

CHEMICAL COMPATIBILITY GUIDE

ELASTOMER & PLASTICS



QUALITY
PRECISION
SPEED

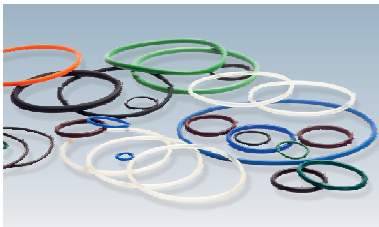
 **MAX SPARE**
LIMITED
QUALITY. PRECISION. SPEED.



ASIA'S LARGEST SEAL PLANT



STATE OF THE ART PLANT



Introduction:

Max Spare was incorporated in 1959 for manufacturing of Hydraulic, Pneumatic, Rotary shaft seals and 'O' rings. Over the years, Max Spare has evolved as Asia's No. 1 Seal Manufacturer, catering to a wide spectrum of industries with different sealing needs. Max Spare with its emphasis on Quality and Technology is ISO 9001-2015 certified and exports its seals to quality conscious markets globally. Having mutually enriching alliances with leading seal manufacturers and stockists in Europe, America, Asia and other continents, exports contribute more than 60% of the current sales.

Max Spare caters to both the replacement and original equipment market. With applications ranging from Gear Boxes, Bearings, Pumps, Hydraulic and Pneumatic Systems, Construction and Mining Equipment's, Hydraulic and Pneumatic Cylinders, etc. and the advantages of having all facilities under one roof, Max Spare is well equipped to handle all sealing requirements from simple 'O' rings to complex profiles and large dia seals upto 3000 mm.

As a leading seal manufacturer for many years, Max Spare has diversified its business to enter into the manufacturing of maximum products for its customers by adding new products to the range.

With quality, precision and speed; Max Spare is geared up to cater to the requirements of its customers with the best service support.

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Sealing Materials - Elastomers

Equipment manufacturers and end users expect sealing systems to operate leak free and to maintain long service life. Reliability is crucial to effective low maintenance cost operations. To find the perfect sealing solution in each individual case both material performance and seal design are critically important. One of the main used material groups for sealings are the elastomers. They show good properties like elasticity or good chemical compatibility. The following tables provide a summary of the various elastomer material groups. Maxspare can offer a large number of materials within each group.

Table 1 : Elastomers

Designation	Trade Name*	Abbreviation		
		ISO 1629	ASTM D 141	MSL
Acrylonitrile-Butadiene Rubber (Nitrile Rubber)	Europrene® Krynac® Nipol N® Perbunan NT Breon®	NBR	NBR	NT
Hydrogenated Acrylonitrile-Butadiene Rubber	Therban® Zetpol®	HNBR	HNBR	HN
Polyacrylate Rubber	Noxite® Hytemp® Nipol AR®	ACM	ACM	PC
Chloroprene Rubber	Baypren® Neoprene®	CR	CR	NP
Ethylene Propylene Diene Rubber	Dutral® Keltan® Vistalon® Buna EP®	EPDM	EPDM	EP
Silicone Rubber	Elastoseal® Rhodorsil® Silastic® Silopren®	VMQ	VMQ	SL
Fluorosilicone Rubber	Silastic®	FVMQ	FVMQ	FSL
Tetrafluoroethylene-Propylene Copolymer Elastomer	Aflas®	FEPM	TFE/P**	-
Butyl Rubber	Esso Butyl®	IIR	IIR	BU
Styrene-Butadiene Rubber	Buna S® Europrene® Polysar S®	SBR	SBR	SB
Natural Rubber		NR	WR	NR
Fluorocarbon Rubber	Dai-EI® Fluorel® Tecnoflon® Viton®	FKM	FKM	VT
Perfluoro Rubber	Isolast® Kalrez®	FFKM	FFKM	FF
Polyester Urethane Polyether Urethane	Zurcon® Adiprene® Pellethan® Vulcollan® Desmopan®	AU EU	AU EU	PU WU
Chlorosulphonated Polyethylene Rubber	Hypalon®	CSM	CSM	-
Polysulphide Elastomer	Thiokol®	-	TWT	-
Epichlorohydrin Elastomer	Hydrin®	-	-	-

* Selection of registered trade names

** Abbreviation not yet standardised

ASTM = American Society for Testing and Materials
ISO = International Organisation for Standardisation

General field of application

Elastomer materials are used to cover a large number of fields of application. The various elastomers can be characterised as follows:

ACM (Polyacrylate Rubber)

ACM shows excellent resistance to ozone, weathering and hot air, although it shows only a medium physical strength, low elasticity and a relatively limited low temperature capability. The operating temperatures range from -20 °C/-4 °F and +150 °C/+302 °F (for a short period of time up to +175 °C/+347 °F). Special types can be used down to -35 °C/-31 °F. ACM-materials are mainly used in automotive applications which require special resistance to lubricants containing many additives (incl. sulphur) at high temperatures.

CR (Chloroprene Rubber)

In general the CR materials show relatively good resistances to ozone, weathering, chemicals and aging. Also they show good non-flammability, good mechanical properties and cold flexibility. The operating temperatures range between -35 °C/-31 °F and +90 °C/+194 °F (for a short period of time up to +120 °C/+248 °F). Special types can be used down to -55 °C/-67 °F. CR materials are found in sealing applications such as refrigerants, for outdoor applications and in the glue industry. EPDM (Ethylene Propylene Diene Rubber) EPDM shows good heat, ozone and aging resistance. In addition they also exhibit high levels of elasticity, good low temperature behaviour as well as good insulating properties. The operating temperatures of applications for EPDM range between -45 °C/-49 °F and +150 °C/+302 °F (for a short period of time up to +175 °C/+347 °F). With sulphur cured types the range is reduced to -45 °C/-49 °F and +130 °C/+266 °F (for short period of time up to +150 °C/+302 °F). EPDM can often be found in applications with brake fluids (based on glycol) and hot water.

FFKM (Perfluoro Rubber)

Perfluoroelastomers show broad chemical resistance similar to PTFE as well as good heat resistance. They show low swelling with almost all media. Depending on the material the operating temperatures range between -25 °C/-13 °F and +240 °C/+464 °F. Special types can be used up to +325 °C/+617 °F. Applications for FFKM can be mostly found in the chemical and process industries and in all applications with either aggressive environments or high temperatures. FKM (Fluorocarbon Rubber) Depending on structure and fluorine content FKM materials can differ with regards to their chemical resistance and cold-flexibility. FKM is known especially for its non-flammability, low gas permeability and excellent resistance to ozone, weathering and aging. The operating temperatures of the Fluorocarbon Rubber range between -20 °C/-4 °F and +200 °C/+392 °F (for a short period of time up to +230 °C/+446 °F). Suitable formulated FKM can be used down to -35 °C/-31 °F. FKM is also often used with mineral based oils and greases at high temperatures.

FVMQ (Fluorosilicone Rubber)

FVMQ has a good heat resistance, very good low temperature flexibility, good electrical properties and excellent resistance to weather, ozone and UV rays. FVMQ shows a significant better chemical resistance than standard Silicone especially in hydrocarbons, aromatic mineral oils, fuel and low molecular aromatic hydrocarbons e.g. Benzene and Toluene. The temperature range is between -50 °C/-58 °F and +175 °C/+347 °F (temporary up to +200 °C/+392 °F).

HNBR (Hydrogenated Nitrile Butadiene Rubber)

HNBR is made via selective hydrogenation of the NBR butadiene groups. The properties of the HNBR rubber depend on the ACN content which ranges between 18 % and 50 % as well as on the degree of saturation.

HNBR shows good mechanical properties. The operating temperature of HNBR ranges between -30 °C/-22 °F and +140 °C/+284 °F (for a short period of time up to +160 °C/+320 °F) in contact with mineral oils and greases. Special types can be used down to -40 °C/-40 °F.

IIR (Butyl Rubber)

Butyl Rubber shows a very low gas and moisture permeability. In addition IIR also exhibits a good resistance to a large number of organic and inorganic chemicals, ozone, weathering and aging. The electrical insulating properties of IIR are excellent. Its temperature range is between -40 °C/-40 °F and +110 °C/+230 °F and for a short period of time up to +120 °C/+248 °F.

NBR (Nitrile Butadiene Rubber)

The properties of the Nitrile Rubber depend mainly on the ACN content which ranges between 18 % and 50 %. In general they show good mechanical properties. The operating temperatures range between -30 °C/-22 °F and +100 °C/+212 °F (for a short period of time up to +120 °C/+248 °F). Suitable formulated NBR can be used down to -60 °C/-76 °F. NBR is mostly used with mineral based oils and greases.

Polyurethane (Zurcon® Polyurethane)

Polyurethanes are an exceptionally complex material group. They are individually designed and fit various applications' needs. Therefore it is not possible to unify the materials' properties. Zurcon® polyurethane materials from Trelleborg Sealing Solutions are customized to appropriate applications and stand out due to their excellent elastic properties and optimum abrasion resistance. Outstanding tensile strength, low compression set and good resistance to O2 and O3 are further significant characteristics. Depending on the individual Zurcon® polyurethane type the application temperature range from below -50 °C/-58 °F up to +110 °C/+230 °F, temporary even higher, is feasible.

VMQ (Silicone Rubber)

VMQ shows excellent heat resistance, cold flexibility, dielectric properties and especially good resistance to weather, ozone and UV rays. Specific VMQ formulations are resistant to aliphatic engine and gear oils, water up to +100 °C/+212 °F and high-molecular chlorinated hydrocarbons. The temperature range is between -50 °C/-58 °F and +175 °C/+347 °F (temporary up to +230 °C/+446 °F).

Chemical compatibility

It is important to recognise that when using this guide, the ratings shown are based on published data and immersion tests. These tests are conducted under laboratory conditions predominantly at room temperature and may not represent adequately the conditions in the field. Relative short term laboratory tests may not pick up all the additives and impurities which may exist in long term service applications. Care must be taken to ensure that all aspects of the application are considered carefully before a material is selected. For example at elevated temperatures some aggressive fluids can cause a much more marked effect on an elastomer than at room temperature. Physical properties as well as fluid compatibility need to be considered. Compression set, hardness, abrasion resistance and thermal expansion can influence the suitability of a material for a particular application. It is recommended that users conduct their own tests to confirm the suitability of the selected material for each application. Our experienced technical staff can be consulted for further information on specific applications.

CONSIDERATIONS WHEN SELECTING SEAL MATERIALS

Information in this section was derived from published literature of polymer suppliers and seal manufacturers. In some cases, ratings are the considered opinion of experienced compounders. Therefore, this section is intended only as a guide in selecting materials for specific sealing applications. Users are encouraged to test seals under operating conditions to determine the suitability of any material or elastomer compound to a particular application.

Simplified maintenance and longer warranty periods require greater reliability of seals. Most seal failures are due to thermal aging in conjunction with fluid attack. Generally, higher temperatures increases the deteriorative effect of chemicals on polymers, with the increase dependent on the polymer and/or the chemical. Volatilization of plasticizer, loss of antioxidant, breaking of the polymer chain, etc. take place at various temperature in various elastomers.

A compound compatible with a chemical at room temperature may fail miserably at a higher temperature. Thermal aging processes of polymers demand that the highest temperatures that the seal will be subjected to in service be considered - including temperatures caused by peak loading conditions of equipment - to assure desired service life of seals. The rate at which natural and synthetic rubbers deteriorate increases logarithmically with the temperature. Relatively small changes in the temperature to which seals are exposed, therefore, can cause large differences in the degree of deterioration observed. There is also evidence that oxygen concentration markedly affects the rate of deterioration of some elastomers at temperatures over 200°F (93°C).

For these reasons, test conditions should approximate service conditions as closely as possible. For example, a circulating air over test may give a low estimate of the life of a part (such as a flange gasket) which may not be exposed to air during service.

Another example can be seen in test results exposing high quality NBR O-Rings to ASTM No. 2 Oil for 1,000 hours at temperatures of 248°F (120°C). One group of O-Rings was tested in a tightly sealed vessel and the second group in an open vessel. The original elongation at break was 550 percent. After aging in a closed vessel under the above conditions, the elongation was 240 percent compared to an elongation of only 60 percent for the O-Rings aged in a vessel open to the air. Other significant results observed during this test were differences in Durometer hardness and percent volume change.

The original Durometer hardness was 71 points. After aging in a closed vessel, the hardness was 73 points and the volume change was +8.3%. After aging in an open vessel, the Durometer hardness was 82 points and volume change was +7.2 percent. These data point up the dangers of using only the volume change and hardness variation as measures of the stability of such materials.

Other considerations in selecting seal materials are:

- **Conditions of Service.** A compound that swells excessively may function satisfactory as a static seal but, fail in dynamic applications.
- **Grade of the Polymer.** Many types of polymer are available in different grades which may vary greatly in chemical resistance and service temperature range.
- **The Compound.** The base polymer determines the limits and range of properties of the compound made from it. The compound ingredients, time / temperature / pressure and
- **method of molding** determine the final properties within these limits. Naturally, compounds designed for good overall properties may not give the performance in a particular chemical that a compound designed especially for resistance to that chemical.
- **Cost.** Keeping the number of different polymers used for seals to a minimum will reduce purchasing and inventory costs. Using a single polymer for all of your seal and packing needs will eliminate the chance of placing a seal or packing of the wrong material in a critical applications. The properties of sealing materials such as elongation, cut and abrasion resistance affect the cost of component design, assembly and warranty claims.

A seal or packing that can be stretched for assembly will reduce the need for machining of components, as well as, the cost of labour for assembly during manufacture.

Temperature limits of the fluids being sealed and the seal material determine the need for additional cooling capacity. Often the fluid will withstand higher temperatures. So, by upgrading seals to a polymer that resists aging at higher temperatures, you may eliminate the need for additional cooling capacity or heat exchangers.

Type	Natural Isoprene	Synthetic Isoprene	Poly - butadiene	Styrene - butadiene	Isobutylene Isoprene	Nitrile	Poly - chloroprene
ASTM Designation	NR	IR	BR	SBR	IIR	NBR	CR
PHYSICAL PROPERTIES							
Specific Gravity	0.90 - 0.93	0.93	0.91	0.94	0.92	0.98	1.23 - 1.25
Wt. of Base Polymer, lb/in ³	0.033	0.033	0.033	0.034	0.033	0.036	0.045
Ther Cond, Btu/ft-hr/sq ft/F	0.082	0.082	-	0.143	0.053	0.143	0.11
Coef of Ther Exp (cubical), 10 ⁻⁵ per °F Gum	37	37	37.5	37	32	39	34
MECHANICAL PROPERTIES							
Hardness, Durometer	30A - 100A	30A - 100A	45A - 80A	30A - 90A	30A - 90A	30A-100A	30A - 95A
Ten Str, 1000 psi	3.5 - 4.5	2.5	2.5	2.5 - 3.0	2.0	10.0 - 3.5	0.5 - 3.5
Modulus (100%), psi	-	-	300 - 1500	300 - 1500	50 - 500	490	100 - 3000
Elongation, %	500 - 700	300 - 750	450	450 - 500	300 - 800	400 - 600	100 - 800
Compression Set, Method B, %	10 - 30	-	10 - 30	5 - 30	25	5 - 20	20 - 60
Resilience, %							
Yerzley (ASTM 945)	80	-	50 - 90	20 - 90	30	-	50 - 80
Rebound (Bashore)	-	-	-	10 - 60	-	-	50 - 80
Hysteresis Resistance	Excellent	Excellent	Good	Fair - Good	-	-	Very Good
Flex Cracking Resistance	-	-	Excellent	Good	-	-	Very Good
Tear Resistance	Excellent	Good	Good	Fair	Good	Good	Good
Abrasion Resistance	Excellent	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Impact Resistance	Excellent	Excellent	Good	Excellent	Good	Good	Excellent
ELECTRICAL PROPERTIES							
Vol Res, ohm-cm	-	-	-	5.0-8.4 x 10 ¹³	2.0 x 10 ¹⁶	3.5 x 10 ¹⁰	2.0 x 10 ¹³
Dielectric Str, v/mil	400 - 600	-	400 - 600	600 - 800	600 - 900	250	400 - 600
Dielectric Constant							
60 cycles	-	-	-	-	2.31	-	8.0
10 ⁵ cycles	2.9	-	3.3	-	2.25	-	6.7
THERMAL PROPERTIES							
Service Temperature, F							
Min for Cont Use	-70	-60	-65	-65	-50	-65	-60
Max for Cont Use	250	180	225	225	300	250	225
Strain Relaxation at 212° F	B	B	B	B	C	B	B
Heat Aging at 212° F	B - C	B - C	C	B	A	B	B - A
Brittle Point - °F	-80	-80	-100	-80	-80	-85	-85
ENVIRONMENTAL RESISTANCE							
Ozone	Poor	Poor	Poor	Poor	Excellent	Poor	Very Good
Oxidation	Good	Good	Good	Good	Excellent	Fair-Good	Very Good
Weathering	Fair	Fair	Fair	Fair	Excellent	Good	Very Good
Water	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good
Radiation	Fair - Good	Fair - Good	Poor	Good	Poor	Fair-Good	Good

Type	Poly - acrylate	Silicon	Fluoro - Silicone	Fluoro - carbon	Poly - urethanes	Thermoplastic Elastomers
ASTM Designation	ACM, ANM	VMQ	FVMQ	FKM	AU, EU	
PHYSICAL PROPERTIES						
Specific Gravity	1.09	1.1 - 1.6	1.4	1.4 - 1.95	1.02 - 1.20	0.94 - 1.22
Wt. of Base Polymer, lb/in ³	0.039	0.040	0.051	0.067	0.045	
Ther Cond, Btu/ft-hr/sq ft/F	-	0.13	0.13	0.06 - 1.3	0.09 - 0.10	0.08 - 0.10
Coef of Ther Exp (cubical), 10 ⁵ per °F Gum	-	45	45	-	-	-
MECHANICAL PROPERTIES						
Hardness, Durometer	40A - 90A	20A - 90A	40A - 70A	55A - 95A	10A - 80D	35A - 72D
Ten Str, 1000 psi	1.8 - 2.0	1.5	2.0	2.0	0.8 - 8.0	5.8 - 6.4
Modulus (100%), psi	100 - 1500	-	-	200 - 2000	25 - 5000	1000 - 3800
Elongation, %	100 - 400	100 - 800	200 - 400	150 - 450	250 - 800	350 - 800
Compression Set, Method B, %	10 - 60	10	-	20 - 25a	10 - 45b	55 - 60c
Resilience, %						
Yerzley (ASTM 945)	-	30 - 60	-	40 - 70	5 - 75	-
Rebound (Bashore)	-	-		40 - 70	20 - 65	43 - 62
Hysteresis Resistance	-	Fair - Good	Good	Good	Fair - Good	Good
Flex Cracking Resistance	Fair	Fair-Excellent	Good	Good	Excellent	Excellent
Tear Resistance	Fair-Good	Fair	Fair	Fair-Very Good	Outstanding	Outstanding
Abrasion Resistance	Good	Poor	Poor	Good	Exc-Outst	Excellent
Impact Resistance	Poor	Poor-Good	Fair	Good	Exc-Outst	Outstanding
ELECTRICAL PROPERTIES						
Vol Res, ohm-cm	7 x 10 ¹²	1 x 10 ¹⁴ - 1 x 10 ¹⁶	-	2 x 10 ¹³	0.3x10 ¹⁰ - 4.7x10 ¹⁵	1 x 10 ¹³
Dielectric Str, v/mil	800	400 - 700	-	500	330 - 700	600 - 700
Dielectric Constant						
60 cycles	-	2.95 - 4.0	-	5.0 - 10.0 ^d	4.7 - 9.53	5.0 - 6.0 ^d
10 ⁴ cycles	2.95 - 4.0	-	-	5.9 - 8.51	-	
THERMAL PROPERTIES						
Service Temperature, F						
Min for Cont Use	-5	-178	-90	-40	-65	-65
Max for Cont Use	350	600	400	550	200	150 - 325
Strain Relaxation at 212° F	C	A	B - A	B - A	D	
Heat Aging at 212° F	A	A	A	A	B	
Brittle Point - °F	-20	-90 to -100	-85	-60	-60 to -200	
ENVIRONMENTAL RESISTANCE						
Ozone	Excellent	Excellent	Excellent	Outstanding	Excellent	Excellent
Oxidation	Excellent	Excellent	Excellent	Outstanding	Excellent	Excellent
Weathering	Excellent	Excellent	Excellent	Excellent	Good	Good
Water	Fair - Poor	Excellent	Excellent	Good	Good-Excellent	Very Good
Radiation	Fair	Fair - Good	Fair - Excellent	Fair - Good	Good-Excellent	Very - Good

