PERLAST®

Perfluoroelastomer Parts

- High temperature stability
- Ultimate chemical resistance
- Outstanding mechanical properties
- FDA, USP Class VI & 3A compliant
- O-rings & custom parts
- Quality assured to ISO9001 & AS9100

Sealing Solutions *through innovation*

PERLAST®

Developed by Precision Polymer Engineering to meet the needs of critical sealing applications, Perlast® perfluoroelastomers are at the leading edge of polymer technology.

With the need to withstand increasingly aggressive chemicals and higher operating temperatures, engineers and equipment manufacturers consider Perlast® perfluoroelastomers to be reliable sealing materials for the most demanding chemical, petrochemical and pharmaceutical applications.

Perlast® for Food & Pharmaceutical Applications

Precision Polymer Engineering was early to recognise the limitations of traditional sealing materials in the pharmaceutical, food and biochemistry industries. There is an increasing demand for FDA-compliant, chemically resistant seals for use in high temperature processing, aggressive media or in practices such as Clean in Place (CIP) and Steam in Place (SIP).

Three Perlast® grades enable perfluoroelastomers to be used in a wide range of applications ranging from standard sized O-rings to specialist hygienic and inflatable seals.

Manufacturers of process equipment can now extend the operating capability of their original equipment by upgrading their seals, without the need for expensive component redesigns. Lower overall cost of ownership can be achieved through a combination of increased seal life and reduced process downtime.

For more information see our 'Guide to elastomer seals for pharma, food & water' which can be downloaded from our website: www.prepol.com

USP FDA 3-A

Perlast® FDA Grades	G60S	G75S	G80S
Colour	White	White	White
Hardness (°IRHD)	60	75	80
Maximum Temperature (°C)	260	310	260
Tensile Strength (Mpa)	14.1	19.0	18.1
Elongation at Break (%)	155	237	130

Perlast® for high temperature capability

Precision Polymer Engineering has expanded the scope for perfluoroelastomer seals in high temperature applications with the development of **Perlast® G75B**. This 78 °IRHD perfluoroelastomer offers high temperature capability combined with increased chemical resistance over other perfluoroelastomers.

Perlast® G75B can be used in applications with temperatures ranging from -15°C to **+325°C** (+5°F to +617°F). In addition to excellent chemical and temperature resistance and very good mechanical properties, this acid resistant perfluoroelastomer has low permeability. As a result it is less prone to swelling, leading to extended in-service performance in valves and pumps.

Material datasheets can be downloaded from our website: www.perlast.com

Perlast® for Chemical Compatibility

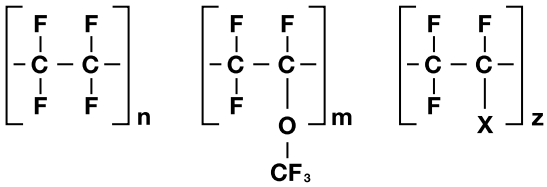
The unique cross-linking system employed in all Perlast® material grades ensures compatibility against virtually all chemicals. The molecular structure of Perlast® perfluoroelastomers is very similar to PTFE providing excellent thermal stability and chemical resistance. With some competitor perfluoroelastomers, there is a trade-off between high temperature performance and chemical resistance.

The range of Perlast® perfluoroelastomers combines excellent chemical resistance with thermal stability up to +325°C.

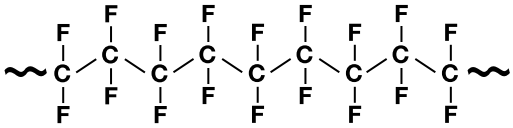
This enables users to streamline the material selection process and in many cases to rationalise onto a single grade across all applications.

