



PERLAST®

Perfluoroelastomer Parts

BORN TO RESIST

HIGH TEMPERATURE STABILITY

FDA CERTIFICATION

CUSTOM PARTS

PERLAST ESSENTIAL™ FOR CRITICAL PURITY

DIN ISO 9001 DESIGN



Solutions Through Innovation

Precision Polymer Engineering Limited

perlast.com

PERLAST®

Perlast® is a third generation perfluoroelastomer developed by Precision Polymer Engineering to meet the increasing needs of the chemical and pharmaceutical processing industries. During the development of the material a revolutionary manufacturing technique "Pseudo Living Polymerisation" was patented. This technology has been described as the most radical development in fluoropolymer science in over 20 years. The result of this work is a material which greatly improves the chemical and mechanical properties of previous perfluoroelastomers whilst increasing the high and low temperature capabilities of this chemically resistant material family.



Perlast® for 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). The introduction of three FDA Perlast grades has, for the first time, enabled perfluoroelastomers to be used in a wide range of applications ranging from standard size o-rings to specialist hygienic and inflatable seals. Manufacturers of process equipment can now extend the operating capability of their original equipment without expensive component redesigns. Lower overall cost of ownership can be achieved through a combination of increased seal life and reduced process downtime.



Perlast FDA Grades	G60S	G70S	G80S
Colour	White	White	White
Hardness (°IRHD)	60	70	80
Maximum Temperature (°C)	260	260	260
Tensile Strength (Mpa)	14.1	16.1	18.1
Elongation at Break (%)	165	155	130

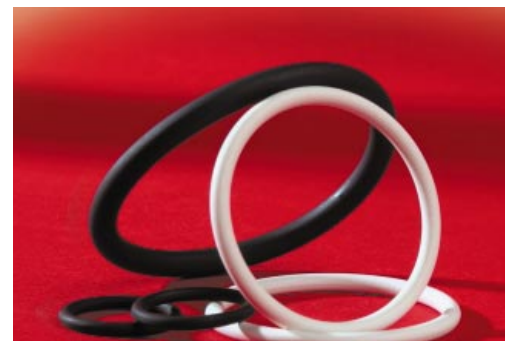
Perlast® for Extremes of Temperature

Precision Polymer Engineering has expanded its range of Perlast® perfluoroelastomers to include a high temperature resistant grade for operating environments peaking at 330°C.

Until now perfluoroelastomers have suffered from poor chemical compatibility performance at the upper limit of their operating temperature range. In a move to broaden the application of Perlast, PPE has improved the physical performance of its current Perlast grades to offer superior compression set performance at higher temperatures. Trials of Perlast G80X indicate the elastomer retains its chemical compatibility at temperatures up to 330°C without loss of chemical compatibility.

At the other end of the scale we have announced the world's first low temperature resistant perfluoroelastomer for operating environments down to minus 35°C.

Five years in development, the Perlast Grade 70L overcomes the many technical challenges that to date have limited perfluoroelastomers to operating environment more extreme than minus 20°C. Until now perfluoroelastomers have lost their elasticity as temperatures have dropped below minus 20°C where they become brittle. The new Perlast G70L not only maintains its elasticity at minus 35°C, but in certain applications will withstand short term exposure to -60°C without becoming brittle.



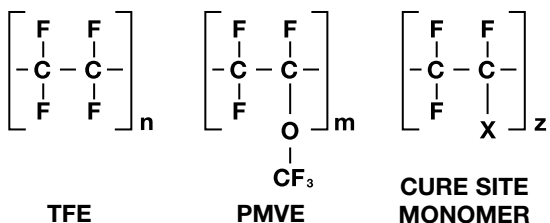
Perlast® for Chemical Compatibility

The unique cross-linking system employed in all Perlast grades ensures compatibility against virtually all chemicals. The molecular structure of Perlast 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.

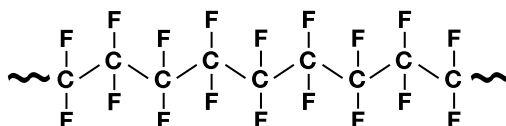
The Perlast range of Perfluoroelastomers combines the excellent chemical resistance with thermal stability up to 330°C.

