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3M Advanced Materials Division

3M™ Dyneon™ High Temperature Fluoroelastomer PFE 194T

Features and Benefits

- Ideal for dry side (thermal processes) semiconductor applications including plasma, high temperature CPI and aerospace applications
- Upper use temperature of 315°C
- Can be compounded to pass AMS 7257E
- Very low metal ion content with low extractables

Typical Properties

Property	Units	Value
Specific Gravity		2.0
Color		White
Form		Crumb
TR 10	°C (°F)	-2°C (28°F)
Brittleness Point	°C (°F)	-35°C (-31°F)
Mooney Viscosity ML 1 + 10 @ 121°C (250°F)	MU	95

Product Description

3M™ Dyneon™ PFE 194T is a technically advanced high temperature perfluoroelastomer (HT PFE), designed to meet the challenges of demanding higher temperature applications. It is classified as FFKM per ASTM D1418. Its fully fluorinated backbone structure provides a very broad chemical and thermal stability.

Delivered Product Form

Dyneon PFE 194T is packaged in crumb form. It is available in 1 kg or 10 kg boxes.

Note: Package size(s) may vary by region.

Safety/Toxicology

Before processing 3M™ Dyneon™ Perfluoroelastomers, read and follow all precautions and directions for use contained in the product label and Safety Data Sheet (SDS). General handling precautions and directions for use include: (1) Store and use all Dyneon perfluoroelastomers only in well ventilated areas; (2) Do not smoke in areas contaminated with dust from perfluoroelastomers; (3) Avoid eye contact; (4) After handling Dyneon perfluoroelastomers wash any contacted skin with soap and water. Potential hazards, including evolution of toxic vapors, can occur during compounding or processing under excessively high temperature conditions. Appropriate local exhaust ventilation such as vapor extractor units should be installed above compounding or processing equipment. When compounding, be sure to read and follow all precautions and directions for use from other compound ingredient suppliers.

Note: Data in this document are not for specification purposes.

ISO Registrations

All Dyneon fluoroelastomers are manufactured at ISO 9001 and 14001 registered facilities.

Typical Properties of Vulcanizate

Compound	phr
3M™ Dyneon™ Perfluoroelastomer PFE 194T	94
N550 FEF Carbon Black	15
Aerosil® R972	1.5
3M™ Dyneon™ Perfluoroelastomer Curative PFE 01CZ	7.5

Typical Rheological Properties [ASTM D5289]

Moving Die Rheometer (MDR), 100 cpm, 0.5° Arc
15 Minutes @ 188°C (370°F)

Property	Units	Result
ML, Minimum Torque	dN m (inch-lb)	1.9 (1.7)
ts2, Time to 2 Inch-lb Rise from Minimum	Minutes	2.4
t'50, Time to 50% Cure	Minutes	4.1
t'90, Time to 90% Cure	Minutes	8.6
MH, Maximum Torque	dN m (inch-lb)	24.9 (22.1)

Typical Physical Properties [ASTM D412]

Press Cure 15 Minutes @ 188°C (370°F),
Post Cure 24 Hours @ 250°C (482°F)

Property	Units	Result
Tensile	MPa (psi)	16.4 (2375)
100% Modulus	MPa (psi)	13.5 (1950)
Elongation at Break	%	120
Durometer Type A Hardness [ASTM D2240]	Points	80

Compression Set Resistance [ASTM D395 Method B, -214 O-rings]

Property	Units	Result
70 Hours @ 232°C (450°F) – 25% Deformation	%	15
168 Hours @ 232°C (450°F) – 25% Deformation	%	18
70 Hours @ 300°C (572°F) – 18% Deformation	%	31
168 Hours @ 300°C (572°F) – 18% Deformation	%	43

Customer Service

Europe

Dyneon GmbH
3M Advanced Materials Division
Carl-Schurz-Straße
41453 Neuss
Germany
Phone: +00 800 396 366 27
Fax: +00 800 396 366 39
www.dyneon.eu

Italy
Phone: 0 800 7 910 18
Fax: 0 800 7 910 19

USA

3M Advanced Materials Division
3M Center, 280-01W-03
St. Paul, MN 55144-1000
United States
Phone: 1 800 810 8499

Latin America

3M Brasil
Via Anhanguera km
110 Sumare
Sao Paulo CEP 13181-900
Brasil
Phone: 0800 0132333

3M Mexico
Santa Fe 190, Col. Santa Fe
Deleg. Alvaro Obregon
Mexico D.F., C.P. 01210
México
Phone: 0052 5552700 400
Ext 82935

Asia

3M Japan
6-7-29, Kita-Shinagawa
Shinagawa-ku
Tokyo 141-8684
Japan
Phone: 81 570 022 123

3M Korea
19F, 82, Uisadang-daero
Yeongdeungpo-gu, Seoul, 150-705
Korea
Phone: 82 2 3771 4027

3M Taiwan
6F, No.95, Sec. 2
Dunhua S. Rd.
Taipei 10682
Taiwan
Phone: 886 2 2704 9011

3M Thailand
150 Soi Chalongkrung 31
Ladkrabang Bangkok, 10520
Thailand
Phone: 66 2739 4803 9
Ext 2354

Please visit 3M.com/fluoropolymers for additional regional contact information.

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3M Advanced Materials Division

3M Center
St. Paul, MN 55144 USA

Phone 1-800-367-8499
Web www.3M.com/fluoroelastomers

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