Type	Polysulfide	Ethylene Propylene	Chlorosulfonated Polyethylene	Epichlorohydrin	Ethylene Acrylic
ASTM Designation	PTR	EPM, EPDM	CSM	CO, ECO	EA
PHYSICAL PROPERTIES					
Specific Gravity	1.35	0.86	1.11 - 1.28	1.27 - 1.49	1.03
Wt. of Base Polymer, lb/in ³	0.049	0.031	0.043	0.049	0.037
Ther Cond, Btu/ft/hr/sq ft/F	-	0.15	0.065	-	-
Coef of Ther Exp (cubical), 10-5 per °F Gum	-	32	27	-	-
MECHANICAL PROPERTIES					
Hardness, Durometer	20A - 80A	30A - 90A	40A - 95A	30A - 95A	35A - 95A
Ten Str, 1000 psi	0.5 - 1.5	0.5 - 3.5	0.5 - 3.5	2 - 3	1.0 - 3.0
Modulus (100%), psi	-	100 - 3000	100 - 3000	150 - 2000	100 - 1500
Elongation, %	210 - 450	100 - 700	100 - 700	320 - 350	200 - 650
Compression Set, Method B, %	29 - 38	20 - 60b	35 - 80a	20b	10 - 60
Resilience, %					
Yerzley (ASTM 945)	-	40 - 75	30 - 70	50 - 80	40
Rebound (Bashore)	-	40 - 75	30 - 70	45 - 75	25
Hysteresis Resistance	-	Good	Fair - Good	Good	Good
Flex Cracking Resistance	-	Very Good	Very Good	Very Good	Good
Tear Resistance	Poor - Fair	Fair - Good	Fair	Good	Good
Abrasion Resistance	Poor - Fair	Good - Excellent	Excellent	Fair - Good	Good
Impact Resistance	Poor - Fair	Very Good	Very Good	Good	Very Good
ELECTRICAL PROPERTIES					
Vol Res, ohm-cm	5 x 10 ¹³	2 x 10 ¹⁶ - 1 x 10 ¹⁷	1 x 10 ¹⁴	-	10 ¹³
Dielectric Str, v/mil	-	500 - 1000	650	-	700
Dielectric Constant					
60 cycles	7.30	2.25 - 3.0	7.0	-	7.0
10 ⁴ cycles	6.80	2.2 - 2.85	6.0	-	-
THERMAL PROPERTIES					
Service Temperature, F					
Min for Cont Use	-50	-70	-50	-15 to -80	-55
Max for Cont Use	>250	350	275	300	375
Strain Relaxation at 212° F	D	C - B	C	C - B	B
Heat Aging at 212° F	C - B	B - A	B - A	B - A	A
Brittle Point - °F	-65	-90	-70	-10 to -85	-65
ENVIRONMENTAL RESISTANCE					
Ozone	Excellent	Outstanding	Outstanding	Excellent	Outstanding
Oxidation	Excellent	Excellent	Outstanding	Excellent	Outstanding
Weathering	Excellent	Outstanding	Outstanding	Excellent	Outstanding
Water	Good	Excellent	Good	Good	Excellent
Radiation	Fair	Good	Very Good	Poor	Good

COMPATIBILITY TABLES FOR GASES, FLUIDS, SOLIDS

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.

COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
A														
Abietic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Acetaldehyde	3	3	2	4	1	1	3	3	3	4	2	2	4	2
Acetamide	1	1	1	3	1	1	2	1	4	4	2	4	1	2
Acetanilide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Acetic Acid, 30%	X	X	1	X	1	1	X	X	X	X	X	X	X	X
Acetic Acid, 5%	2	2	1	1	1	1	1	2	4	4	1	2	2	1
Acetic Acid, Glacial	2	2	1	2	1	1	3	4	2	4	2	2	2	1
Acetic Acid, Hot, High Pressure	4	4	3	4	2	1	3	4	4	4	4	4	4	3
Acetic Anhydride	3	4	2	4	1	1	2	2	4	4	2	2	4	2
Acetoacetic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Acetone	4	4	1	4	2	1	2	4	4	4	1	4	4	4
Acetone Cyanohydrin	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Acetonitrile	3	X	1	1	1	1	1	X	X	X	X	X	X	X
Acetophenetidine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Acetophenone	4	4	1	4	2	1	2	4	4	4	2	4	4	4
Acetotoluidide	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Acetyl Acetone	4	4	1	4	2	1	2	4	4	4	1	4	4	4
Acetyl Bromide	4	4	1	1	1	1	2	4	4	4	1	4	4	4
Acetyl Chloride	4	4	1	1	1	1	2	4	4	4	4	4	1	4
Acetylene	1	1	1	1	1	1	1	2	2	4	1	2	X	2
Acetylene Tetrabromide	4	4	1	1	1	1	1	2	4	X	1	X	X	X
Acetylene Tetrachloride	4	4	1	1	1	1	1	2	4	X	1	X	X	X
Acetylsalicylic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Acids, Non-organic	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Acids, Organic	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aconitic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Acridine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Acrolein	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Acrylic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Acrylonitrile	4	4	4	3	1	1	3	4	3	4	4	3	4	4
Adipic Acid	1	1	2	X	1	1	2	X	X	X	X	X	X	X
Aero Lubriplate	1	1	4	1	1	1	2	1	2	1	4	4	1	2
Aero Shell 17 Grease	1	1	4	1	1	1	2	2	4	1	4	4	1	2
Aero Shell 750	2	2	4	1	1	1	2	4	4	2	4	4	2	4
Aero Shell 7A Grease	2	2	4	1	1	1	2	2	4	1	4	4	1	2
Aero Shell IAC	1	1	4	1	1	1	2	2	4	1	4	4	1	2
Aerosafe 2300	4	4	1	4	1	1	2	4	4	4	2	4	3	3
Aerosafe 2300W	4	4	1	4	1	1	2	4	4	4	2	4	3	3
Aerozene 50 (50% Hydrazine 50% UDMH)	3	3	1	4	3	2	2	4	4	X	1	4	4	4
Air, Below 200° F	2	2	1	1	1	1	1	2	1	1	2	1	1	1
Air, 200 - 300° F	3	3	2	1	1	1	1	2	4	2	2	1	1	1
Air, 300 - 400° F	4	4	4	1	1	1	2	4	4	4	4	4	2	1
Air, 400 - 500° F	4	4	4	3	2	2	3	4	4	4	4	4	4	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Aliphatic Dicarboxylic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Alkanes (Paraffin Hydrocarbons)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Alkanesulfonic Acid	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Alkanezene	4	4	4	2	1	1	2	4	4	4	4	4	2	4
Alkenes (Olefin Hydrocarbons)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Alkyl Acetone	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Alkyl Alcohol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Alkyl Amine	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Alkyl Aryl Sulfonates	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Alkyl Aryl Sulfonics	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Alkyl Benzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Alkyl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Alkyl Sulfide *	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Alkyl naphthalene Sulfonic Acid	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Allyl Chloride	2	2	4	1	1	1	X	1	X	X	X	X	X	X
Allylidene Diacetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Alpha Picoline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Aluminum Acetate	2	2	1	4	1	1	2	2	2	4	1	1	4	4
Aluminum Bromide	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aluminum Chlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Aluminum Chloride	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Aluminum Ethylate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aluminum Fluoride	1	1	1	1	1	1	1	1	1	X	1	2	1	2
Aluminum Fluorosilicate *	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aluminum Formate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Aluminum Hydroxide	2	X	1	2	1	1	1	X	X	X	X	X	X	2
Aluminum Linoleate	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Aluminum Nitrate	1	1	1	1	1	1	1	1	1	X	1	1	X	2
Aluminum Oxalate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Aluminum Phosphate	1	1	1	1	1	1	1	1	X	X	X	X	X	2
Aluminum Potassium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Aluminum Salts	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aluminum Sodium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Aluminum Sulfate	1	1	1	1	1	1	1	1	2	4	1	1	1	1
Alums-NH3 -Cr -K	1	1	1	4	1	1	2	1	1	4	1	1	4	1
Ambrex 33 (Mobil)	1	1	4	1	1	1	2	2	4	1	4	4	3	4
Ambrex 830 (Mobil)	1	1	3	1	1	1	2	2	4	1	3	4	1	2
Amines-Mixed	4	4	2	4	3	2	3	2	2	4	2	2	4	2
Aminoanthraquinone	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aminoazobenzene	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aminobenzene Sulfonic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aminobenzoic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aminopyridine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aminosalicilic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Ammonia (Anhydrous)	2	2	1	4	3	2	2	1	4	4	1	4	4	2
Ammonia and Lithium Metal in Solution	2	2	4	4	3	X	4	4	2	4	2	4	4	4
Ammonia, Gas, Cold	1	1	1	4	2	1	2	1	1	4	1	1	4	1
Ammonia, Gas, Hot	4	4	2	4	3	2	2	2	4	4	2	4	4	X
Ammonia, Liquid (Anhydrous)	2	2	1	4	3	2	2	1	4	4	1	4	4	2
Ammonium Acetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Ammonium Arsenate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Benzoate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Bicarbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Bisulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Bromide	1	1	1	1	1	1	1	1	1	X	1	1	X	X
Ammonium Carbamate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Carbonate	4	4	1	1	1	1	1	1	4	1	1	1	X	X
Ammonium Chloride, 2N	1	1	1	1	1	1	1	1	1	X	1	1	X	X
Ammonium Citrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Dichromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Diphosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Fluoride	1	1	1	1	1	1	1	1	1	X	1	1	X	X
Ammonium Fluorosilicate *	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Ammonium Formate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Hydroxide, 3 Molar	1	1	1	3	2	2	2	1	2	4	1	2	1	1
Ammonium Hydroxide, Concentrated	4	4	1	4	3	2	2	1	3	4	1	3	1	1
Ammonium Iodide	1	1	1	1	1	1	1	1	1	X	1	1	X	X
Ammonium Lactate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Metaphosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Molybdenate *	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Nitrate, 2N	1	1	1	X	X	X	2	1	1	2	1	3	X	X
Ammonium Nitrite	1	1	1	X	1	1	2	1	1	X	1	1	X	2
Ammonium Oxalate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Perchlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Perchloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Ammonium Persulfate 10%	4	4	1	X	X	X	2	1	4	4	1	1	X	X
Ammonium Persulfate Solution	4	4	1	X	1	2	X	4	4	4	1	1	X	X
Ammonium Phosphate	1	1	1	4	1	1	2	1	1	X	1	1	X	1
Ammonium Phosphate, Dibasic	1	1	1	X	1	1	2	1	1	X	1	1	X	1
Ammonium Phosphate, Mono-Basic	1	1	1	X	1	1	2	1	1	X	1	1	X	1
Ammonium Phosphate, Tribasic	1	1	1	X	1	1	2	1	1	X	1	1	X	1
Ammonium Phosphite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Picrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Polysulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Salicylate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Salts	1	1	1	3	1	1	2	1	1	3	1	1	3	1
Ammonium Sulfamate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Sulfate	1	1	1	4	1	1	2	1	2	4	1	1	X	X

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Ammonium Sulfate Nitrate	1	1	1	4	1	1	2	1	2	4	1	1	X	X
Ammonium Sulfide	1	1	1	4	1	1	2	1	2	4	1	1	X	X
Ammonium Sulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Thiocyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Thioglycolate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Thiosulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Tungstate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ammonium Valerate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Amyl Acetate	1	1	3	4	1	1	3	4	4	4	3	4	4	4
Amyl Alcohol	2	2	1	2	1	1	2	2	4	1	2	1	2	4
Amyl Borate	1	1	4	1	1	1	2	1	4	X	4	4	X	X
Amyl Butyrate	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Amyl Chloride	X	X	4	1	1	1	2	4	4	4	4	4	2	4
Amyl Chloronaphthalene	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Amyl Cinnamic Aldehyde	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Amyl Laurate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Amyl Mercaptan	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Amyl Naphthalene	4	4	4	1	1	1	2	4	4	2	4	4	1	4
Amyl Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Amyl Nitrite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Amyl Phenol	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Amyl Propionate	1	1	4	1	2	1	X	2	4	1	4	4	1	2
Anderol, L- 826 (di-ester)	2	2	4	1	1	1	2	4	4	2	4	4	2	4
Anderol, L- 829 (di-ester)	2	2	4	1	1	1	2	4	4	2	4	4	2	4
Anderol, L-774 (di-ester)	2	2	4	1	1	1	2	4	4	2	4	4	2	4
ANG-25 (Di-ester Base) (TG749)	2	2	4	1	1	1	2	4	4	2	4	4	2	2
ANG-25 (Glyceral Ester)	2	2	1	1	1	1	1	2	2	4	2	2	2	2
Aniline	4	4	2	3	1	1	2	4	4	4	2	4	3	4
Aniline Dyes	4	4	2	2	1	1	2	2	2	4	2	2	2	3
Aniline Hydrochloride	2	2	2	2	1	1	2	4	3	4	2	2	2	3
Aniline Oil	4	4	2	3	2	2	2	4	4	4	2	4	3	4
Aniline Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Aniline Sulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Animal Fats	1	1	2	1	1	1	1	2	X	X	X	X	X	X
Animal Oil (Lard Oil)	1	1	2	1	1	1	2	2	4	1	2	4	1	2
Anisole	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Anisoyl Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
AN-O-3 Grade M	1	1	4	1	1	1	1	2	4	1	4	4	1	2
AN-O-366	1	1	4	1	1	1	2	2	4	1	4	4	1	4
AN-O-6	1	1	4	1	1	1	1	2	4	1	4	4	1	4
Ansul Ether 161 or 181	3	3	3	4	1	1	3	4	4	4	3	4	3	4
Anthracene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Anthranilic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Anthraquinone	X	X	X	X	2	1	X	X	X	X	X	X	X	X

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1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Anti-freeze Solutions	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Antimony Chloride	1	1	4	1	1	1	1	2	4	1	4	4	1	4
Antimony Pentachloride	1	1	4	1	1	1	1	2	4	1	4	4	1	4
Antimony Pentafluoride	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Antimony Sulfate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Antimony Tribromide	1	1	4	1	1	1	1	2	4	1	4	4	1	4
Antimony Trichloride	1	1	4	1	1	1	1	2	4	1	4	4	1	4
Antimony Trifluoride	1	1	4	1	1	1	1	2	4	1	4	4	1	4
Antimony Trioxide	1	1	4	1	1	1	1	2	4	1	4	4	1	4
AN-VV-O-366B Hydr. Fluid	1	1	4	1	1	1	1	2	4	2	4	4	1	4
Aqua Regia	4	3	3	2	2	2	3	4	X	X	X	X	X	X
Arachidic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Argon	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aroclor, 1248	3	3	2	1	1	1	1	4	4	4	2	4	2	2
Aroclor, 1254	4	4	2	1	1	1	1	4	4	4	4	4	2	3
Aroclor, 1260	1	1	X	1	1	1	1	1	1	4	4	1	1	1
Aromatic Fuel -50%	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Arsenic Acid	1	1	1	1	1	1	1	1	1	3	1	2	1	1
Arsenic Oxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Arsenic Trichloride	1	1	4	4	1	1	X	1	X	X	X	X	X	X
Arsenic Trioxide	1	1	4	4	1	1	X	1	X	X	X	X	X	X
Arsenic Trisulfide	1	1	4	4	1	1	X	1	X	X	X	X	X	X
Arsenites	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Arsine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Aryl Orthosilicate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Ascorbic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Askarel Transformer Oil	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Aspartic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Asphalt	2	2	4	1	1	1	2	2	4	2	4	4	2	4
ASTM Oil, No. 1	1	1	4	1	1	1	1	1	4	1	4	4	1	1
ASTM Oil, No. 2	1	1	4	1	1	1	1	2	4	1	4	4	1	4
ASTM Oil, No. 3	1	1	4	1	1	1	1	4	4	1	4	4	1	3
ASTM Oil, No. 4	2	2	4	1	1	1	1	4	4	2	4	4	2	4
ASTM Oil, No. 5	1	1	4	1	1	1	1	2	X	X	X	X	X	X
ASTM Reference Fuel A	1	1	4	1	1	1	1	2	4	2	4	4	1	4
ASTM Reference Fuel B	1	1	4	1	1	1	1	4	4	4	4	4	1	4
ASTM Reference Fuel C	2	2	4	1	1	1	1	4	4	4	4	4	2	4
ASTM Reference Fuel D	2	2	4	1	1	1	4	4	X	X	X	X	X	X
ATL-857	2	2	4	1	1	1	1	4	4	2	4	4	2	4
Atlantic Dominion F	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Atlantic Utro Gear-e	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Atlantic Utro Gear-EP Lube	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Aure 903R (Mobil)	1	1	4	1	1	1	2	2	4	1	4	2	4	4
AUREX 256	X	X	X	X	1	1	X	X	X	X	X	X	X	X