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

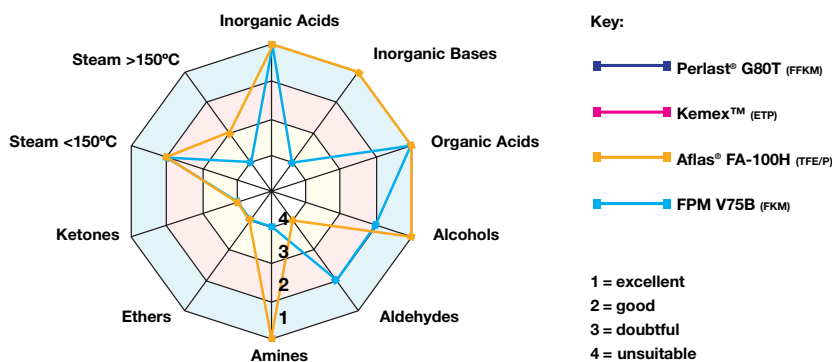
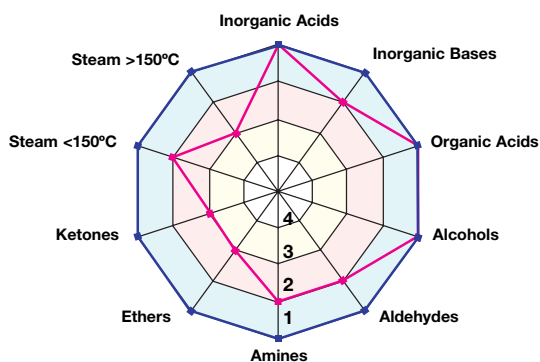
Perlast G80A



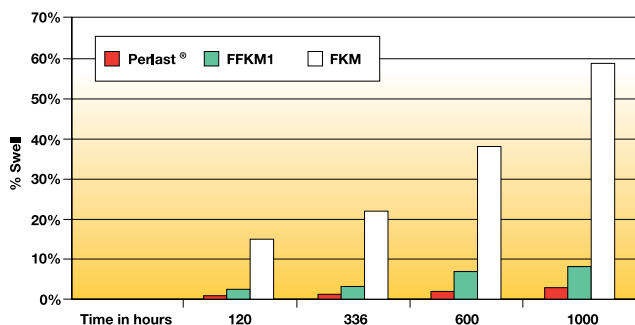
PTFE - polytetrafluoroethylene



FFKM TESTS	Max Operating Temp. >250°C	Steam/ Hot Water	Acids	Alkalis	Hot Amines Temp. >100°C	Ethylene Oxide
1	☹️	😊	😊	😊	😊	😊
2	☹️	😊	😊	😊	😊	☹️
3	😊	😊	😊	😊	😊	😊
4	😊	😊	😊	😊	😊	☹️
5	😊	😊	😊	😊	😊	☹️
6	😊	😊	😊	😊	😊	😊
7	😊	☹️	😊	😊	☹️	☹️
8	☹️	😊	😊	😊	😊	😊
Perlast® G80A	😊	😊	😊	😊	😊	😊



Kemex™ is based on a new ETP terpolymer and its performance is close to a perfluoroelastomer. Its maximum temperature is 210°C.



Elastomer lubricant compatibility test.

Perlast® @250°C, FFKM1@250°C, FKM@200°C

In a standard immersion test Perlast® 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

Technical Support

Perlast is 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.

A team of engineers is always on hand to give full technical support and offer design assistance. Our technical team is supported by the latest 3D CAD Modelling and FEA tools.

To facilitate shorter development times, PPE has invested in a modern CNC-based toolroom dedicated to the production of high quality mould tools. Complex tooling can be manufactured in days resulting in shorter development cycles and early project completion.

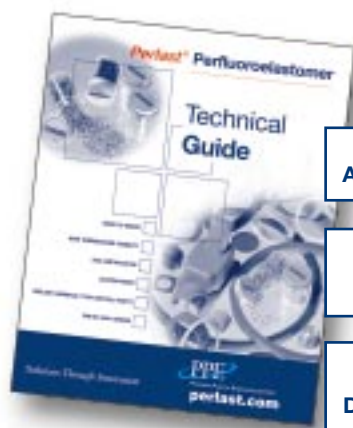
Compounding is done in a custom-built facility on site. This capability allows PPE to anticipate market needs and introduce custom compounds where a demand is identified. Flexibility in compound development enables PPE to offer a wide range of formulations.



Perlast® Standard Grades

Compound	Description	Colour	Hardness Shore A	Min Temp	Max Temp
G80A	General purpose	Black	80	-15°C	260°C
G80K	For strong oxidising agents	White	80	-15°C	260°C
G70S	FDA grade	White	70	-15°C	260°C
G70H	Semiconductor applications	White	70	-15°C	310°C
G71H	PTFE blend for improved dynamic performance	White	70	-15°C	260°C
G80T	High temperature excellent steam resistance	Black	80	-15°C	310°C
G81T	PTFE blend for improved dynamic performance	Black	80	-15°C	260°C
G90D	Extrusion resistant	Black	90	-15°C	260°C
G67P	Semicrystalline filler - Ultra pure	Translucent	67	-15°C	280°C
G74P	Semicrystalline filler - Ultra pure	Translucent	74	-15°C	280°C
G80X	Ultra high temperature	Black	80	-15°C	330°C
G70L	Very low temperature	Black	70	-35°C	280°C
G92A	Electrically conductive	Black	90	-15°C	260°C

Other hardness grades and custom compounds available on request.



Technical Guide
Available in English

Guide Technique
Disponible en
Français

Technische
Information in
Deutscher Sprache
Erhältlich



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