Perlast® G80A

TFE PMVE CURE SITE MONOMER

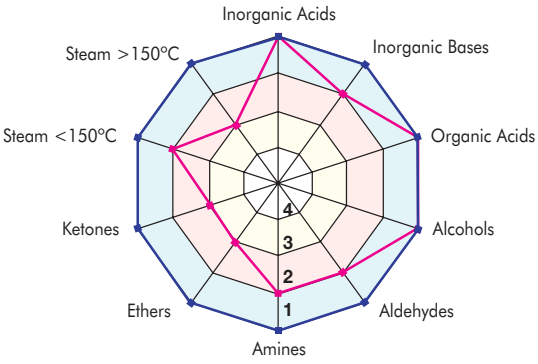


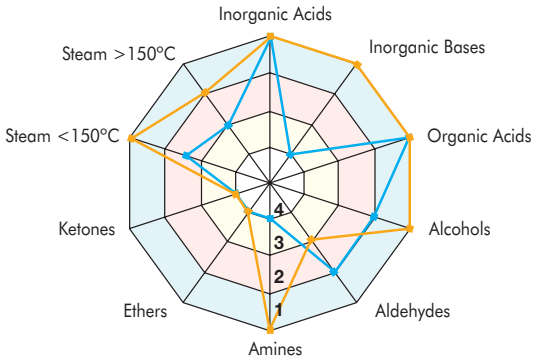
PTFE - polytetrafluoroethylene



FFKM TEST	MAX OPERATING TEMP. >250°C	STEAM/ HOT WATER	ACIDS	ALKALIS	HOT AMINES TEMP. >100°C	ETHYLENE OXIDE
A	3	1	1	1	2	1
B	3	1	1	1	2	3
C	1	1	1	1	2	2
D	1	1	1	1	2	3
E	1	2	1	1	2	3
F	1	1	1	1	1	2
G	1	3	1	1	3	3
H	3	1	1	1	1	1
Perlast® G80A	**1**	**1**	**1**	**1**	**1**	**1**

1= EXCELLENT 2= AVERAGE 3= POOR





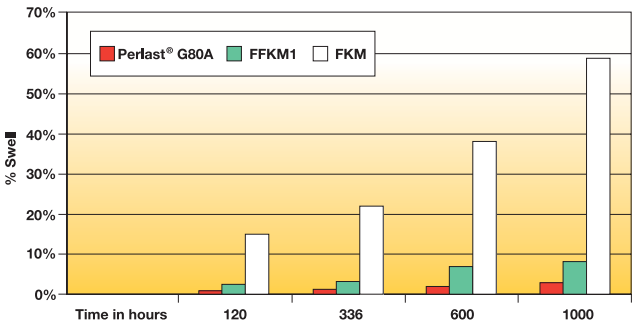
KEY:

- Perlast® G75B (FFKM)
- ETP
- Aflas® FA-100H (TFE/P)
- FKM V75B (FPM)

1= EXCELLENT
2= GOOD
3= DOUBTFUL
4= UNSUITABLE

The performance of ETP terpolymer is close to a perfluoroelastomer, however its maximum temperature is 210°C (410°F).

Elastomer lubricant compatibility test



In a standard immersion test **Perlast® G80A** shows little volume swell even after 1000 hours @ 250°C.

FKM sample swells excessively and even the competitive FFKM sample shows unacceptable swelling.

Test lubricant: DOD-L-85374.

Material datasheets can be downloaded from our website: www.perlast.com

Technical Support

Perlast® seals are used worldwide in a vast range of industrial applications. The skills and knowledge gained from solving problems in one industry can be effectively applied to other industries with a similar application or problem.

Our highly skilled engineers and chemists are always on hand to give full technical support, and offer design assistance. Our technical team has at their disposal the latest 3D CAD Modelling and Finite Element Analysis (FEA) tools to simulate and predict seal tolerances and performance.

Our Material Characterisation Centre and laboratory offers a number of analytical and testing services. In addition, we can also provide a complete consultancy service including specialist expertise, advice and assistance in material selection, material testing, sample analysis and problem-solving on any sealing matter.

To facilitate shorter lead times, PPE has invested in new state-of-the-art equipment and machinery, resulting in shorter development cycles, rapid prototyping and early project completion.

Perlast® Standard Grades

GRADE	DESCRIPTION	COLOUR	HARDNESS (°IRHD)	MIN TEMP	MAX OPERATING TEMP
G75B	General purpose, high temperature grade	Black	78	-15°C/+5°F	+325°C/+617°F
G75H	High temperature grade	White	74	-15°C/+5°F	+320°C/+608°F
G75S	Food/Pharma grade – FDA, USP Class VI & 3A	White	75	-15°C/+5°F	+310°C/+590°F
G80A	Chemical resistant grade	Black	80	-15°C/+5°F	+260°C/+500°F

Perlast® Special Grades

GRADE	DESCRIPTION	COLOUR	HARDNESS (°IRHD)	MIN TEMP	MAX OPERATING TEMP
G60A	General purpose grade	Black	60	-15°C/+5°F	+260°C/+500°F
G70A	General purpose grade	Black	70	-15°C/+5°F	+260°C/+500°F
G90A	General purpose grade	Black	90	-10°C/+14°F	+260°C/+500°F
G75G	Colour-coded grade	Green	75	-15°C/+5°F	+310°C/+590°F
G60S	Food/pharma grade – FDA & FCN	White	60	-15°C/+5°F	+260°C/+500°F
G80S	Food/pharma grade – FDA & FCN	White	80	-15°C/+5°F	+260°C/+500°F
G71H	PTFE blend for improved dynamic performance	White	70	-15°C/+5°F	+310°C/+590°F
G81T		Black	80	-15°C/+5°F	+310°C/+590°F

PERLAST®

Perfluoroelastomer Parts

PPE Corporate Brochure
Elastomer Technical Guide & Chemical Compatibility
Food and Pharmaceutical
Diesel Engines
Endura Oilfield
Perlast® General
Perlast® Semiconductor

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