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Automatic Transmission Fluid	1	1	4	1	1	1	2	2	4	1	4	4	X	4
Automotive Brake Fluid	3	3	1	4	1	1	2	2	1	4	2	X	4	3
AXAREL 9100	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Azobenzene	X	X	X	X	1	1	X	X	X	X	X	X	X	X
B														
Bardol B	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Barium Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Barium Chlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Barium Chloride	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Barium Cyanide	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Barium Hydroxide	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Barium Iodide	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Barium Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Barium Oxide	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Barium Peroxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Barium Polysulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Barium Salts	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Barium Sulfate	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Barium Sulfide	1	1	1	1	1	1	1	1	2	4	1	1	1	1
Bayol 35	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Bayol D	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Beer	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Beet Sugar Liquids	1	1	1	1	1	1	1	1		X	X	X	X	X
Beet Sugar Liquors	1	1	1	1	1	1	1	2	1	4	1	1	1	1
Benzaldehyde	4	4	1	4	1	1	2	4	4	4	1	4	4	2
Benzaldehyde Disulfonic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Benzamide	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzanthrone	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzene	4	4	4	1	1	1	2	4	4	4	4	4	3	4
Benzene Hexachloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Benzenesulfonic Acid 10%	4	4	4	1	1	1	2	2	4	4	4	4	2	4
Benidine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benidine 3 Sulfonic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzil	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzilic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzine (Ligroin)	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Benzocatechol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzochloride	4	4	1	1	1	1	1	4	4	4	2	4	1	X
Benzoic Acid	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Benzoin	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzonitrile	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Benzophenone	X	X	2	1	1	1	2	X	4	2	2	X	1	X
Benzoquinone	X	X	2	1	1	1	2	X	4	4	2	X	X	X
Benzotrichloride	4	4	1	1	1	1	1	4	X	X	X	X	X	X

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Benzotrifluoride	4	4	1	1	1	1	1	4	X	X	X	X	X	X
Benzoyl Chloride	X	X	X	1	1	1	X	4	4	4	4	2	2	X
Benzoyl Peroxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Benzoylsulfonic Acid	2	2	4	1	1	1	X	4	4	4	4	2	X	X
Benzyl Acetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Benzyl Alcohol	4	4	2	1	1	1	2	2	4	4	2	4	2	2
Benzyl Amine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Benzyl Benzoate	4	4	4	1	1	1	2	4	4	4	2	4	1	4
Benzyl Bromide	4	4	4	1	1	1	2	4	4	4	4	4	1	4
Benzyl Butyl Phthalate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Benzyl Chloride	4	4	4	1	1	1	2	4	4	4	4	4	1	4
Benzyl Phenol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Benzyl Salicylate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Beryllium Chloride	1	1	1	1	1	1	1	3	3	3	1	3	3	3
Beryllium Fluoride	1	1	1	1	1	1	1	3	3	3	1	3	3	3
Beryllium Oxide	1	1	1	1	1	1	1	3	3	3	1	3	3	3
Beryllium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Bismuth Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Bismuth Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Bismuth Oxychloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Bittern	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Black Liquor	2	X	1	1	4	3	1	1	X	X	X	X	X	X
Black Point 77	1	1	1	1	1	1	1	3	3	3	1	3	3	3
Blast Furnace Gas	4	4	4	1	1	1	2	4	4	4	4	4	2	1
Bleach Liquor	3	3	1	1	1	1	1	2	3	4	1	3	2	2
Bleach Solutions	X	X	1	1	1	1	X	X	X	X	X	X	X	X
Borax	2	2	1	1	1	1	1	4	2	2	1	2	2	2
Borax Solutions	X	X	1	1	1	1	X	X	X	X	X	X	X	X
Bordeaux Mixture	2	2	1	1	1	1	1	2	2	4	1	2	2	2
Boric Acid	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Boric Oxide	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Borneol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Bornyl Acetate	2	2	4	1	2	1	X	4	4	4	4	4	2	X
Bornyl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Bornyl Formate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Boron Fluids (HEF)	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Boron Hydride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Boron Phosphate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Boron Tribromide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Boron Trichloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Boron Trifluoride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Boron Trioxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Brake Fluid DOT3 (Glycol Type)	3	3	1	4	1	1	2	2	1	X	2	X	4	3
Bray GG-130	2	2	4	1	1	1	2	4	4	2	4	4	2	4

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Brayco 719-R (VV-H-910)	3	3	1	4	1	1	2	2	X	4	2	2	2	2
Brayco 885 (MIL-L-6085A)	2	2	4	1	1	1	2	4	4	2	4	2	2	4
Brayco 910	2	2	1	4	1	1	2	2	2	3	1	1	4	4
Bret 710	2	2	1	4	1	1	2	2	2	3	1	1	4	4
Brine	1	1	1	1	1	1	X	X	X	X	X	X	X	X
Brine (Seawater)	1	1	3	1	1	1	1	4	X	X	X	X	X	X
Brom - 113	3	3	4	X	X	X	3	4	4	X	4	X	X	4
Brom - 114	2	2	4	2	1	1	3	2	4	X	4	4	X	4
Bromic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Bromine	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Bromine Pentafluoride	4	4	4	4	2	2	3	4	4	4	4	4	4	4
Bromine Trifluoride	4	4	4	4	2	2	3	4	4	4	4	4	4	4
Bromine Water	4	4	2	1	1	1	3	4	4	4	4	4	2	4
Bromobenzene	4	4	4	1	1	1	2	4	4	4	4	4	1	4
Bromobenzene Cyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Bromochlorotrifluoroethane (Halothane)	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Bromoform	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Bromomethane (Methyl Bromide)	2	2	4	1	1	1	1	4	4	3	4	4	1	X
Bromotrifluoroethylene (BFE)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Bromotrifluoromethane (F-13B1)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Brucine Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Buffered Oxide Etchants	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Bunker Oil	1	1	4	1	1	1	2	4	4	1	4	4	1	2
Bunker's "C" (Fuel Oil)	1	X	X	1	1	1	X	X	X	X	X	X	X	X
Butadiene (Monomer)	4	4	4	1	1	1	2	4	4	4	4	4	1	4
Butane	1	1	4	1	1	1	2	1	3	1	4	4	3	4
Butane, 2, 2-Dimethyl	1	1	4	1	1	1	2	2	3	1	4	4	3	4
Butane, 2, 3-Dimethyl	1	1	4	1	1	1	2	2	3	1	4	4	3	4
Butanedial	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butanol (Butyl Alcohol)	1	1	2	1	1	1	1	1	1	4	2	1	1	2
Butene 2-Ethyl (1-Butene 2-Ethyl)	1	1	4	1	1	1	1	4	4	1	4	4	3	4
Butter-Animal Fat	1	1	1	1	1	1	1	2	4	1	2	4	1	2
Butyl Acetate or n-Butyl Acetate	4	4	2	4	1	1		4	4	4	2	4	4	4
Butyl Acetyl Ricinoleate	2	2	1	1	1	1	1	2	4	X	1	4	2	X
Butyl Acrylate	4	4	1	4	1	1	4	4	4	4	4	4	4	2
Butyl Alcohol	1	1	2	1	1	1	1	1	1	4	2	1	1	2
Butyl Alcohol (Secondary)	2	2	2	1	1	1	1	2	2	4	2	2	2	2
Butyl Alcohol (Tertiary)	2	2	2	1	1	1	1	2	2	4	2	2	2	2
Butyl Amine or N-Butyl Amine	1	1	3	4	1	1	3	4	4	4	4	4	4	4
Butyl Benzoate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butyl Benzoate or n-Butyl Benzoate	4	4	1	1	1	1		4	2	4	1	4	1	X
Butyl Benzolate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Butyl Butyrate or n-Butyl Butyrate	4	4	1	1	1	1		4	4	4	1	4	1	X
Butyl Carbitol	4	4	1	3	1	1	2	3	4	4	1	4	4	4

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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEMP	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Butyl Cellosolve	3	3	2	4	1	1	2	3	4	4	2	4	4	X
Butyl Cellosolve Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butyl Cellosolve Adipate	4	4	2	2	1	1	2	4	4	4	2	4	2	2
Butyl Chloride	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Butyl Ether or n-Butyl Ether	3	3	3	4	1	1	X	4	4	4	3	4	3	4
Butyl Glycolate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butyl Lactate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butyl Laurate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butyl Mercaptan (Tertiary)	4	4	4	1	1	1	X	4	4	4	4	4	X	4
Butyl Methacrylate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Butyl Oleate	4	4	2	1	1	1	2	4	4	X	2	4	2	X
Butyl Oxalate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butyl Stearate	2	2	4	1	1	1	2	4	4	X	4	4	2	X
Butylbenzoic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Butylene	2	2	4	1	1	1	2	3	4	4	4	4	2	4
Butyraldehyde	4	4	2	4	1	1	2	4	4	4	2	4	4	4
Butyric Acid	4	4	2	2	1	1	1	4	4	4	2	X	X	X
Butyric Anhydride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Butyrolactone	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Butyryl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
C														
Cadmium Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cadmium Cyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cadmium Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cadmium Oxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cadmium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cadmium Sulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcine Liquors	1	1	1	1	1	1	1	X	X	4	1	X	1	X
Calcium Acetate	2	2	1	4	1	1	2	2	4	4	1	1	4	4
Calcium Arsenate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Benzoate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Calcium Bicarbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Bisulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Bisulfite	2	2	1	2	1	1	1	2	2	3	1	4	3	3
Calcium Bromide	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Calcium Carbide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Calcium Carbonate	1	1	1	1	1	1	1	1	1	3	1	1	1	1
Calcium Chlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Chloride	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Calcium Chromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Cyanamide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Calcium Cyanide	1	1	1	X	1	1	1	1	1	X	1	1	X	1
Calcium Fluoride	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Calcium Gluconate	3	3	1	3	1	1	X	1	1	4	1	1	1	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Calcium Hydride	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Calcium Hydrosulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Hydroxide	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Calcium Hypochlorite	2	2	1	1	1	1	2	2	4	1	2	2	2	2
Calcium Hypophosphite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Lactate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Naphthenate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Calcium Nitrate	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Calcium Oxalate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Oxide	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Calcium Permanganate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Calcium Peroxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Calcium Phenolsulfonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Phosphate	1	1	1	1	1	1	1	2	1	1	1	1	1	X
Calcium Phosphate Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Propionate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Pyridine Sulfonate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Calcium Salts	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Calcium Silicate	1	1	1	1	1	1	1	1	1	X	1	1	X	X
Calcium Stearate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Calcium Sulfamate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Calcium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Sulfide	1	1	1	1	1	1	1	2	4	1	2	1	1	1
Calcium Sulfite	1	1	1	1	1	1	1	2	4	1	2	1	1	1
Calcium Thiocyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Calcium Thiosulfate	2	2	1	1	1	1	1	2	4	1	2	1	1	1
Calcium Tungstate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Caliche Liquors	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Camphene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Camphor	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Camphoric Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Cane Sugar Liquors	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Capric Acid	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Caproic Acid	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Caproic Aldehyde	X	X	2	4	1	1	3	X	X	4	2	2	4	2
Caprolactam	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Capronaldehyde	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Carbamate	3	3	2	1	1	1	1	2	4	4	2	4	1	X
Carbazole	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Carbitol	2	2	2	2	1	1	1	2	2	4	2	2	2	2
Carbolic Acid (Phenol)	4	4	2	1	1	1	1	4	4	4	2	4	1	4
Carbon Bisulfide	4	4	4	1	1	1	2	4	4	3	4	4	1	4
Carbon Dioxide	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Carbon Dioxide (Explosive Decompression Use)	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
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Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Carbon Disulfide	4	4	4	1	1	1	2	4	4	3	4	4	1	4
Carbon Fluorides	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Carbon Monoxide	1	1	1	1	1	1	1	2	2	X	1	2	2	1
Carbon Tetrabromide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Carbon Tetrachloride	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Carbon Tetrafluoride	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Carbonic Acid	2	2	1	1	1	1	1	2	1	1	1	1	1	1
Casein	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Castor Oil	1	1	2	1	1	1	1	1	1	1	2	1	1	1
Caustic Lime	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Caustic Potash	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Caustic Soda (Sodium Hydroxide)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cellosolve	4	4	2	4	1	1	3	4	4	4	2	4	4	4
Cellosolve, Acetate	4	4	2	4	1	1	2	4	4	4	2	4	4	4
Cellosolve, Butyl	4	4	2	4	1	1	2	4	4	4	2	4	4	4
Celluguard	1	1	1	1	1	1	1	1	3	1	1	1	1	1
Cellulose Acetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Cellulose Acetate Butyrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cellulose Ether	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Cellulose Nitrate *	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cellulose Tripropionate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cellulube (Phosphate Esters)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cellutherm 2505A	2	2	4	1	1	1	2	4	4	2	4	4	2	4
Cerium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cerous Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cerous Fluoride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cerous Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Cetane (Hexadecane)	1	1	4	1	1	1	2	2	4	1	4	4	3	4
Cetyl Alcohol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Chaulmoogric Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
China Wood Oil (Tung Oil)	1	1	4	1	1	1	2	2	4	X	3	4	2	4
Chloral	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chloramine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chloranthraquinone	2	2	4	1	2	1	X	4	4	4	4	4	2	X
Chlordane	2	2	4	1	1	1	2	3	4	X	4	4	2	4
Chlorextol	2	2	4	1	1	1	2	2	4	2	4	4	2	4
Chloric Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chlorinated Solvents, Dry	4	4	4	1	1	1	2	4	4	4	4	4	1	4
Chlorinated Solvents, Wet	4	4	4	1	1	1	2	4	4	4	4	4	1	4
Chlorine (Dry)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorine (Plasma)	X	X	X	X	3	2	X	X	X	X	X	X	X	X
Chlorine (Wet)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Chlorine Dioxide	4	4	3	1	1	1	2	4	4	4	3	4	2	X
Chlorine Dioxide, 8% Cl as NaClO2 in solution	4	4	4	1	1	1	2	4	4	4	4	4	2	X

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Chlorine Trifluoride	4	4	4	4	2	2	4	4	4	4	4	4	4	4
Chlorine Water	3	3	2	1	1	1	4	X	X	X	X	X	X	X
Chloro 1-Nitro Ethane (1-Chloro 1-Nitro Ethane)	4	4	4	4	1	1	3	4	4	4	4	4	4	4
Chloro Oxyluorides	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Chloro Xylenols	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chloroacetaldehyde	3	3	1	3	2	2	X	1	1	4	1	1	1	2
Chloroacetic Acid	4	4	2	4	1	2	4	4	4	2	4	4	X	X
Chloroacetone	4	4	1	4	2	1	2	4	4	4	2	4	4	4
Chloroacetyl Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chloroamino Benzoic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chloroaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chlorobenzaldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chlorobenzene	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Chlorobenzene (Mono)	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Chlorobenzene Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorobenzene Trifluoride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorobenzochloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorobenzotrifluoride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorobromo Methane	4	4	2	1	1	1	1	4	4	4	2	4	2	4
Chlorobromopropane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorobutadiene	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Chlorobutane (Butyl Chloride)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Chlorododecane	4	4	4	1	1	1	2	4	4	4	4	4	1	4
Chloroethane	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Chloroethane Sulfonic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chloroethylbenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chloroform	4	4	4	1	1	1	2	4	4	4	4	4	4	4
Chlorohydrin	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chloronaphthalene or o-Chloronaphthalene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Chloronitrobenzene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chlorophenol or o-Chlorophenol	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Chloropicrin	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chloroprene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorosilanes	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chlorosulfonic Acid	4	4	4	4	1	1	4	4	4	4	4	4	4	4
Chlorotoluene	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Chlorotoluene Sulfonic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Chlorotoluidine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chlorotrifluoroethylene (CTFE)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Chlorox	2	2	2	1	1	1	1	2	4	4	2	4	1	X
Chloroxylols	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cholesterol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Chrome Alum	1	1	1	1	1	1	1	1	1	4	1	1	X	1
Chrome Plating Solutions	4	4	2	1	1	1	1	4	4	4	2	4	2	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.

COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Chromic Acid	4	4	2	1	1	1	X	4	4	4	4	4	2	X
Chromic Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chromic Fluorides	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chromic Hydroxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chromic Nitrates	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chromic Oxide	4	4	2	1	1	1	1	4	X	X	X	X	X	X
Chromic Phosphate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chromic Sulfate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Chromium Potassium Sulfate (Alum)	2	X	2	1	1	1	2	X	X	X	X	X	X	X
Chromyl Chlorides	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cinnamic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Cinnamic Alcohol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Cinnamic Aldehyde	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Circo Light Process Oil	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Citric Acid	1	1	1	1	1	1	1	1	1	X	1	1	1	1
City Service #65 #120 #250	1	1	4	1	1	1	2	2	4	1	4	4	1	4
City Service Koolmoter-AP Gear Oil 140-EP Lube	1	1	4	1	1	1	2	2	4	1	4	4	1	4
City Service Pacemaker #2	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Clorox	2	X	2	1	1	1	X	X	X	X	X	X	X	X
Coal Tar	1	X	X	1	1	1	X	X	X	X	X	X	X	X
Cobalt Chloride	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Cobalt Chloride, 2N	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Cobaltous Acetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Cobaltous Bromide	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Cobaltous Linoleate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cobaltous Naphthenate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cobaltous Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Coconut Oil	1	1	3	1	1	1	2	3	4	1	3	4	1	1
Cod Liver Oil	1	1	1	1	1	1	1	2	4	1	1	4	1	2
Codeine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Coffee	1	1	1	1	1	1	1	1	1	4	1	1	1	1
Coke Oven Gas	4	4	4	1	1	1	2	4	4	4	4	4	2	2
Coliche Liquors	2	2	2	X	X	X	2	1	2	X	2	1	X	X
Convelex 10	4	4	X	X	X	X	X	4	4	X	4	4	X	4
Coolanol 20 25R 35R 40& 45A (Monsanto)	1	1	3	1	1	1	2	2	4	4	4	4	1	4
Copper Acetate	2	2	1	4	1	1	2	2	4	4	1	1	4	4
Copper Ammonium Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Copper Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Copper Chloride	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Copper Cyanide	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Copper Gluconate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Copper Naphthenate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Copper Nitrate	2	X	2	1	1	1	2	X	X	X	X	X	X	X
Copper Oxide	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

