg, 8164.663 kg  
Product Usage: Buoyancy  
Shape: Thin-walled Hollow Spheres  
Typical Density: 0.25 g/cc  
Typical Median Particle Diameter: 55 µm

# **3M™ Nextel™ Chopped Fiber 312, Style AC-11, 299 Sizing, 3600 D, 1/8 in Long, per lb**

3M Product Number 312 3M ID 7010320553 UPC 00051115115196

## **Details**

Multiple lengths, including custom lengths, available to fit user needs  
Suitable for use as a filler to improve mechanical properties such as fracture toughness  
Can be used as a filler to make different slurry or coatings for electrical and optical applications  
Delivers high-temperature and high-stress resistance when used as a filler or reinforcement material

## **Typical properties**

Application: Thermal Management, Void Filling  
Brands: Nextel™  
Denier: 3600 Denier  
Factory ISO Certification: No ISO Certification information available  
Fiber Input Denier: 3600 Denier  
Product Composition: 312  
Product Type: Chopped Fiber  
eClass 14 Classification Group: 23330211

## **Dimensions and Classifications**

Overall Length (Imperial): 0.125 in Overall Length (Metric): 3.175 mm

# **3M™ Nextel™ Chopped Fiber 312, Style AC-8 Calcined, 1/4 in Long, per lb**

3M Product Number 312 3M ID 7010294037 UPC 00051115075674

## **Details**

Multiple lengths, including custom lengths, available to fit user needs  
Suitable for use as a filler to improve mechanical properties such as fracture toughness  
Can be used as a filler to make different slurry or coatings for electrical and optical applications  
Delivers high-temperature and high-stress resistance when used as a filler or reinforcement material

## **Typical properties**

Application: Thermal Management, Void Filling  
Brands: Nextel™  
Denier: 1300 Denier  
Factory ISO Certification: No ISO Certification information available  
Product Composition: 312  
Product Type: Chopped Fiber  
eClass 14 Classification Group: 23330211

## **Dimensions and Classifications**

Overall Length (Imperial): 0.25 in Overall Length (Metric): 6.35 mm

# **3M™ Nextel™ Chopped Fiber 312, Style AC-8, 299 Sizing, 1300 D, 1/8 in Long, per lb**

3M Product Number 312 3M ID 7010320521 UPC 00051115073007

## **Details**

Multiple lengths, including custom lengths, available to fit user needs  
Suitable for use as a filler to improve mechanical properties such as fracture toughness  
Can be used as a filler to make different slurry or coatings for electrical and optical applications  
Delivers high-temperature and high-stress resistance when used as a filler or reinforcement material

## **Typical properties**

Application: Thermal Management, Void Filling  
Brands: Nextel™  
Denier: 1300 Denier  
Factory ISO Certification: No ISO Certification information available  
Product Composition: 312  
Product Type: Chopped Fiber  
eClass 14 Classification Group: 23330211

## **Dimensions and Classifications**

Overall Length (Imperial): 0.125 in Overall Length (Metric): 3.175 mm



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