



# PERLAST®

## Perfluoroelastomer Parts



- **High temperature stability**
- **Ultimate chemical resistance**
- **Outstanding mechanical properties**
- **FDA, USP Class VI & 3A compliant**
- **Rapid Gas Decompression resistant**
- **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).

Two Perlast® grades enable perfluoroelastomers to be used in a wide range of applications ranging from standard sized O-rings and sanitary gaskets for pipe couplings 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 pharmaceutical, lifescience, food, dairy and water industries' which can be downloaded from our website: [www.prepol.com](http://www.prepol.com)



### Perlast® G74S: 24 hour immersion testing

Chemical media	Temp	% weight change
Dichloromethane	35°C	2%
1-Methyl-2-Pyrrolidinone (NMP)	50°C	0%
Acetonitrile	50°C	0%
Tetrahydrofuran (THF)	45°C	1%
Toluene	80°C	0%
Steam	120°C	0%



## 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](http://www.perlast.com)



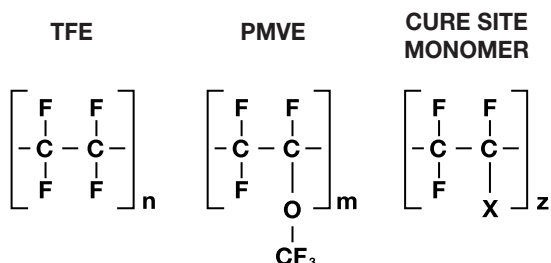
## Perlast® for Chemical Compatibility

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.

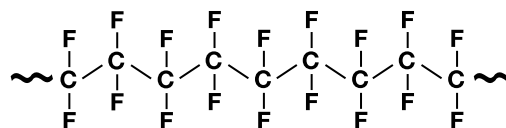
The range of Perlast® perfluoroelastomers combines excellent chemical resistance with thermal stability up to +325°C.

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

### Perlast® G80A



### PTFE - polytetrafluoroethylene

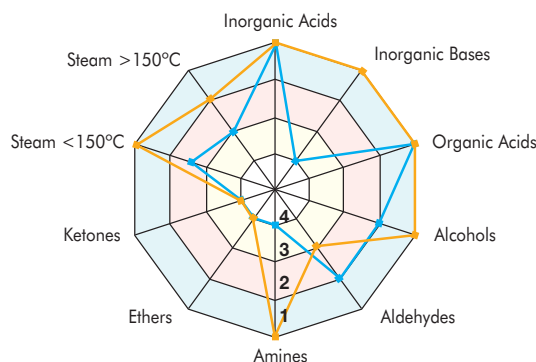
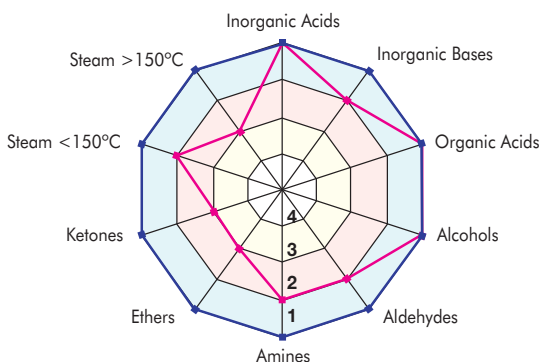


## Perlast® for high pressure and rapid gas decompression (RGD)

**Perlast® G92E** offers exceptional chemical compatibility, combined with excellent thermal and rapid gas decompression (RGD) resistance. Part of the **EnDura®**, range of elite oilfield elastomers, Perlast® G92E has been tested to the requirements of NACE TM0297. Tested up to 28 MPa (4000psi) in nitrogen at 150°C (302°F) for 120 hours, and decompressed over 20 minutes, Perlast® G92E achieved excellent results with no cracks or blistering. This material also exhibits exceptional resistance to methanol, sour gas, hot water, steam and oils, beyond that of conventional TFE/P (Aflas®) and FKM polymers.

Superior physical properties such as low compression set and high mechanical strength provide long-term sealing capability and improved leak prevention, thus minimizing equipment failure, in high pressure applications.

For more information see our "High Performance Sealing Solutions for the Oil & Gas industry" brochure which can be downloaded from our website: [www.prepol.com](http://www.prepol.com)



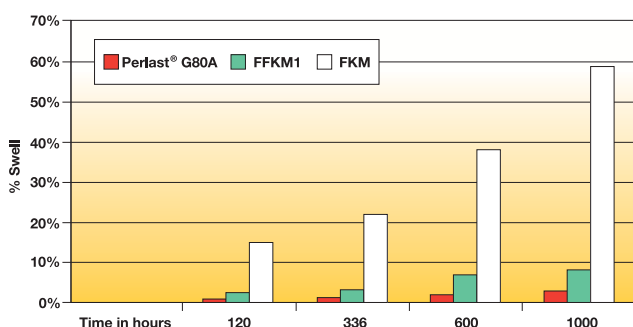
KEY:

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

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](http://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 state-of-the-art 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 the latest, most efficient, 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
<b>G75M</b>	Excellent chemical resistance & mechanical performance	Black	72	-15°C/+5°F	+260°C/+500°F
<b>G75B</b>	High temperature grade	Black	78	-15°C/+5°F	+325°C/+617°F
<b>G75H</b>	High temperature grade	White	74	-15°C/+5°F	+320°C/+608°F
<b>G80A</b>	Ultimate chemical resistant grade	Black	80	-15°C/+5°F	+260°C/+500°F
<b>G74S</b>	Food/Pharma grade – FDA, USP Class VI & 3A	White	71	-15°C/+5°F	+260°C/+500°F
<b>G92E</b>	Rapid Gas Decompression resistant grade	Black	90	-15°C / +5°F	+260°C / 500°F

## Perlast® Specialist Grades

GRADE	DESCRIPTION	COLOUR	HARDNESS (°IRHD)	MIN TEMP	MAX OPERATING TEMP
<b>G76W</b>	Chemical resistant industrial grade	Ivory	70	-15°C / +5°F	+260°C / 500°F
<b>G75G</b>	Colour-coded grade	Green	75	-15°C / +5°F	+310°C / 590°F
<b>G75S</b>	Food/Pharma high temperature grade – FDA, USP Class VI & 3A	White	75	-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



[www.perlast.com](http://www.perlast.com)

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