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2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Copper Salts	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Copper Sulfate	1	1	1	1	1	1	1	1	2	4	2	2	1	1
Copper Sulfate 10%	1	1	1	1	1	1	1	1	2	4	2	2	1	1
Copper Sulfate 50%	1	1	1	1	1	1	1	1	2	4	2	1	1	1
Corn Oil	1	1	3	1	1	1	2	3	4	1	3	4	1	1
Cottonseed Oil	1	1	3	1	1	1	2	3	4	1	3	4	2	1
Creosote, Coal Tar	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Creosote, Wood	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Cresol (Methyl Phenol)	X	X	X	1	1	1	X	X	X	X	X	X	X	X
Cresols	4	4	4	2	1	1	2	4	4	4	4	4	X	4
Cresylic Acid	4	4	4	1	1	1	2	4	4	4	4	4	X	4
Crotonaldehyde	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Crotonic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Crude Oil	2	2	4	1	1	1	2	4	4	1	4	4	2	4
Cumaldehyde	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Cumene	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Cumene Hydroperoxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cupric Sulfate	2	X	2	1	1	1	2	X	X	X	X	X	X	X
Cutting Oil	1	1	4	1	1	1	2	2	4	1	4	4	1	4
Cyanamide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cyanides	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cyanogen Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cyanogen Gas	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cyanohydrin	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cyanuric Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cyclohexane	1	1	4	1	1	1	2	3	4	2	4	4	1	4
Cyclohexanol	1	1	4	1	1	1	2	2	4	X	4	4	1	4
Cyclohexanone	4	4	2	4	1	1	3	4	4	4	2	4	4	4
Cyclohexene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Cyclohexylamine	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Cyclohexylamine Carbonate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Cyclohexylamine Laurate	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Cyclopentadiene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Cyclopentane	1	1	4	1	1	1	2	3	4	2	4	4	1	4
Cyclopolyolefins	1	1	4	1	1	1	2	3	4	2	4	4	1	4
Cymene or p-Cymene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
D														
DDT (Dichlorodiphenyltrichloroethane)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Decalin	4	4	4	1	1	1	2	4	4	X	4	4	1	4
Decane	1	1	4	1	1	1	2	3	4	1	4	4	1	2
Delco Brake Fluid	3	3	1	4	1	1	2	2	1	X	2	X	4	3
Denatured Alcohol	1	1	1	1	1	1	1	1	4	1	1	1	1	1
Detergent, Water Solution	1	1	1	1	1	1	1	2	2	4	1	2	1	1
Developing Fluids (Photo)	1	1	2	1	1	1	1	1	2	X	2	1	1	1

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
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4. Unsatisfactory
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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Dexron	1	1	4	1	1	1	2	2	4	1	4	4	2	4
Dextrin	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Dextro Lactic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dextron	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Dextrose	3	3	1	3	1	1	X	1	1	4	1	1	1	2
DI Water	2	X	1	2	1	1	X	1	1	4	1	1	1	2
Diacetone	4	4	1	4	1	1	2	4	4	4	1	4	4	4
Diacetone Alcohol	4	4	1	4	1	1	2	2	4	4	1	4	4	4
Dialkyl Sulfates	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Diallyl Ether	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Diallyl Phthalate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Diamylamine	1	1	4	1	2	1	X	2	4	1	4	4	1	2
Diazinon	3	3	4	2	1	1	2	3	4	X	4	4	2	4
Dibenzyl (sym-Diphenylethane)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dibenzyl Ether	4	4	2	4	1	1	2	4	4	X	2	4	X	X
Dibenzyl Sebacate	4	4	2	2	1	1	2	4	4	4	2	4	3	3
Diborane	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Dibromoethane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dibromoethyl Benzene	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Dibutyl Cellosolve Adipate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dibutyl Ether	4	4	3	3	1	1	3	4	4	3	3	4	3	4
Dibutyl Methylenedio Glycolate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dibutyl Phthalate	4	4	2	3	2	1	3	4	4	4	3	4	3	2
Dibutyl Sebacate	4	4	2	2	1	1	2	4	4	4	2	4	2	2
Dibutyl Thioglycolate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dibutyl Thiourea	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dibutylamine	4	4	1	4	1	1	4	3	4	4	4	4	4	3
Dichloroacetic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichloroaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dichlorobenzene or o-Dichlorobenzene	4	4	4	1	1	1		4	4	4	4	4	2	4
Dichlorobenzene or p-Dichlorobenzene	4	4	4	1	1	1		4	4	4	4	4	2	4
Dichlorobutane	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Dichlorobutene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichlorodiphenyl-Dichloroethane (DDD)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichloroethane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichloroethylene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichlorohydrin	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dichloroisopropyl Ether	4	4	3	3	1	1	3	4	4	3	4	4	3	4
Dichloromethane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichlorophenol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichlorophenoxyacetic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichloropropane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichloropropene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dichlorosilane	X	X	X	X	1	1	X	X	X	X	X	X	X	X

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Dicyclohexylamine	1	1	4	4	1	1	4	4	4	4	4	4	4	2
Dicyclohexylammonium Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dieldrin	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Diesel Oil	1	1	4	1	1	1	2	3	4	1	4	4	1	4
Di-ester Lubricant MIL-L-7808	2	2	4	1	1	1	2	4	4	2	4	4	2	4
Di-ester Synthetic Lubricants	2	2	4	1	1	1	2	4	4	2	4	4	2	4
Diethanolamine (DEA)	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Diethyl Benzene	X	X	X	1	1	1	X	X	X	X	X	X	X	X
Diethyl Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Diethyl Ether	4	4	4	4	1	1	4	3	4	3	4	4	3	4
Diethyl Phthalate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Diethyl Sebacate	2	2	2	2	1	1	2	4	4	4	2	4	2	2
Diethyl Sulfate	4	X	1	3	1	1	2	4	X	X	X	X	X	2
Diethylamine	2	X	1	4	1	1	X	1	1	4	1	1	1	2
Diethylaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Diethylene Glycol	1	1	1	1	1	1	1	1	2	1	1	1	1	2
Diethylenetriamine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Diffuorodibromomethane	4	4	2	X	1	1	2	4	4	4	2	4	X	4
Diffuoroethane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Diffuoromonochloroethane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Diglycol Chloroformate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Diglycolic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dihydroxydiphenylsulfone	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Diisobutyl Ketone	X	X	1	X	2	1	1	X	X	X	1	X	X	X
Diisobutylcarbinol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Diisobutylene	2	2	4	1	1	1	2	4	4	4	4	4	3	4
Diisooctyl Sebacate	3	3	3	2	1	1	2	4	4	4	4	4	3	3
Diisopropyl Ether (DIPE)	X	X	X	X	2	1	X	X	X	X	X	X	X	X
Diisopropyl Ketone	4	4	1	4	2	1	2	4	4	4	1	4	4	4
Diisopropylbenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Diisopropylidene Acetone	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dimethyl Acetamide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dimethylaniline (Xylidine)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dimethyldisulfide (DMDS)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Dimethyl Ether	1	X	2	2	1	1	4	3	X	X	X	X	X	X
Dimethyl Formaldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dimethyl Formamide (DMF)	2	2	1	4	1	1	2	3	4	4	2	4	4	2
Dimethylhydrazine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dimethyl Phenyl Carbinol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dimethyl Phenyl Methanol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dimethyl Phthalate	4	4	2	2	1	1	2	4	4	4	2	4	2	X
Dimethyl Sulfoxide (DMSO)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Dimethyl Terephthalate (DMT)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dimethylamine (DMA)	2	2	1	4	1	1	2	2	2	4	2	2	4	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFEP/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
<div>NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.</div> <div>COMPOUND COMPATIBILITY RATING</div> <div>1. Satisfactory</div> <div>2. Fair (usually OK for static seal)</div> <div>3. Doubtful (sometimes OK for static seal)</div> <div>4. Unsatisfactory</div> <div>x. Insufficient Data</div>														
Dinitrochlorobenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dinitrogen Tetroxide	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Dinitrotoluene (DNT)	4	4	4	4	1	1	4	4	4	4	4	4	4	4
Diocetyl Phthalate	4	4	2	2	1	1	2	4	4	4	2	4	2	3
Diocetyl Sebacate	4	4	2	2	1	1	2	4	4	4	2	4	3	3
Diocetylamine	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Dioxane	4	4	2	4	1	1	3	4	4	4	2	4	4	4
Dioxolane	4	4	2	4	1	1	3	4	4	4	3	4	4	4
Dipentene	2	2	4	1	1	1	2	4	4	4	4	4	2	4
Diphenyl	4	4	4	1	1	1	2	4	4	4	4	4	2	4
Diphenyl Oxides	4	4	4	1	1	1	2	4	4	4	4	4	2	3
Diphenylamine (DPA)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Diphenylene Oxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Diphenylpropane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Disilane	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Di-Tert-Butyl Peroxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Dodecylbenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Dow Chemical 50-4	X	X	1	4	3	2	2	2	1	X	2	X	4	X
Dow Chemical ET378	4	4	X	X	X	X	X	4	4	3	4	4	X	4
Dow Chemical ET588	3	3	1	4	3	2	2	2	1	X	2	X	4	X
Dow Corning -11	2	2	1	1	1	1	1	1	1	1	1	1	1	2
Dow Corning 1208, 4050, 6620, F-60, XF-60	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Dow Corning -1265 Fluorosilicone Fluid	2	2	1	1	1	1	1	1	1	1	1	1	3	1
Dow Corning -200	2	2	1	1	1	1	1	1	1	1	1	1	2	3
Dow Corning -220	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Dow Corning -3	2	2	1	1	1	1	X	1	1	1	1	1	1	2
Dow Corning -33	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -4	2	2	1	1	1	1	X	1	1	1	1	1	1	2
Dow Corning -44	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -5	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -510	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -55	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -550	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -704	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -705	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning -710	2	2	1	1	1	1	X	1	1	1	1	1	2	3
Dow Corning F-61	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Dow Guard	1	1	1	1	1	1	X	1	1	3	1	1	1	1
Dowanol P Mix	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Dowtherm, 209	3	3	1	4	1	1	X	2	X	X	2	X	3	3
Dowtherm, A	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Dowtherm, E	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Drinking Water	1	1	1	1	1	1	X	2	1	4	1	1	1	1
Dry Cleaning Fluids	3	3	4	1	1	1	X	4	4	4	4	4	2	4

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
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- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
DTE 20 Series, Mobil	2	2	4	1	1	1	2	1	X	2	4	2	2	4
DTE named series, Mobil, light-heavy	1	1	4	1	1	1	2	2	4	X	4	3	1	3
E														
Elco 28-EP lubricant	1	1	4	1	1	1	X	3	4	1	4	4	1	2
Epichlorohydrin	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Epoxy Resins	X	X	1	4	1	1	X	1	X	X	1	X	X	X
Erucic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Esam-6 Fluid	X	X	1	4	1	1	X	2	1	X	2	X	4	X
Esso Fuel 208	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Esso Golden Gasoline	2	2	4	1	1	1	X	4	4	4	4	4	1	4
Esso Motor Oil	1	1	4	1	1	1	X	3	4	1	4	4	1	4
Esso Transmission Fluid (Type A)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Esso WS2812 (MIL-L-7808A)	1	1	4	1	1	1	X	4	4	2	4	4	1	4
Esso XP90-EP Lubricant	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Esstic 42, 43	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Ethane	1	1	4	1	1	1	X	2	4	1	4	4	3	4
Ethanol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ethanol Amine	2	2	1	4	1	1	X	2	2	4	2	2	4	2
Ethers	4	4	3	3	1	1	X	4	4	3	4	4	3	4
Ethoxyethyl Acetate (EGMEEA)	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Ethyl Acetate-Organic Ester	4	4	2	4	2	1	X	4	4	4	2	4	4	2
Ethyl Acetoacetate	4	4	2	4	1	1	X	4	3	4	2	3	4	2
Ethyl Acrylate	4	4	2	4	1	1	X	4	4	4	2	4	4	2
Ethyl Alcohol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ethyl Ammonium Dichloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Ethyl Benzene	4	4	4	1	1	1	X	4	4	4	4	4	1	4
Ethyl Benzoate	4	4	4	1	1	1	X	4	4	4	4	4	1	4
Ethyl Bromide	2	2	4	1	1	1	X	4	X	X	4	4	1	X
Ethyl Cellosolve	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Ethyl Cellulose	2	2	4	1	1	1	X	2	2	4	2	2	4	2
Ethyl Chloride	1	1	3	1	1	1	X	4	4	3	4	4	1	4
Ethyl Chlorocarbonate	4	4	2	1	1	1	X	4	4	4	4	4	2	4
Ethyl Chloroformate	4	4	2	4	1	1	X	4	4	4	3	4	4	4
Ethyl Ether	3	3	3	4	1	1	X	4	4	4	3	4	3	4
Ethyl Formate	4	4	2	1	1	1	X	2	4	X	2	4	1	X
Ethyl Hexanol	1	1	1	1	1	1	X	1	1	4	1	1	1	2
Ethyl Lactate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ethyl Mercaptan	4	4	X	2	1	1	X	3	4	X	4	4	X	3
Ethyl Nitrite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ethyl Oxalate	4	4	1	2	1	1	X	4	4	4	4	4	2	4
Ethyl Pentachlorobenzene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Ethyl Pyridine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Ethyl Silicate	1	1	1	1	1	1	X	1	2	X	1	2	1	X
Ethyl Stearate	2	2	4	1	1	1	X	4	4	4	4	4	2	X

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4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Ethyl Sulfate	X	X	1	4	1	1	1	X	X	X	X	X	X	X
Ethyl Tertiary Butyl Ether	X	X	X	X	2	1	X	X	X	X	X	X	X	X
Ethyl Valerate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Ethylacrylic Acid	4	4	2	X	X	X	X	2	4	4	2	4	4	4
Ethylamine	3	3	1	3	1	1	X	1	4	1	4	1	1	2
Ethylcyclopentane	1	1	4	1	1	1	X	3	4	2	4	4	1	4
Ethylene	3	2	4	2	1	1	X	4	4	4	4	4	2	4
Ethylene Chloride	4	4	4	2	1	1	X	4	4	4	4	4	2	4
Ethylene Chlorohydrin	4	4	2	1	1	1	X	2	2	4	2	2	2	3
Ethylene Cyanohydrin	2	2	4	1	1	1	X	4	4	4	4	2	2	X
Ethylene Diamine	1	1	1	4	2	2	X	1	2	4	1	1	4	1
Ethylene Dibromide	4	4	3	1	1	1	X	4	4	4	3	4	3	4
Ethylene Dichloride	4	4	3	1	1	1	X	4	4	4	3	4	3	4
Ethylene Glycol	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Ethylene Hydrochloride	4	4	3	1	1	1	X	4	4	4	3	4	3	4
Ethylene Oxide	4	4	3	4	1	1	X	4	4	4	3	4	4	4
Ethylene Oxide, (12%) and Freon 12 (80%)	3	3	2	4	4	2	X	4	4	4	2	4	4	4
Ethylene Trichloride	4	4	3	1	1	1	X	4	4	4	3	4	3	4
Ethyleneimine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Ethylmorpholine Stannous Octotatate (50/50 mixture)	4	4	2	4	1	1	X	X	4	X	2	X	X	X
Ethylmorpholine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Ethylsulfuric Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
F														
F-60 Fluid (Dow Corning)	1	1	1	1	1	1	X	1	1	1	1	1	1	4
F-61 Fluid (Dow Corning)	1	1	1	1	1	1	X	1	1	1	1	1	1	4
Fatty Acids	2	2	3	1	1	1	X	2	4	X	3	4	X	3
FC-43 Heptacosulfurotri-butylamine	1	1	1	1	1	1	X	1	4	X	1	X	1	1
FC75 & FC77 (Fluorocarbon)	1	1	1	2	1	1	X	1	4	X	1	X	2	1
Ferric Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferric Ammonium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferric Chloride	1	1	1	1	1	1	X	2	1	1	1	1	1	2
Ferric Ferrocyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferric Hydroxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferric Nitrate	1	1	1	1	1	1	X	1	1	1	1	1	1	2
Ferric Persulfate	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Ferric Sulfate	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Ferrous Ammonium Citrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferrous Ammonium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferrous Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferrous Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Ferrous Iodide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferrous Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ferrous Tartrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Fish Oil	2	2	4	1	1	1	X	4	4	4	4	4	2	X

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- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Fisher Reagent	X	X	2	X	X	X	X	X	X	X	X	X	X	X
Fluorinated Cyclic Ethers	X	X	1	X	1	X	X	X	X	X	X	X	X	X
Fluorine (Gas)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Fluorine (Liquid)	4	4	4	2	2	2	X	X	X	X	X	X	X	X
Fluorobenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Fluoroboric Acid	1	X	1	X	1	1	X	X	X	X	X	X	X	X
Fluorocarbon Oils	X	X	1	X	2	2	X	X	X	X	X	X	X	X
Fluoroform (Trifluoromethane)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Fluorolube	1	1	1	2	1	1	X	1	4	X	1	X	2	1
Fluorophosphoric Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Fluorosilicic Acid	1	1	2	2	1	1	1	1	X	X	X	X	X	X
Fluorosulfonic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Formaldehyde	3	3	2	4	1	1	X	3	3	4	2	2	4	2
Formamide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Formic Acid	X	X	1	4	1	1	3	1	X	X	X	X	X	X
Freon, 11	4	4	4	2	2	2	X	4	4	4	4	4	2	4
Freon, 112 (Tetrachlorodifluoroethane)	2	2	4	1	1	1	X	2	4	X	4	4	X	4
Freon, 113	1	1	4	2	4	3	X	1	2	X	4	4	X	4
Freon, 113 + High and Low Aniline Oil	1	X	X	X	4	3	4	X	X	X	X	X	X	X
Freon, 114	1	1	1	1	2	2	X	1	1	X	1	1	X	4
Freon, 114B2	2	2	4	2	2	2	X	2	4	X	4	4	X	4
Freon, 115, 116	1	1	1	2	2	2	X	1	1	X	1	1	X	X
Freon, 12	2	2	3	3	2	2	X	1	1	X	3	2	3	4
Freon, 12 and ASTM Oil #2 (50/50 Mixture)	2	2	4	1	1	1	X	3	4	X	4	4	2	4
Freon, 12 and Suniso 4G (50/50 Mixture)	2	2	4	1	1	1	X	3	4	X	4	4	2	4
Freon, 123 (Dichlorotrifluoroethane)	X	X	X	X	4	4	X	X	X	X	X	X	X	X
Freon, 124 (Chlorotetrafluoroethane)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Freon, 125 (Pentafluoroethane)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Freon, 13	1	1	1	1	1	1	X	1	1	X	1	1	4	4
Freon, 134a (Tetrafluoroethane)	X	X	X	X	4	3	X	X	X	X	X	X	X	X
Freon, 13B1	1	1	1	1	2	2	X	1	1	X	1	1	2	4
Freon, 14	1	1	1	1	1	1	X	1	1	X	1	1	X	4
Freon, 141b (Dichlorofluoroethane)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Freon, 142b	2	2	4	2	4	3	4	1	X	X	X	X	X	X
Freon, 152a (Difluoroethane)	X	X	X	X	4	3	X	X	X	X	X	X	X	X
Freon, 21	4	4	4	4	1	1	X	3	4	X	4	4	X	4
Freon, 218	1	X	1	1	1	1	X	X	X	X	X	X	X	X
Freon, 22 (Chlorodifluoroethane)	4	4	3	4	1	1	X	1	1	2	3	1	4	4
Freon, 22 and ASTM Oil #2 (50/50 Mixture)	4	4	4	2	1	1	X	2	4	2	4	4	2	4
Freon, 23 (Fluoroform)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Freon, 31	4	4	1	4	2	2	X	1	2	X	1	2	X	X
Freon, 32	1	1	1	4	2	2	X	1	1	X	1	1	X	X
Freon, 502	2	2	1	2	2	2	X	1	1	X	1	1	X	X
Freon, BF (R112)	2	2	4	1	2	2	X	2	4	X	4	4	X	4

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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2. Fair (usually OK for static seal)
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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Freon, C316	1	X	1	1	2	2	X	X	X	X	X	X	X	X
Freon, C318	1	1	1	2	2	2	X	1	1	X	1	X	X	X
Freon, K-142b	1	1	1	4	4	4	X	1	1	X	1	2	X	X
Freon, K-152a	1	1	1	4	4	4	X	1	1	X	1	1	X	X
Freon, MF (R11)	2	2	4	2	2	2	X	4	4	X	4	4	X	4
Freon, PCA (R113)	1	1	4	2	1	1	X	1	2	X	4	4	X	4
Freon, TA	1	X	2	3	2	2	X	X	X	X	X	X	X	X
Freon, TC	1	X	2	1	2	2	X	X	X	X	X	X	X	X
Freon, TF (R113)	1	1	4	2	2	2	X	1	2	X	4	4	X	4
Freon, TMC	2	X	3	1	2	2	X	X	X	X	X	X	X	X
Freon, T-P35	1	X	1	1	2	2	X	X	X	X	X	X	X	X
Freon, T-WD602	2	X	2	1	2	2	X	X	X	X	X	X	X	X
Fuel Oil, #6	2	2	4	1	1	1	X	4	4	1	4	4	1	1
Fuel Oil, 1, and 2	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Fuel Oil, Acidic	1	1	4	1	1	1	X	2	4	1	4	4	1	1
Fumaric Acid	1	1	2	1	1	1	X	2	2	4	4	3	1	2
Fuming Sulphuric Acid (20/25% Oleum)	4	4	4	1	1	1	X	4	4	4	4	4	X	4
Furaldehyde	4	4	2	4	2	2	4	4	X	X	X	X	X	X
Furan (Furfuran)	4	4	3	1	1	1	X	4	4	4	4	4	X	X
Furfural (Furfuraldehyde)	4	4	2	4	1	1	X	4	4	4	2	4	X	4
Furfuraldehyde	4	4	2	4	1	1	X	4	4	4	2	4	X	4
Furfuryl Alcohol	4	4	2	X	1	1	X	4	4	4	2	4	4	4
Furoic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Furyl Carbinol	4	4	2	X	X	X	X	4	4	4	2	4	4	4
Fyrquel 150 220 300 550	4	4	1	1	1	1	X	4	4	4	1	4	2	1
Fyrquel 90, 100, 500	4	4	1	1	1	1	X	X	X	X	X	X	X	X
Fyrquel A60	4	4	2	4	1	1	2	4	X	X	X	X	X	X
G														
Gallic Acid	2	2	2	1	1	1	X	2	2	4	2	1	1	X
Gasoline	1	1	4	1	1	1	X	4	4	4	4	4	1	4
Gelatin	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Germane (Germanium Tetrahydride)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Girling Brake Fluid	3	3	1	4	1	1	X	2	1	X	2	X	4	X
Glauber's Salt	4	4	2	1	1	1	X	2	4	4	2	2	1	X
Gluconic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glucose	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Glue	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Glutamic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glycerine (Glycerol)	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Glycerol Dichlorohydrin	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glycerol Monochlorohydrin	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glycerol Triacetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glycerophosphoric Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glyceryl Phosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Glycidol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glycol Monoether	X	X	X	X	2	1	X	X	X	X	X	X	X	X
Glycolic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Glycols	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Glyoxylic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Grease Petroleum Base	1	1	4	1	1	1	X	3	4	1	4	4	1	4
Green Sulfate Liquor	2	2	1	1	1	1	X	2	2	4	1	2	2	X
Gulf Endurance Oils	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Gulf FR Fluids (Emulsion)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Gulf FR G-Fluids	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Gulf FR P-Fluids	4	4	2	2	1	1	X	4	4	4	2	4	2	1
Gulf Harmony Oils	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Gulf High Temperature Grease	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Gulf Legion Oils	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Gulf Paramount Oils	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Gulf Security Oils	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Gulf Crown Grease	1	1	4	1	1	1	X	2	4	1	4	4	1	4
H														
Halothane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Halowax Oil	4	4	4	1	1	1	X	4	4	X	4	4	1	4
Hannifin Lube A	1	1	4	1	1	1	X	1	2	1	4	4	1	2
Heavy Water	1	1	1	X	1	1	X	2	1	4	1	1	1	1
HEF-2 (High Energy Fuel)	2	2	4	1	1	1	X	4	4	4	4	4	2	4
Helium	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Heptachlor	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Heptachlorobutene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Heptaldehyde (Heptanal)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Heptane or n-Heptane	1	1	4	1	1	1	X	2	4	1	4	4	3	4
Heptanoic Acid	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Hexachloroacetone	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Hexachlorobutadiene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Hexachlorobutene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Hexachloroethane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Hexaethyl Tetraphosphate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hexafluoroethane (F-116)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Hexafluoroxylene	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hexaldehyde or n-Hexaldehyde	4	4	1	4	1	1	X	1	4	X	2	4	4	2
Hexamethyldisilazane	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hexamethylene (Cyclohexane)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Hexamethylene Diammonium Adipate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Hexamethylenediamine	3	3	1	3	2	2	X	1	1	4	1	1	1	2
Hexamethylenetetramine	3	3	1	3	2	2	X	1	1	4	1	1	1	2
Hexane or n-Hexane	1	1	4	1	1	1	X	2	4	1	4	4	3	4
Hexene-1 or n-Hexene-1	2	2	4	1	1	1	X	2	4	1	4	4	4	4

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Hexone (Methyl Isobutyl Ketone)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Hexyl Acetate	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Hexyl Alcohol	1	1	3	1	1	1	X	2	1	4	3	1	2	2
Hexylene Glycol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Hexylresorcinol	2	2	4	1	1	1	X	4	4	4	4	4	2	X
High Viscosity Lubricant, H2	1	1	1	1	1	1	X	2	1	4	1	X	2	1
High Viscosity Lubricant, U4	1	1	1	1	1	1	X	2	1	4	1	X	2	1
HiLo MS #1	4	4	1	4	1	1	X	4	4	4	2	4	3	3
Houghto-Safe 1010 phosphate ester	4	4	1	1	1	1	X	4	4	4	1	4	2	3
Houghto-Safe 1055 phosphate ester	4	4	1	1	1	1	X	4	4	4	1	4	2	3
Houghto-Safe 1120 phosphate ester	4	4	2	1	1	1	X	4	4	4	1	4	2	3
Houghto-Safe 271 (Water & Glycol Base)	1	1	1	2	1	1	X	2	1	4	2	X	2	2
Houghto-Safe 416 & 500 Series	1	1	1	X	X	X	X	X	X	X	X	X	X	X
Houghto-Safe 5040 (Water/Oil emulsion)	1	1	4	1	1	1	X	2	4	4	4	4	2	3
Houghto-Safe 620 Water/Glycol	1	1	1	2	1	1	X	2	1	4	2	X	2	2
Hydraulic Oil (Petroleum Base, Industrial)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Hydraulic Oils (Synthetic Base)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Hydrazine	2	2	1	4	1	1	X	2	2	X	1	1	4	2
Hydrazine (Anhydrous)	4	4	2	4	1	1	2	2	1	4	2	4	4	X
Hydrazine Dihydrochloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Hydrazine Hydrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Hydriodic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Hydroabietyl Alcohol	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrobromic Acid	4	4	1	1	1	1	X	4	4	4	1	1	3	4
Hydrobromic Acid 40%	4	4	1	1	1	1	X	2	4	4	1	1	3	4
Hydrocarbons, Saturated	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Hydrochloric Acid (cold) 37%	4	X	3	1	1	1	1	4	X	X	X	X	X	X
Hydrochloric Acid (hot) 37%	4	X	3	1	1	1	X	4	4	4	4	4	2	X
Hydrochloric Acid, 3 Molar to 158°F	2	2	1	1	1	1	X	2	3	3	1	3	3	4
Hydrochloric Acid, Concentrated Room Temp.	2	2	2	1	1	1	X	X	X	X	X	X	X	X
Hydrochloric Acid, Concentrated to 158°F	4	4	4	1	1	1	X	4	4	4	4	4	4	4
Hydrocyanic Acid	2	2	1	1	1	1	X	2	2	4	1	1	2	3
Hydro-Drive MIH-10 (Petroleum Base)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Hydro-Drive MIH-50 (Petroleum Base)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Hydrofluoric Acid (Anhydrous)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrofluoric Acid (conc.) Cold	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrofluoric Acid (conc.) Hot	4	X	4	3	1	1	X	X	X	X	X	X	X	X
Hydrofluorosilicic Acid	2	2	1	1	1	1	X	2	2	X	1	1	4	4
Hydrogen Bromide (Anhydrous)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrogen Chloride (Anhydrous)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrogen Chloride gas	4	X	1	1	1	1	1	2	X	X	X	X	X	X
Hydrogen Cyanide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrogen Fluoride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrogen Fluoride (Anhydrous)	4	4	1	4	1	1	2	X	4	4	1	4	4	X

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Hydrogen Gas, Cold	1	1	1	1	1	1	X	1	2	2	1	2	3	3
Hydrogen Gas, Hot	1	1	1	1	1	1	X	1	2	2	1	2	3	3
Hydrogen Iodide (Anhydrous)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrogen Peroxide	2	2	1	1	1	1	X	1	2	4	1	2	1	1
Hydrogen Peroxide 90%	4	4	3	1	1	1	X	4	4	4	3	4	2	2
Hydrogen Selenide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Hydrogen Sulfide, Dry, Cold	1	1	1	4	1	1	X	1	1	4	1	1	3	3
Hydrogen Sulfide, Dry, Hot	4	4	1	4	1	1	X	2	4	4	1	4	3	3
Hydrogen Sulfide, Wet, Cold	4	4	1	4	1	1	X	1	4	4	1	4	3	3
Hydrogen Sulfide, Wet, Hot	4	4	1	4	1	1	X	2	4	4	1	4	3	3
Hydrolube-Water/Ethylene Glycol	1	1	1	1	1	1	X	2	1	4	2	X	2	2
Hydroxycycronellal	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Hydroquinol	4	4	4	1	2	2	X	4	X	X	X	X	X	X
Hydroquinone	3	3	2	2	1	1	X	4	4	4	4	2	2	X
Hydroxyacetic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Hdyne	2	2	1	4	1	1	X	2	2	4	2	2	4	4
Hyjet	4	4	1	4	1	1	2	4	X	X	X	X	X	X
Hyjet IV and IVA	4	4	1	4	1	1	X	4	4	4	2	4	4	4
Hyjet S4	4	X	1	4	1	1	2	4	X	X	X	X	X	X
Hyjet W	4	4	1	4	1	1	2	4	X	X	X	X	X	X
Hypochlorous Acid	4	4	2	1	1	1	X	4	4	4	2	2	X	X
I														
Indole	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Industron FF44	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Industron FF48	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Industron FF53	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Industron FF80	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Insulin	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Iodic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Iodine	2	2	2	1	1	1	X	4	2	X	2	X	1	X
Iodine Pentafluoride	4	4	4	4	2	2	X	4	4	4	4	4	4	4
Iodoform	X	X	4	1	1	1	X	4	4	4	4	4	2	X
Isoamyl Acetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Isoamyl Butyrate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Isoamyl Valerate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Isoboreol	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Isobutane	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Isobutyl Acetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Isobutyl Alcohol	2	2	1	1	1	1	X	1	2	4	1	1	2	1
Isobutyl Chloride	4	4	4	1	1	1	4	4	X	X	X	X	X	X
Isobutyl Ether	2	2	4	4	2	1	4	3	X	X	X	X	X	X
Isobutyl Methyl Ketone	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Isobutyl n-Butyrate	4	4	1	1	1	1	X	4	4	4	1	4	1	X
Isobutyl Phosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Isobutylene	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Isobutyraldehyde	3	2	4	2	2	4	3	X	X	X	X	X	X	X
Isobutyric Acid	1	1	2	4	1	1	3	4	X	X	X	X	X	2
Isocrotyl Chloride	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Isodecanol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Isododecane	1	1	4	1	1	1	X	2	4	4	4	4	1	4
Isougenol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Isooctane	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Isopentane	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Isophorone (Ketone)	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Isopropanol	2	2	1	1	1	1	X	2	2	4	1	1	2	1
Isopropyl Acetate	4	4	2	4	1	1	X	4	4	4	2	4	2	4
Isopropyl Alcohol	2	2	1	1	1	1	X	2	2	4	1	1	2	1
Isopropyl Chloride	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Isopropyl Ether	2	2	4	4	1	1	X	3	4	3	4	4	3	4
Isopropylacetone	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Isopropylamine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
J														
Jet Fuel A	2	2	4	1	1	1	X	4	4	4	4	4	2	X
JP-10	3	3	4	1	1	1	X	4	4	4	4	4	1	4
JP-3 (MIL-J-5624)	1	1	4	1	1	1	2	4	X	X	X	X	X	X
JP-4 (MIL-T-5624)	1	1	4	1	1	1	X	4	4	2	4	4	2	4
JP-5 (MIL-T-5624)	1	1	4	1	1	1	X	4	4	2	4	4	2	4
JP-6 (MIL-J-25656)	1	1	4	1	1	1	X	4	4	2	4	4	2	4
JP-8 (MIL-T-83133)	1	1	4	1	1	1	X	3	4	1	4	4	2	4
JP-9 (MIL-F-81912)	3	3	4	1	1	1	X	4	4	4	4	4	2	4
JP-9 -11	4	4	4	1	1	1	X	4	4	4	4	4	2	4
JPX (MIL-F-25604)	1	1	4	4	1	1	2	2	X	X	X	X	X	X
K														
Kel F Liquids	1	1	1	2	1	1	X	X	1	X	1	X	2	1
Kerosene (Similar to RP-1 and JP-1)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Keystone #87HX-Grease	1	1	4	1	1	1	X	4	4	1	4	4	1	4
L														
Lacquer Solvents	4	4	4	4	1	1	X	4	4	4	4	4	4	4
Lacquers	4	4	4	4	1	1	X	4	4	4	4	4	4	4
Lactams-Amino Acids	4	4	2	4	1	1	X	2	4	X	2	4	4	X
Lactic Acid, Cold	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Lactic Acid, Hot	4	4	4	1	1	1	X	4	4	4	4	4	2	2
Lactones (Cyclic Esters)	4	4	2	4	1	1	X	4	4	4	2	4	4	2
Lard Animal Fat	1	1	2	1	1	1	X	2	4	1	2	4	1	2
Lauric Acid	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Lavender Oil	2	2	4	1	1	1	1	4	X	X	X	X	X	X
LB 135	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Lead (Molten)	X	X	X	X	1	1	X	X	X	X	X	X	X	X

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Lead Acetate	2	2	1	4	1	1	X	2	4	4	1	1	4	4
Lead Arsenate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Azide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Lead Bromide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Chromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Dioxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Linoleate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Naphthenate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Lead Nitrate	1	1	1	X	1	1	X	1	1	X	1	1	1	2
Lead Oxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lead Sulfamate	2	2	1	1	1	1	X	1	2	4	1	2	1	2
Lehigh X1169	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Lehigh X1170	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Light Grease	1	1	4	1	1	1	1	4	X	X	X	X	X	X
Ligroin (Petroleum Ether or Benzene)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Lime Bleach	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Lime Sulfur	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Lindol, Hydraulic Fluid (Phosphate ester type)	4	4	1	2	1	1	X	4	4	4	1	4	3	3
Linoleic Acid	2	2	4	2	1	1	X	2	4	X	4	4	X	2
Linseed Oil	1	1	3	1	1	1	X	3	4	1	3	4	1	1
Liquid Oxygen (LOX)	4	4	4	4	3	2	X	4	4	4	4	4	4	4
Liquid Petroleum Gas (LPG)	1	1	4	1	1	1	X	2	4	3	4	4	3	3
Liquimoly	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Lithium Bromide (Brine)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Citrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Hydroxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Hypochlorite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Nitrite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Perchlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithium Salicylate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lithopone	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Lubricating Oils (Crude & Refined)	2	2	4	1	1	1	1	3	X	X	X	X	X	X
Lubricating Oils (Synthetic base)	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Lubricating Oils, Di-ester	2	2	4	1	1	1	X	3	4	2	4	4	2	4
Lubricating Oils, petroleum base	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Lubricating Oils, SAE 10, 20, 30, 40, 50	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Lye Solutions	2	2	1	2	1	1	X	2	4	1	1	1	2	2
M														
Magnesium Chloride	1	1	1	1	1	1	X	1	1	X	1	1	1	1

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Magnesium Hydroxide	2	2	1	1	1	1	X	2	2	4	1	2	X	X
Magnesium Salts	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Magnesium Sulfite and Sulfate	1	1	1	1	1	1	X	1	2	4	1	2	1	1
Magnesium Trisilicate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Malathion	2	2	4	1	1	1	X	X	4	X	4	2	4	2
Maleic Acid	4	4	4	1	1	1	X	4	4	4	4	4	X	X
Maleic Anhydride	4	4	2	4	1	1	X	4	4	4	2	4	X	X
Maleic Hydrazide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Malic Acid	1	1	2	1	1	1	X	2	2	4	4	3	1	2
Mandelic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Dioxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Gluconate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Hypophosphite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Linoleate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Naphthenate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Manganese Phosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganese Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganous Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganous Phosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Manganous Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mannitol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
MCS 312	4	4	4	1	1	1	X	4	4	4	4	4	1	1
MCS 352	4	4	1	4	1	1	X	4	4	4	2	4	3	3
MCS 463	4	4	1	4	1	1	X	4	4	4	2	4	3	3
MDI (Methylene di-p-phenylene isocyanate)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercaptan	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Mercaptobenzothiazole (MBT)	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Mercuric Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercuric Chloride	1	1	1	1	1	1	X	1	1	X	1	1	X	X
Mercuric Cyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercuric Iodide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercuric Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercuric Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercuric Sulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercurous Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercury	1	1	1	1	1	1	X	1	1	X	1	1	X	X
Mercury Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercury Fulminate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercury Salts	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mercury Vapors	1	1	1	1	1	1	X	1	1	X	1	1	X	X
Mesityl Oxide (Ketone)	4	4	2	4	1	1	X	4	4	4	2	4	4	4

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Meta-Cresol	X	X	X	1	1	1	X	4	4	4	4	2	X	
Metaldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Meta-Nitroaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Meta-Toluidine	X	X	X	1	1	1	X	4	4	4	4	2	X	
Methacrylic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methallyl Chloride	X	X	X	1	1	1	X	4	4	4	4	2	X	
Methane	1	1	4	1	1	1	X	2	4	1	4	3	4	
Methanol	4	4	1	4	1	1	X	1	1	4	1	1	1	1
Methoxychlor	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Methoxyethanol (DGMMA)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methyl Abietate	X	X	X	1	1	1	X	4	4	4	4	2	X	
Methyl Acetate	4	4	2	4	2	1	X	2	4	4	2	4	4	4
Methyl Acetoacetate	4	4	2	4	1	1	X	4	X	4	2	X	4	2
Methyl Acetophenone *	X	X	X	1	2	1	X	4	4	4	4	2	X	
Methyl Acrylate	4	4	2	4	1	1	X	2	4	4	2	4	4	4
Methyl Alcohol	4	4	1	4	1	1	X	1	1	4	1	1	1	1
Methyl Amylketone	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Methyl Anthranilate	X	X	X	1	1	1	X	4	4	4	4	2	X	
Methyl Benzoate	4	4	4	1	1	1	X	4	4	4	4	1	4	
Methyl Bromide	2	2	4	1	1	1	X	4	4	3	4	4	1	X
Methyl Butyl Ketone	4	4	1	4	2	1	X	4	4	4	1	4	4	4
Methyl Butyrate Cellosolve	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methyl Butyrate Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methyl Carbonate	4	4	4	1	1	1	X	4	4	4	4	2	4	
Methyl Cellosolve	3	3	2	4	1	1	X	3	4	4	2	4	4	4
Methyl Cellulose	2	2	2	4	1	1	X	2	2	4	2	2	4	2
Methyl Chloride	4	4	3	1	1	1	X	4	4	4	3	4	2	4
Methyl Chloroacetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Methyl Chloroform	4	4	4	1	1	1	4	X	X	X	X	X	X	X
Methyl Chloroformate	4	4	4	1	1	1	X	4	4	4	4	2	4	
Methyl Chlorosilanes	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Methyl Cyanide (Acetonitrile)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methyl Cyclohexanone	1	1	4	1	1	1	X	2	4	1	4	1	1	2
Methyl Dichloride	X	X	X	1	1	1	X	4	4	4	4	2	X	
Methyl Ether	1	1	4	1	2	1	X	3	4	4	4	1	1	
Methyl Ethyl Ketone (MEK)	4	4	1	4	2	1	X	4	4	4	1	4	4	4
Methyl Ethyl Ketone Peroxide	4	4	4	4	1	1	X	4	4	4	4	4	2	
Methyl Ethyl Oleate	X	X	X	1	1	1	X	4	4	4	4	2	X	
Methyl Formate	4	4	2	X	1	1	X	2	4	X	2	4	X	X
Methyl Hexyl Ketone (2-Octanone)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methyl Iodide	1	1	4	1	1	1	X	2	4	1	4	1	1	2
Methyl Isobutyl Ketone (MIBK)	4	4	3	4	1	1	X	4	4	4	3	4	4	4
Methyl Isocyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methyl Isopropyl Ketone	4	4	2	4	1	1	X	4	4	4	2	4	4	4

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Methyl Isovalerate	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methyl Lactate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methyl Mercaptan	X	X	1	X	1	1	X	X	X	X	1	X	X	X
Methyl Methacrylate	4	X	4	4	1	1	X	4	4	4	4	4	4	4
Methyl Oleate	4	4	2	1	1	1	X	4	4	X	2	4	2	X
Methyl Pentadiene	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methyl Phenylacetate	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methyl Salicylate	4	4	2	X	1	1	X	4	3	X	2	3	X	X
Methyl Tertiary Butyl Ether (MTBE)	3	3	3	3	2	1	2	3	X	X	X	X	X	X
Methyl Valerate	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methyl-2-Pyrrolidone or n-Methyl-2-Pyrrolidone	X	X	2	X	1	1	X	X	X	X	X	X	X	X
Methylacrylic Acid	4	4	2	3	1	1	X	2	4	4	2	4	4	4
Methylal	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Methylamine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methylamyl Acetate	3	3	1	3	2	1	X	1	1	4	1	1	1	2
Methylcyclopentane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Methylene Bromide	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methylene Chloride	4	4	4	2	1	1	X	4	4	4	4	4	2	4
Methylene Iodide	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methylglycerol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Methylisobutyl Carbinol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Methylpyrrolidone	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methylpyrrolidone	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Methylsulfuric Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
MIL-A-6091	2	2	1	1	1	1	X	1	1	4	1	1	1	1
MIL-C-4339	1	1	4	1	1	1	X	4	4	1	4	4	1	3
MIL-C-7024	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-C-8188	2	2	4	2	1	1	X	4	4	3	4	4	2	4
MIL-E-9500	1	1	1	1	1	1	X	1	1	4	1	1	1	1
MIL-F-16884	1	1	4	1	1	1	X	3	4	1	4	4	1	4
MIL-F-17111	1	1	4	1	1	1	X	2	4	1	4	4	2	4
MIL-F-25558 (RJ-1)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
MIL-F-25656	1	1	4	1	1	1	X	4	4	2	4	4	2	4
MIL-F-5566	2	2	1	1	1	1	X	2	2	4	1	1	1	1
MIL-F-81912 (JP-9)	3	3	4	1	1	1	X	4	4	4	4	4	2	4
MIL-F-82522 (RJ-4)	2	2	4	1	1	1	X	4	4	1	4	1	1	4
MIL-G-10924	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-G-15793	1	1	4	1	1	1	X	2	4	1	4	4	2	4
MIL-G-21568	1	1	1	1	1	1	X	1	1	1	1	1	1	4
MIL-G-25013	1	1	1	1	1	1	X	2	1	1	1	2	1	4
MIL-G-25537	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-G-25760	2	2	4	1	1	1	X	2	4	2	4	4	2	4
MIL-G-3278	2	2	4	1	1	1	X	4	4	1	4	4	2	4
MIL-G-3545	1	1	4	1	1	1	X	2	4	1	4	4	1	4

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Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
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COMPOUND COMPATIBILITY RATING

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2. Fair (usually OK for static seal)
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4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
MIL-G-4343	2	2	3	1	1	1	X	2	1	1	3	1	1	3
MIL-G-5572	1	1	4	1	1	1	X	4	4	2	4	4	1	4
MIL-G-7118	2	2	4	1	1	1	X	2	4	3	4	4	1	4
MIL-G-7187	1	1	4	1	1	1	X	4	4	1	4	4	1	4
MIL-G-7421	2	2	4	1	1	1	X	2	4	4	4	4	2	4
MIL-G-7711	1	1	4	1	1	1	X	4	4	2	4	4	1	2
MIL-H-13910	1	1	1	1	1	1	X	1	1	2	1	1	2	4
MIL-H-19457	4	4	2	1	1	1	X	4	4	4	1	4	4	3
MIL-H-22251	2	2	1	X	X	X	X	2	2	X	1	X	X	4
MIL-H-27601	1	1	4	1	1	1	X	2	4	1	4	4	2	4
MIL-H-46170 -15°F to +400°F	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-H-46170 -20°F to +275°F	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-H-46170 -55°F to +275°F	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-H-46170 -65°F to +275°F	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-H-5606 -65°F to +235°F	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-H-5606 -65°F to +275°F	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-H-6083	1	1	4	1	1	1	X	1	4	1	4	2	1	4
MIL-H-7083	1	1	1	2	1	1	X	2	2	4	1	2	1	1
MIL-H-8446 (MLO-8515)	2	2	4	1	1	1	X	1	4	3	4	4	1	4
MIL-J-5161	2	2	4	1	1	1	X	4	4	1	4	4	1	4
Milk	1	1	1	1	1	1	X	1	1	4	1	1	1	1
MIL-L-15016	1	1	4	1	1	1	X	2	4	1	4	4	2	4
MIL-L-15017	1	1	4	1	1	1	X	2	4	1	4	4	2	4
MIL-L-17331	1	1	4	1	1	1	X	X	4	X	4	4	X	4
MIL-L-2104	1	1	4	1	1	1	X	2	4	1	4	4	1	4
MIL-L-21260	1	1	4	1	1	1	X	2	4	1	4	4	1	4
MIL-L-23699	2	2	4	1	1	1	X	3	4	3	4	4	2	4
MIL-L-25681	2	2	1	1	1	1	X	2	2	2	1	2	2	4
MIL-L-3150	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-L-6081	1	1	4	1	1	1	X	2	4	1	4	4	1	4
MIL-L-6082	1	1	4	1	1	1	X	2	4	1	4	4	1	3
MIL-L-6085	2	2	4	1	1	1	X	4	4	2	4	4	2	4
MIL-L-6387	2	2	4	1	1	1	X	4	4	2	4	4	2	4
MIL-L-7808	2	2	4	1	1	1	X	4	4	2	4	4	2	4
MIL-L-7870	1	1	4	1	1	1	X	2	4	1	4	4	1	4
MIL-L-9000	1	1	4	1	1	1	X	2	4	1	4	4	2	4
MIL-L-9236	2	2	4	1	1	1	X	4	4	2	4	4	2	4
MIL-O-3503	1	1	4	1	1	1	X	2	4	2	4	4	1	4
MIL-P-27402	2	2	1	X	X	X	X	2	2	X	1	X	X	4
MIL-R-25576 (RP-1)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
MIL-S-3136, Type I Fuel	1	1	4	1	1	1	X	2	4	1	4	4	1	4
MIL-S-3136, Type II Fuel	2	2	4	1	1	1	X	4	4	3	4	4	2	4
MIL-S-3136, Type III Fuel	2	2	4	1	1	1	X	4	4	3	4	4	2	4
MIL-S-3136, Type IV Oil High Swell	1	1	4	1	1	1	X	4	4	1	4	4	1	2

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
MIL-S-3136, Type IV Oil Low Swell	1	1	4	1	1	1	X	1	4	1	4	4	1	3
MIL-S-3136, Type V Oil Medium Swell	1	1	4	1	1	1	X	2	4	1	4	4	1	2
MIL-S-81087	1	1	1	1	1	1	X	1	1	1	1	1	2	3
MIL-T-5624, JP-4, JP-5	1	1	4	1	1	1	X	4	4	2	4	4	2	4
MIL-T-83133	1	1	4	1	1	1	X	3	4	1	4	4	2	4
Mineral Oils	1	1	3	1	1	1	X	2	4	1	3	4	1	2
Mixed Acids	3	3	1	3	1	1	X	1	1	4	1	1	1	2
MLO-7277 Hydr.	3	3	4	1	1	1	X	4	4	3	4	4	3	4
MLO-7557	3	3	4	1	1	1	X	4	4	3	4	4	3	4
MLO-8200 Hydr.	2	2	4	1	1	1	X	1	4	X	4	4	2	4
MLO-8515	2	2	4	1	1	1	X	1	4	3	4	4	1	4
Mobil 24dte	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Mobil 254 Lubricant	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Mobil Delvac 1100, 1110, 1120, 1130	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Mobil HF	1	1	4	1	1	1	X	2	X	X	X	X	X	X
Mobil Nivac 20, 30	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Mobil SHC 500 Series	3	3	4	1	1	1	X	2	X	1	4	X	2	2
Mobil SHC 600 Series	3	3	4	1	1	1	X	2	4	1	4	X	2	3
Mobil Therm 600	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Mobil Velocite c	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Mobilgas WA200 ATF	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Mobilgear 600 Series	3	3	3	1	1	1	X	1	4	1	3	4	1	1
Mobilgear SHC ISO Series	3	3	3	1	1	1	X	2	4	1	3	4	1	1
Mobilgrease HP	2	2	4	1	1	1	X	2	4	1	4	4	1	2
Mobilgrease HTS	2	2	4	1	1	1	X	2	4	1	4	4	1	2
Mobilgrease SM	2	2	4	1	1	1	X	2	4	1	4	4	1	2
Mobilith AW Series	2	2	4	1	1	1	X	2	4	1	4	4	1	2
Mobilith SHC Series	2	2	4	1	1	1	X	3	4	1	4	4	1	2
Mobiljet II Lubricant	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Mobilmistube Series	3	3	3	1	1	1	X	1	4	1	3	4	1	1
Mobiloil SAE 20	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Mobilux	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Molybdenum Disulfide Grease	1	X	4	1	1	1	1	4	X	X	X	X	X	X
Molybdenum Oxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Molybdenum Trioxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Molybdic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Monobromobenzene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Monobromotoluene	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Monobutyl Paracresol	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Monochloroacetic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Monochlorobenzene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Monochlorobutene	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Monochlorohydrin	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Monoethanolamine (MEA)	4	4	2	4	2	1	X	4	2	4	2	2	4	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.

COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Monoethyl Amine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Monoisopropylamine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Monomethyl Aniline	4	X	1	2	1	1	X	1	1	4	1	1	1	2
Monomethyl Ether (Dimethyl Ether)	X	X	X	X	2	1	X	X	X	X	X	X	X	X
Monomethyl Ether (Methyl Ether)	1	X	4	1	1	1	X	X	X	X	X	X	X	X
Monomethyl Hydrazine	2	2	1	X	1	1	X	2	2	X	1	X	X	4
Monomethylamine (MMA)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Monomethylaniline	4	4	2	2	1	1	X	4	4	4	2	4	X	X
Mononitrotoluene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Mononitrotoluene & Dinitrotoluene (40/60 Mixture)	4	4	1	3	2	2	X	4	4	4	4	4	3	4
Monovinyl Acetylene	1	1	1	1	1	1	X	2	2	X	1	2	X	2
Mopar Brake Fluid	3	3	1	4	1	1	X	2	1	X	2	X	4	3
Morpholine	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Motor Oils	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Mustard Gas	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Myristic Acid	X	X	X	1	1	1	X	4	4	4	4	4	2	X
N														
Naphthalene	4	4	4	1	1	1	X	4	4	X	4	4	1	4
Naphthalene Chloride	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Naphthalene Sulfonic Acid	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Naphthalenic Acid	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Naphthalonic Acid	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Naphthenic Acid	2	2	4	1	1	1	X	4	4	X	4	4	1	4
Naphthylamine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Naptha	2	2	4	1	1	1	X	4	4	2	4	4	2	4
Natural Gas	1	1	4	1	1	1	X	1	2	2	4	2	3	4
Neatsfoot Oil	1	1	2	1	1	1	X	4	4	1	2	4	1	2
Neon	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Neville Acid	4	4	2	1	1	1	X	4	4	4	2	4	2	4
Nickel Acetate	2	2	1	4	1	1	X	2	4	4	1	1	4	4
Nickel Ammonium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nickel Chloride	1	1	1	1	1	1	X	2	1	3	1	1	1	1
Nickel Cyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nickel Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nickel Salts	1	1	1	1	1	1	X	2	1	3	1	1	1	1
Nickel Sulfate	1	1	1	1	1	1	X	1	2	4	1	2	1	1
Nicotinamide (Niacinamide)	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Nicotinamide Hydrochloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nicotine	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Nicotine Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Niter Cake	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Nitric Acid, Red Fuming	4	4	4	2	1	1	3	4	X	X	X	X	X	X
Nitric Acid, White Fuming	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Nitric Acid (0 - 50%)	4	X	2	1	1	1	X	X	X	X	X	X	X	X

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Nitric Acid (50 - 100%)	4	X	4	3	1	1	X	X	X	X	X	X	X	X
Nitric Acid 3 Molar to 158°F	4	4	2	3	2	2	X	4	3	4	2	X	4	4
Nitric Acid Concentrated Room Temp.	X	X	4	2	1	1	X	X	X	X	X	X	X	X
Nitric Acid Concentrated to 158°F	4	4	4	4	3	2	X	4	4	4	4	4	4	4
Nitroaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrobenzene	4	4	1	2	1	1	X	4	4	4	1	4	4	4
Nitrobenzoic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrocellulose	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrochlorobenzene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrochloroform	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrodiethylaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrodiphenyl Ether	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Nitroethane	4	4	2	4	1	1	X	2	2	4	2	2	4	4
Nitrofluorobenzene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrogen	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Nitrogen Oxides	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrogen Tetroxide (N2O4)	4	3	4	4	2	2	X	4	4	4	3	4	4	4
Nitrogen Trifluoride	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Nitroglycerine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitroglycerol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitroisopropylbenzene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitromethane	4	4	2	4	1	1	X	3	3	4	2	2	4	4
Nitrophenol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitropropane	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Nitrosyl Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Nitrosylsulfuric Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Nitrothiophene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrotoluene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrous Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Nitrous Oxide	1	1	1	1	1	1	X	X	X	X	X	X	X	1
Nonane	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Noryl GE Phenolic	1	1	1	X	X	X	X	X	X	X	X	X	X	X
Nyvac FR200 Mobil	1	1	1	1	1	1	X	2	4	X	4	4	X	X
O														
Octachloro Toluene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Octadecane	1	1	4	1	1	1	X	2	4	2	4	4	1	4
Octanal (n-Octanaldehyde)	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Octane or n-Octane	1	1	4	1	1	1	X	4	4	4	4	4	2	4
Octyl Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Octyl Alcohol	2	2	3	1	1	1	X	2	2	4	2	2	2	2
Octyl Chloride	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Octyl Phthalate	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Olefins	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Oleic Acid	3	3	4	2	1	1	X	4	4	4	4	4	X	4

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2. Fair (usually OK for static seal)
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- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Oleum (Fuming Sulfuric Acid)	4	4	4	1	1	1	X	4	4	4	4	4	X	4
Oleum Spirits	2	2	4	1	1	1	X	3	4	X	4	4	2	4
Oleyl Alcohol	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Olive Oil	1	1	2	1	1	1	X	2	4	1	2	4	1	3
Oronite 8200	2	2	4	1	1	1	X	1	4	X	4	4	1	4
Oronite 8515	2	2	4	1	1	1	X	1	4	X	4	4	1	4
Ortho-Chloro Ethyl Benzene	4	4	4	1	1	1	X	4	4	4	4	2	4	
Ortho-Chloroaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ortho-Chlorophenol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ortho-Cresol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Ortho-Dichlorobenzene	4	4	4	1	1	1	X	4	4	4	4	2	4	
Ortho-Nitrotoluene	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Orthophos Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
OS 45 Type III (OS45)	2	2	4	1	1	1	X	1	4	X	X	4	2	4
OS 45 Type IV (OS45-1)	2	2	4	1	1	1	X	1	4	X	4	4	2	4
OS 70	2	2	4	1	1	1	X	1	4	X	4	4	2	4
Oxalic Acid	2	2	1	1	1	1	X	2	2	X	1	2	1	2
Oxygen, 200°-300°F (Evalute for specific applications)	4	4	4	2	1	1								
Oxygen, 300°-400°F (Evalute for specific applications)	4	4	4	2	1	1	X	4	4	4	4	4	1	
Oxygen, Cold (Evalute for specific applications)	2	2	1	1	1	1	X	1	2	2	1	2	1	1
Oxygen, Liquid	4	4	4	4	3	2	4	4	X	X	X	X	X	X
Ozonated Deionized Water	3	3	1	3	2	2	X	1	1	4	1	1	1	2
Ozone	4	4	1	1	1	1	X	2	4	2	2	4	1	1
P														
Paint Thinner, Duco	4	4	4	2	1	1	X	4	4	4	4	2	4	
Palmitic Acid	1	1	2	1	1	1	X	2	2	X	2	2	1	4
Para-Aminobenzoic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Para-Aminosalicilic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Para-Bromobenzylphenyl Ether	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Para-Chlorophenol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Paracymene	X	X	X	1	1	1	X	4	4	4	4	2	X	
Para-Dichlorobenzene	4	4	4	1	1	1	X	4	4	4	4	2	4	
Paraffins	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Para-Formaldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Paraldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Par-al-Ketone	4	4	4	X	X	X	X	4	4	4	4	4	4	4
Para-Nitroaniline	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Para-Nitrobenzoic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Para-Nitrophenol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Parathion	X	X	X	1	1	1	X	4	4	4	4	2	X	
Para-Toluene Sulfonic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Parker O Lube	1	1	4	1	1	1	X	1	2	1	4	4	1	2
Peanut Oil	1	1	3	1	1	1	X	3	4	1	3	4	1	1
Pectin (Liquor)	X	X	X	1	1	1	X	4	4	4	4	2	X	

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.

COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Pelagonic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Penicillin (Liquid)	X	X	X	1	1	1	X	4	4	4	4	2	2	X
Pentachloroethane	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Pentachlorophenol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Pentaerythritol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Pentaerythritol Tetranitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Pentafluoroethane (F-125)	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Pentane or n-Pentane	1	1	4	1	1	1	X	1	3	1	4	4	3	4
Pentane, 2 Methyl	1	1	4	1	1	1	X	2	4	1	4	4	3	4
Pentane, 2,4 dimethyl	1	1	4	1	1	1	X	2	4	1	4	4	3	4
Pentane, 3-Methyl	1	1	4	1	1	1	X	2	4	1	4	4	3	4
Pentoxone	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Pentyl Pentanoate	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Peracetic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Perchloric Acid - 2N	4	4	1	1	1	1	X	2	4	4	2	4	1	2
Perchloroethylene	2	2	4	1	1	1	X	4	4	4	4	4	2	4
Perfluoropropane	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Perfluorotriethylamine	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Permanganic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Persulfuric Acid (Caro's Acid)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Petrolatum	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Petrolatum Ether	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Petroleum Oil, Above 250°F	4	4	4	2	1	1	X	4	4	4	4	4	4	4
Petroleum Oil, Below 250°F	1	1	4	1	1	1	X	2	4	2	4	4	2	2
Petroleum Oil, Crude	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Phenol	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Phenol, 70% / 30% H2O	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Phenol, 85% / 15% H2O	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Phenolic Sulfonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phenolsulfonic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phenylacetamide	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Phenylacetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phenylacetic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phenylbenzene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Phenylene Diamine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Phenylethyl Alcohol	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Phenylethyl Ether	4	4	4	4	1	1	X	4	4	4	4	4	4	4
Phenylethyl Malonic Ester *	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Phenylglycerine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phenylhydrazine	4	4	2	1	1	1	X	4	2	4	4	1	X	X
Phenylhydrazine Hydrochloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phenylmercuric Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phorone	4	4	3	4	1	1	X	4	4	4	3	4	4	4
Phosgene	X	X	X	X	1	1	X	X	X	X	X	X	X	X

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*

AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
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2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Phosphine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Phosphoric Acid 3 Molar to 158°F	1	1	1	1	1	1	X	2	2	3	1	X	2	2
Phosphoric Acid Concentrated Room Temp	2	2	1	1	1	1	X	2	1	2	1	X	3	3
Phosphoric Acid Concentrated to 158°F	4	4	1	1	1	1	X	3	2	3	1	X	3	4
Phosphoric Acid, 20%	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Phosphoric Acid, 45%	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Phosphorus (Molten)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Phosphorus Oxychloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Phosphorus Trichloride	4	4	1	1	1	1	X	4	4	X	1	4	1	X
Phosphorus Trichloride Acid	4	4	1	1	1	1	4	X	X	X	X	X	X	X
Phthalic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Phthalic Anhydride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Pickling Solution	4	4	3	2	1	1	X	4	4	4	3	4	4	4
Picric Acid (aq)	1	1	1	1	1	1	X	1	2	X	1	1	2	X
Picric Acid Molten	2	2	2	1	1	1	X	2	2	X	2	2	2	4
Pine Oil	1	1	4	1	1	1	X	4	4	X	4	4	1	4
Pine Tar	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Pinene	2	2	4	1	1	1	X	3	4	4	4	4	1	4
Piperazine	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Piperidine	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Piranha (H2SO4:H2O2)(70:30)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Plating Solution (Co,Cu,Au,In,Fe,Pb,Ni,Ag,Sn,Zn)	1	1	1	1	1	1	1	X	X	X	X	X	X	X
Plating Solutions Chrome	4	4	2	1	1	1	X	4	4	4	2	4	2	2
Plating Solutions Others	1	1	1	1	1	1	X	4	4	X	1	4	X	4
Pneumatic Service	1	1	1	1	1	1	X	1	4	4	1	4	4	4
Polyethylene Glycol	2	2	1	3	1	1	1	2	X	X	X	X	X	X
Polyglycerol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Polyglycol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Polyvinyl Acetate Emulsion	X	X	1	X	1	1	X	2	4	X	1	2	X	X
Potassium (Molten)	X	X	X	X	4	4	X	X	X	X	X	X	X	X
Potassium Acetate	2	2	1	4	1	1	X	2	4	4	1	1	4	4
Potassium Acid Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Alum	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Aluminum Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Antimonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Bicarbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Bichromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Bifluoride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Bisulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Bisulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Bitartrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Bromide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Chlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2

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Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

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2. Fair (usually OK for static seal)
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4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Potassium Chloride	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Potassium Chromates	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Citrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Cupro Cyanide	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Potassium Cyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Cyanide	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Potassium Dichromate	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Potassium Diphosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Ferricyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Fluoride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Gluconocyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Hydroxide 50%	2	2	1	4	1	1	X	2	2	4	1	2	3	3
Potassium Hypochlorite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Iodate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Iodide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Metabisulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Metachromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Metasilicate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Potassium Monochromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Nitrate	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Potassium Nitrite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Oxalate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Perchlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Perfluoro Acetate	X	X	X	X	2	1	X	X	X	X	X	X	X	X
Potassium Permanganate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Peroxide	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Potassium Persulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Phosphate (Acid)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Phosphate (Alkaline)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Phosphate (Di/Tri Basic)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Pyrosulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Salts	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Potassium Silicate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Potassium Sodium Tartrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Stannate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Stearate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Sulfate	1	1	1	1	1	1	X	1	2	4	1	2	1	1
Potassium Sulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Sulfite	1	1	1	1	1	1	X	1	2	4	1	2	1	1
Potassium Tartrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Thiocyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Thiosulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Potassium Triphosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Prestone Antifreeze	1	1	1	1	1	1	X	1	1	4	1	1	1	1

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2. Fair (usually OK for static seal)
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- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
PRL-High Temp. Hydr. Oil	2	2	4	1	1	1	X	2	4	1	4	4	1	2
Producer Gas	1	1	4	1	1	1	X	2	4	2	4	4	2	2
Propane	1	1	4	1	1	1	X	2	4	1	4	4	2	4
Propionaldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Propionic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Propionitrile	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Propyl Acetate	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Propyl Acetone or n-Propyl Acetone	4	4	1	4	1	1	X	4	4	4	1	4	4	4
Propyl Alcohol	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Propyl Nitrate	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Propyl Propionate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Propylamine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Propylbenzene	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Propylene	3	3	4	1	1	1	X	4	4	4	4	4	3	4
Propylene Chloride	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Propylene Chlorohydrin	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Propylene Dichloride	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Propylene Glycol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Propylene Imine	X	X	X	1	1	1	X	4	4	4	4	4	2	X
Propylene Oxide	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Pydraul 90e	4	4	1	1	1	1	1	4	X	X	X	X	X	X
Pydraul, 10E	4	4	1	4	1	1	X	4	4	4	1	4	4	1
Pydraul, 115E	4	4	1	1	1	1	X	4	4	4	1	4	3	4
Pydraul, 230C, 312C, 540C, A200	4	4	4	1	1	1	X	4	4	4	4	4	4	4
Pydraul, 29ELT 30E, 50E, 65E	4	4	1	1	1	1	X	4	4	4	1	4	1	1
Pyranol Transformer Oil	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Pyridine	4	4	2	1	2	1	X	4	4	4	4	4	2	X
Pyridine Oil	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Pyridine Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Pyridine Sulfonic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Pyrogallol (Pyrogalllic Acid)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Pyrogard 42, 43, 55	4	4	1	1	1	1	2	4	X	X	X	X	X	X
Pyrogard 53, Mobil Phosphate Ester	4	4	1	1	1	1	X	4	4	4	1	4	4	4
Pyrogard D, Mobil Water-in-Oil Emulsion	1	1	4	4	1	1	X	2	4	X	4	4	2	3
Pyroligneous Acid	4	4	2	4	1	1	X	2	4	4	2	4	4	X
Pyrolube	4	4	2	1	1	1	X	4	4	4	2	4	2	2
Pyrosulfuric Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Pyrosulfuryl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Pyrrole	4	4	4	4	1	1	X	4	2	4	4	2	4	2
Pyruvic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Q														
Quinidine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Quinine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Quinine Bisulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*

AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.

COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Quinine Hydrochloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Quinine Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Quinine Tartrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Quinizarin	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Quinoline	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Quinone	2	2	4	1	1	1	X	4	4	4	4	4	2	X
R														
Radiation (Gamma, 1.0 E+07 Rads)	3	3	2	4	3	2	X	X	X	X	4	4	4	2
Raffinate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Rapeseed Oil	2	2	1	1	1	1	X	2	4	2	1	4	1	4
Red Line 100 Oil	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Red Oil (MIL-H-5606)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Resorcinol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Rhodium	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Riboflavin	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Ricinoleic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
RJ-1 (MIL-F-25558)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
RJ-4 (MIL-F-82522)	2	2	4	1	1	1	X	4	4	2	4	4	1	4
Rosin	2	2	4	1	1	1	X	4	4	4	4	4	2	X
RP-1 (MIL-R-25576)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
S														
Saccharin Solution	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sal Ammoniac	1	1	1	1	1	1	X	1	1	1	1	1	1	2
Salicylic Acid	2	2	1	1	1	1	X	X	2	X	1	1	1	X
Santo Safe 300	4	4	3	1	1	1	X	4	4	4	3	4	1	1
Sea (Salt) Water	1	1	1	1	1	1	X	2	1	4	1	1	1	1
Sebacic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Selenic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Selenous Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sewage	1	1	1	1	1	1	X	2	1	4	1	1	1	1
SF 1154 GE Silicone Fluid	2	2	1	1	1	1	X	1	1	1	1	1	1	4
SF1147 GE Silicone Fluid	2	2	3	1	1	1	X	X	X	X	3	X	X	4
SF96 GE Silicone Fluid	2	2	1	1	1	1	X	1	1	1	1	1	1	4
Shell 3XF Mine Fluid (Fire resist hydr.)	1	1	4	1	1	1	X	2	4	4	4	4	1	X
Shell Alvania Grease #2	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Shell Camea 19 and 29	1	1	4	1	1	1	X	4	4	1	4	4	1	X
Shell Diala	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Shell Iruis 905	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Shell Lo Hydrax 27 and 29	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Shell Macome 72	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Shell Tellus #32 Pet. Base	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Shell Tellus #68	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Shell Tellus 27 (Petroleum Base)	1	1	4	1	1	1	1	2	X	X	X	X	X	X
Shell Tellus 33	1	1	4	1	1	1	1	2	X	X	X	X	X	X

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Shell UMF (5% Aromatic)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Shellac	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Silane	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Silicate Esters	2	2	4	1	1	1	X	1	4	X	4	4	1	4
Silicon Fluoride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Silicon Tetrachloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Silicon Tetrafluoride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Silicone Greases	1	1	1	1	1	1	X	1	1	1	1	1	2	3
Silicone Oils	1	1	1	1	1	1	X	1	1	1	1	1	3	3
Silver Bromide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Silver Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Silver Cyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Silver Nitrate	2	2	1	1	1	1	X	1	1	1	1	1	1	1
Silver Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sinclair Opaline CX-EP Lube	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Skelly, Solvent B, C, E	1	1	4	1	1	1	X	4	4	X	4	4	1	X
Skydrol 500 B4	4	4	1	4	1	1	X	4	4	4	2	4	3	3
Skydrol 7000	4	4	1	2	1	1	1	4	X	X	X	X	X	X
Skydrol LD-4	4	4	1	4	1	1	X	4	4	4	2	4	3	3
Soap Solutions	1	1	1	1	1	1	X	2	2	4	1	2	1	1
Socony Mobile Type A	1	1	4	1	1	1	X	2	4	1	4	4	2	4
Socony Vacuum AMV AC781 (Grease)	1	1	4	1	1	1	X	2	4	1	4	4	2	4
Socony Vacuum PD959B	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Soda Ash	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Sodium (Molten)	X	X	X	X	4	4	X	X	X	X	X	X	X	X
Sodium Acetate	2	2	1	4	1	1	X	2	4	3	1	1	4	4
Sodium Acid Bisulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Acid Fluoride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Acid Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Aluminate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Aluminate Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Anthraquinone Disulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Antimonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Arsenate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Arsenite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Benzoate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Bicarbonate (Baking Soda)	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Sodium Bichromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Bifluoride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Bisulfate or Bisulfite	1	1	1	1	1	1	X	1	2	4	1	1	1	1
Sodium Bisulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Bitartrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Borate	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Sodium Bromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Sodium Bromide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Carbonate (Soda Ash)	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Sodium Chlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Chloride	1	1	1	1	1	1	X	1	1	X	1	1	X	1
Sodium Chlorite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Chloroacetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Chromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Citrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Cyanamide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Cyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Cyanide	1	1	1	X	1	1	X	1	1	X	1	1	X	1
Sodium Diacetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Diphenyl Sulfonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Diphosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Disilicate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Ethylate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Ferricyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Ferrocyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Fluoride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Fluorosilicate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Glutamate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Hydride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Sodium Hydrogen Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Hydrosulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Hydrosulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Hydroxide, 3 Molar	2	2	1	2	1	1	X	2	2	4	1	1	2	1
Sodium Hypochlorite	2	2	1	1	1	1	X	2	2	4	1	2	2	2
Sodium Hypophosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Hypophosphite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Hyposulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Iodide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Lactate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Metaphosphate	1	1	1	1	1	1	X	2	1	X	1	1	1	X
Sodium Metasilicate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Methylate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Monophosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Nitrate	2	2	1	X	1	1	X	2	2	X	1	2	X	4
Sodium Oleate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Orthosilicate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Oxalate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Perborate	2	2	1	1	1	1	X	2	2	X	1	2	1	2
Sodium Percarbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Perchlorate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Peroxide	2	2	1	1	1	1	X	2	2	4	1	2	1	4

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*

AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
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Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Sodium Persulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Phenolate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Phenoxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Phosphate (Dibasic)	1	1	1	1	1	1	X	2	1	1	1	1	X	4
Sodium Phosphate (Mono)	1	1	1	1	1	1	X	2	1	1	1	1	X	4
Sodium Phosphate (Tribasic)	1	1	1	1	1	1	X	2	1	1	1	1	X	1
Sodium Plumbite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Pyrophosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Resinate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Salicylate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Salts	1	1	1	1	1	1	X	2	1	1	1	1	1	1
Sodium Sesquisilicate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Sodium Silicate	1	1	1	1	1	1	X	1	1	X	1	1	X	X
Sodium Silicofluoride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Sodium Stannate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Sulfate	1	1	1	1	1	1	X	1	2	4	1	2	1	1
Sodium Sulfide and Sulfite	1	1	1	1	1	1	X	1	2	4	1	2	1	1
Sodium Sulfocyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Tartrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Tetraborate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Tetraphosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Tetrasulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Thioarsenate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Thiocyanate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Thiosulfate	2	2	1	1	1	1	X	1	2	4	1	2	1	1
Sodium Trichloroacetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sodium Triphosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Solvesso 100, 150	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Sorbitol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sour Crude Oil	3	3	4	1	1	1	X	4	4	4	4	4	4	4
Sour Natural Gas	3	3	4	1	1	1	X	4	4	4	4	4	4	4
Sovasol No. 1, 2, and 3	1	1	4	1	1	1	X	2	4	2	4	4	1	4
Sovasol No. 73 and 74	2	2	4	1	1	1	X	2	4	2	4	4	1	4
Soybean Oil	1	1	3	1	1	1	X	3	4	1	3	4	1	1
Spry	1	1	2	1	1	1	X	2	4	1	2	4	1	1
SR-10 Fuel	1	1	4	1	1	1	X	4	4	2	4	4	1	4
SR-6 Fuel	2	2	4	1	1	1	X	4	4	2	4	4	1	4
Standard Oil Mobilube GX90-EP Lube	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Stannic Ammonium Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Stannic Chloride	1	1	1	1	1	1	X	4	1	X	1	1	1	2
Stannic Chloride, 50%	1	1	1	1	1	1	X	4	1	X	1	1	1	2
Stannic Tetrachloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Stannous Bisulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Stannous Bromide	3	3	1	3	1	1	X	1	1	4	1	1	1	2

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEPM)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
Ethylene Propylene (EPDM)	-40°C to 120°C (-40°F to 248°F)*	Polyurethane	-40°C to 80°C (-40°F to 176°F)*
Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Stannous Chloride (15%)	1	1	1	1	1	1	X	1	1	X	1	1	1	2
Stannous Fluoride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Stannous Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Stauffer 7700	2	2	4	1	1	1	X	4	4	2	4	4	2	4
Steam Below 400°F	4	4	1	4	1	1	X	4	4	4	2	4	4	3
Steam, 400° - 500°F	4	4	3	4	1	1	X	4	4	4	4	4	4	4
Steam, Above 500°F	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Stearic Acid	2	2	2	X	1	1	X	2	2	X	2	2	X	2
Stoddard Solvent	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Strontium Acetate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Strontium Carbonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Strontium Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Strontium Hydroxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Strontium Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Styrene (Monomer)	4	4	4	2	1	1	X	4	4	4	4	4	3	4
Succinic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sucrose Solutions	1	1	1	1	1	1	X	2	1	4	1	1	1	1
Sulfamic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sulfanilic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sulfanilic Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Sulfanilimide	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Sulfite Liquors	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sulfolane	2	2	1	2	1	1	1	2	X	X	X	X	X	X
Sulfonated Oils	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Sulfonic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sulfonyl Chloride	3	3	1	3	2	2	X	1	1	4	1	1	1	2
Sulfur	4	4	1	1	1	1	X	1	4	4	1	4	1	X
Sulfur (Molten)	4	4	3	1	1	1	X	3	4	4	3	4	3	3
Sulfur Chloride	4	4	4	1	1	1	X	4	4	4	4	4	1	3
Sulfur Dioxide, Dry	4	4	1	4	1	1	X	4	2	4	2	2	2	2
Sulfur Dioxide, Liquidified under pressure	4	4	1	4	1	1	X	4	4	4	2	4	2	2
Sulfur Dioxide, Wet	4	4	1	4	1	1	X	2	4	4	1	4	2	2
Sulfur Hexafluoride	2	2	1	3	2	2	3	1	X	X	X	X	X	X
Sulfur Liquors	2	2	2	1	1	1	X	2	2	4	2	2	2	4
Sulfur Monochloride	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Sulfur Tetrafluoride	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Sulfur Trioxide Dry	4	4	2	1	1	1	X	4	3	4	2	2	2	2
Sulfuric Acid (20% Oleum)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sulfuric Acid, 3 Molar to 158°F	2	2	1	1	1	1	X	2	3	2	1	X	1	1
Sulfuric Acid, Concentrated Room Temp	X	X	3	1	1	1	X	X	X	X	X	X	X	X
Sulfuric Acid, Concentrated to 158°F	4	X	4	1	1	1	X	4	4	4	4	X	4	4
Sulfuric Chlorohydrin (Chlorosulfonic Acid)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Sulfurous Acid	2	2	2	1	1	1	X	2	2	4	2	2	X	4
Sunoco #3661	1	1	4	1	1	1	X	2	4	1	4	4	1	4

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

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3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Sunoco All purpose grease	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Sunoco SAE 10	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Sunsafe (Fire resist. hydr. fluid)	1	1	4	1	1	1	X	2	4	4	4	4	1	X
Super Shell Gas	1	1	4	1	1	1	X	2	4	2	4	4	2	4
Surfuryl Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Swan Finch EP Lube	1	1	4	1	1	1	X	4	4	1	4	4	1	4
Swan Finch Hypoid-90	1	1	4	1	1	1	X	2	4	1	4	4	1	4
T														
Tallow	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Tannic Acid (10%)	1	1	1	1	1	1	X	1	2	4	1	1	1	2
Tar, bituminous	2	2	4	1	1	1	X	3	4	4	4	3	1	2
Tartaric Acid	1	1	2	1	1	1	X	2	4	X	2	3	1	1
Tellone II	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Terephthalic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Terpineol	2	2	3	1	1	1	X	4	4	X	3	4	1	X
Terpinyl Acetate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Tertiary Amyl Methyl Ether (TAME)	X	X	X	X	2	1	X	X	X	X	X	X	X	X
Tertiary Butyl Catechol or p-tert-butylcatechol	4	4	2	1	1	1	X	2	2	4	2	4	1	X
Tertiary Butyl Mercaptan	4	4	4	1	1	1	X	X	X	X	X	X	X	X
Tetrabromomethane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Tetrabromomethane	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Tetrabutyl Titanate	2	2	1	1	1	1	X	2	2	X	2	2	4	4
Tetrachloroethylene	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Tetrachloroethane	4	4	4	1	1	1	X	4	4	4	4	4	2	X
Tetraethyl Lead	2	2	4	1	1	1	X	2	4	X	4	4	2	X
Tetraethyl Lead "Blend"	2	2	4	1	1	1	X	4	4	X	4	4	2	X
Tetraethyl Orthosilicate (TEOS)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Tetrahydrofuran	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Tetralin	4	4	4	1	1	1	X	4	4	X	4	4	1	4
Tetramethyl Ammonium Hydroxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Tetramethylcyclotetrasiloxane (TMCTS)	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Tetramethyldihydropyridine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Tetraphosphogluconate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Tetraphosphoric Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Texaco 3450 Gear Oil	1	1	4	1	1	1	X	4	4	1	4	4	1	4
Texaco Capella A and AA	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Texaco Meropa 220 (No Lead)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Texaco Regal B	1	1	4	1	1	1	X	4	4	1	4	4	1	4
Texaco Uni-Temp Grease	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Texamatic "A" 1581 Fluid	1	1	4	1	1	1	X	2	4	1	4	4	2	4
Texamatic "A" 3401 Fluid	1	1	4	1	1	1	X	2	4	1	4	4	2	4
Texamatic "A" 3525 Fluid	1	1	4	1	1	1	X	2	4	1	4	4	2	4
Texamatic "A" 3528 Fluid	1	1	4	1	1	1	X	2	4	1	4	4	2	4
Texamatic "A" Transmission Oil	1	1	4	1	1	1	X	2	4	1	4	4	2	4

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2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Texas 1500 Oil	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Therminol 44	4	4	4	1	1	1	X	4	X	4	4	X	X	4
Therminol 55	2	2	4	1	1	1	X	4	X	2	4	X	X	4
Therminol 66	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Therminol FR	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Therminol VP-1, 60, 65	4	4	4	1	1	1	X	4	X	4	4	X	X	2
Thio Acid Chloride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Thioamyl Alcohol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Thiodiacetic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Thioethanol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Thioglycolic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Thiokol TP-90B	4	4	1	1	1	1	X	2	4	X	1	X	2	X
Thiokol TP-95	4	4	1	1	1	1	X	2	4	X	1	X	2	X
Thionyl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Thiophene (Thiofuran)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Thiophosphoryl Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Thiourea	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Thorium Nitrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Tidewater Multigear, 140 EP Lube	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Tidewater Oil-Beebol	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Tin Ammonium Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Tin Chloride	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Tin Tetrachloride	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Titanic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Titanium Dioxide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Titanium Sulfate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Titanium Tetrachloride	2	2	4	1	1	1	X	4	4	4	4	4	2	4
Toluene	4	4	4	1	2	1	X	4	4	4	4	4	2	4
Toluene Bisodium Sulfite	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Toluene Diisocyanate (TDI)	4	4	2	4	1	1	X	4	4	4	2	4	4	4
Toluene Sulfonyl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Toluenesulfonic Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Toluidine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Toluol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Toluquinone	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Tolylaldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Transformer Oil	1	1	4	1	1	1	X	2	4	2	4	4	1	2
Transmission Fluid Type A	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Triacetin	2	2	1	4	1	1	X	2	3	4	1	2	4	X
Triaryl Phosphate	4	4	1	1	1	1	X	4	4	4	1	4	2	3
Tribromomethylbenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Tributoxyethyl Phosphate	4	4	1	1	1	1	X	4	2	4	1	2	2	X
Tributyl Citrate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Tributyl Mercaptan	4	4	4	1	1	1	X	4	4	4	4	4	3	4

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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.

COMPOUND COMPATIBILITY RATING

1. Satisfactory
2. Fair (usually OK for static seal)
3. Doubtful (sometimes OK for static seal)
4. Unsatisfactory
- x. Insufficient Data

	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Tributyl Phosphate	4	4	1	4	1	1	X	4	4	4	2	2	4	4
Tributylamine	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Trichloroacetic Acid	2	2	2	3	1	1	X	4	2	4	2	2	4	X
Trichloroacetyl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Trichlorobenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Trichloroethane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Trichloroethanolamine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Trichloroethylene	3	3	4	1	1	1	X	4	4	4	4	4	2	4
Trichloromethane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Trichloronitromethane (Chloropicrin)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Trichlorophenylsilane	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Trichloropropane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Trichlorosilane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Tricresyl Phosphate	4	4	1	2	1	1	X	3	2	4	1	4	2	3
Triethanol Amine	3	3	2	4	1	1	X	2	2	4	2	2	4	X
Triethyl Phosphate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Triethylaluminum	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Triethylborane	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Triethylene Glycol	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Triethylenetetramine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Trifluoroacetic Acid	3	3	1	3	2	2	X	1	1	4	1	1	1	2
Trifluoroethane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Trifluoromethane	4	4	4	1	1	1	X	4	4	4	4	4	2	4
Trifluorovinylchloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Triisopropylbenzylchloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Trimethylamine	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Trimethylamine (TMA)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Trimethylbenzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Trimethylborate (TMB)	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Trimethylpentane	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Trinitrotoluene (TNT)	4	4	4	2	1	1	X	2	4	4	4	4	2	X
Trioctyl Phosphate	4	4	1	2	1	1	X	4	4	4	1	4	2	3
Triphenylphosphite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Tripoly Phosphate	4	4	1	2	1	1	X	3	4	4	1	4	1	3
Tripotassium Phosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Trisodium Phosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Tritium	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tung Oil (China Wood Oil)	1	1	4	1	1	1	X	2	4	X	3	4	2	4
Tungsten Hexafluoride	X	X	X	X	2	2	X	X	X	X	X	X	X	X
Tungstic Acid	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Turbine Oil	1	1	4	1	1	1	X	4	4	1	4	4	1	4
Turbine Oil #15 (MIL-L-7808A)	2	2	4	1	1	1	X	4	4	2	4	4	2	4
Turbo Oil #35	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Turpentine	1	1	4	1	1	1	X	4	4	2	4	4	2	4

Approximate Service Temperature Ranges for commonly used Basic Polymer Types*

Nitrile (General Service)	-30°C to 100°C (-22°F to 212°F)*	AFLAS (FEMP)	-10°C to 200°C (-14°F to 392°F)*
Nitrile (Low Temperature)	-50°C to 100°C (-58°F to 212°F)*	Neoprene (CR)	-40°C to 120°C (-40°F to 248°F)*
Hydrogenated Nitrile (HNBR)	-30°C to 150°C (-22°F to 302°F)*	Polyacrylate (ACM)	-10°C to 170°C (-14°F to 338°F)*
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Fluorocarbon (FKM)	-30°C to 220°C (-22°F to 428°F)*	Butyl (IIR)	-40°C to 120°C (-40°F to 248°F)*
Hifluor (FKM)	-25°C to 210°C (-13°F to 410°F)*	Fluorosilicone (FVMQ)	-70°C to 220°C (-94°F to 428°F)*
Perfluoroelastomer (FFKM)	-10°C to +300°C (-14°F to 572°F)*	Silicone (VMQ)	-60°C to 200°C (-76°F to 392°F)*

NOTE: *These temperature ranges will apply to the majority of media for which the material is potentially recommended. With some media however, the service temperature range may be significantly different. ALWAYS TEST UNDER ACTUAL SERVICE CONDITIONS.

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2. Fair (usually OK for static seal)
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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	Aflas (TFE/Propylene) FEMP	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Type I Fuel (MIL-S-3136)(ASTM Ref. Fuel A)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Type II Fuel MIL-S-3136	2	2	4	1	1	1	X	4	4	3	4	4	2	4
Type III Fuel MIL-S-3136(ASTM Ref. Fuel B)	2	2	4	1	1	1	X	4	4	3	4	4	2	4
U														
Ucon Hydrolube J-4	1	1	1	1	1	1	X	2	1	4	1	X	2	1
Ucon Lubricant 50-HB-100	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant 50-HB-260	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant 50-HB-5100	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant 50-HB55	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant 50-HB-660	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant LB-1145	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant LB-135	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant LB-285	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant LB-300X	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant LB-625	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Lubricant LB-65	1	1	1	1	1	1	X	1	2	X	1	2	1	1
Ucon Oil 50-HB-280x	2	2	1	3	1	1	1	2	X	X	X	X	X	X
Ucon Oil Heat Transfer Fluid 500 (Polyalkylene Glycol)	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Oil LB-385	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Ucon Oil LB-400X	1	1	1	1	1	1	X	1	1	X	1	1	1	1
Undecylenic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Undecylic Acid	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Univis 40 (Hydr. Fluid)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Univolt #35 (Mineral Oil)	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Unsymmetrical Dimethyl Hydrazine (UDMH)	2	2	1	4	1	1	X	2	2	X	1	1	4	4
UPDI(Ultrapur Deionized Water)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Uranium Hexachloride	X	X	X	1	1	1	X	X	X	X	X	X	X	X
Uranium Hexafluoride	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Uranium Sulfate	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Uric Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
V														
Valeraldehyde	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Valeric Acid	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Vanadium Oxide	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Vanadium Pentoxide	1	1	4	1	1	1	X	2	4	1	4	4	1	2
Varnish	2	2	4	1	1	1	X	4	4	4	4	4	2	4
Vegetable Oil	1	1	3	1	1	1	X	3	4	1	3	4	1	1
Versilube F44, F55	1	1	1	1	1	1	1	1	X	X	X	X	X	X
Versilube F-50	1	1	1	1	1	1	X	1	1	1	1	1	1	3
Vinegar	2	2	2	3	1	1	X	2	2	4	2	2	3	3
Vinyl Acetate	2	2	1	3	2	1	1	2	X	X	X	X	X	X
Vinyl Benzene	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Vinyl Benzoate	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Vinyl Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X

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	Nitrile NBR	Hydrogenated Nitrile HNBR	Ethylene Propylene EPDM	Fluorocarbon FKM	Hifluor FKM	Perfluoroelastomer FFKM	AFLAS (TFE/Propylene) FEPM	Neoprene/Chloroprene CR	Styrene-Butadiene SBR	Polyacrylate ACM	Butyl IIR	Natural Rubber NR	Fluorosilicone FVMQ	Silicone MQ, VMQ, PVMQ
Vinyl Fluoride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Vinylidene Chloride	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Vinylpyridine	2	2	4	1	1	1	X	4	4	4	4	4	2	X
Vitriol (White)	3	3	1	3	1	1	X	1	1	4	1	1	1	2
VV-H-910	3	3	1	1	1	1	X	2	1	2	2	2	2	2
W														
Wagner 21B Brake Fluid	3	3	1	4	1	1	X	2	1	X	2	2	4	3
Water	1	2	1	2	1	1	X	2	1	4	1	1	1	1
Wemco C	1	1	4	1	1	1	X	2	4	1	4	4	1	4
Whiskey and Wines	1	1	1	1	1	1	X	1	1	4	1	1	1	1
White Liquor	1	1	1	1	1	1	1	X	X	X	X	X	X	X
White Oil	1	1	4	1	1	1	X	2	4	1	4	4	1	4
White Pine Oil	2	2	4	1	1	1	X	4	4	X	4	4	1	4
Wolmar Salt	1	1	1	1	1	1	X	2	1	2	1	1	1	1
Wood Alcohol	1	1	1	4	1	1	X	1	1	4	1	1	1	1
Wood Oil	1	1	4	1	1	1	X	2	4	1	3	4	2	4
X														
Xenon	1	1	1	1	1	1	X	1	1	1	1	1	1	1
Xylene	4	1	4	1	1	1	X	4	4	4	4	4	1	4
Xylenes-Mixed-Aromatic Amines	3	3	1	4	1	1	X	4	4	4	4	4	4	4
Xyloil	4	4	4	1	1	1	X	4	4	4	4	4	1	4
Z														
Zeolites	1	1	1	1	1	1	X	1	1	X	1	1	1	X
Zinc Acetate	2	2	1	4	1	1	X	2	4	4	1	1	4	4
Zinc Ammonium Chloride	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Chloride	1	1	1	1	1	1	X	1	1	4	1	1	1	X
Zinc Chromate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Cyanide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Diethyldithiocarbamate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Dihydrogen Phosphate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Fluorosilicate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Zinc Hydrosulfite	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Naphthenate	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Zinc Nitrate	1	1	1	1	1	1	X	X	1	4	1	1	1	X
Zinc Oxide	1	1	1	1	1	1	X	X	1	4	1	1	1	X
Zinc Phenolsulfonate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Phosphate	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Zinc Salts	1	1	1	1	1	1	X	1	1	4	1	1	1	1
Zinc Silicofluoride	X	X	X	X	1	1	X	X	X	X	X	X	X	X
Zinc Stearate	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zinc Sulfate	1	1	1	1	1	1	X	1	2	4	1	2	1	1
Zinc Sulfide	3	3	1	3	1	1	X	1	1	4	1	1	1	2
Zirconium Nitrate	1	1	1	1	1	1	X	1	2	4	1	2	1	1

Factors like temperature, concentration of the driving forces, duration and mechanical load are important criterions for the examinations of chemical resistance. In the following table, you can see the materials resistance to different chemicals.*

■ = Resistant	★																			
● = Limited Resistance																				
▲ = Not Resistant																				
★ = Marked plastic materials are not offered by Maxspare.																				
* Resistance also dependent upon concentration, time and temperature.																				
AGENTS, CONCENTRATION : WEIGHT - %	MATERIAL	ABS	Acetal (Copolymer)	Acetal (Homopolymer)	Noryl®	Nylon 6	PBT	PEEK	PET	Polycarbonate	Polyethylene	Polypropylene (Homopolymer)	PPS	PPSU (Radel® R)	PSU (Polysulfone)	PTFE	PVDF	Ultem®	Vespe® SP - 1	
Acetaetamide 50%		■		■													■	■		
Acetic Acid, Aqueous Solution 5%		■	■	●	■													■		
Acetic Acid, Aqueous Solution 10%		■	■	●		▲	●		■	●								■		●
Acetic Acid, Concentrated		▲	●	▲	■	▲	▲	▲	▲	▲										
Acetone		▲	■	■	▲	●	▲		▲	▲	●			▲	▲		●			■
Ammonia Solution 10%		■	■	●	■					▲					●	■	■	▲		▲
Anone						■				▲	●						■	●		
Benzene		▲	■	■	▲		●		●	▲	●		●	●	▲		■	■		■
Benzine		●	■	■	▲	■	■		■	▲	●	●		■	■	■	■	■		
Bitumen			■	■		●				▲	●	●								
Boric Acid, Aqueous Solution 10%		■	▲			■											■	■		●
Butyl Acetate		▲	■	■						▲	●	●			●					
Calcium Chloride, Solution 10%			●	■						■	■	■						■	■	■
Carbon Trachloride		▲	■	●	▲	■				▲	▲	▲			●					
Chlorbenzene		▲	■	■			▲			▲	▲	■	●				■	■		
Chloroform		▲	▲	▲	▲	▲	▲		▲	▲	▲	●	●		▲					●
Citric Acid, Aqueous Solution 10%		■	●	▲	■	●	■			■	■	■		■	■					
Clophene A60, 50%			■	●	■		■			■	■									
Cupric Sulphate 10%		■	■	▲	■															
Cyclohexane		■	■	■	■	■				▲	■	■		■	■					■
Cyclohexanone		▲	■	■	■	■				●	■	■		■	■		■	●		
Decalin		▲	■	■	■	■				●	■	■								
Diesel Oil		■	■	■	■	■	■		■	■	●	■					■	■		
Dimethyl Formamide		▲	■	▲		■				▲	■	■								
Diocetyl Phthalate			■	■	■	■				●	■	■	●		■					
Dioxane			●	■	●	■	●		●	▲	●	■					■	■	■	
Edible Fats, Edible Oils				■	■	■				■	■	■					■	■	■	
Ethanol 96%		■	■	■	■	■	■		■	●	■	■		■	■					
Ethyl Acetate			●	■	■		●		●	▲	■	■			▲					■
Ethyl Ether			■	■		■	■			▲	■	■			■		■	■	■	
Ethylene Chloride		▲	▲	▲		■	▲		▲	▲	●	■						■		●
Formaldehyde, Aqueous Solution 10%		■	■	▲	■	■				■	■	■		■						
Formamide				●		■					●						■			
Formic Acid, Aqueous Solution 10%		■	■	▲		▲	■		■	■	■	■						▲		●
Freon, Frigen, Liquid		●		■	■	■	■	▲	■	▲	●	▲			■					
Fruit Juices		■	■			■	■			▲	■	■					■	■	■	●
Glycerine		■	■	■	■	■	■			●	■	■					■	■	■	■
Glykol		■	■	■	■	■	■			■	■	■								■
Glysantin, Aqueous Solution 40%						■				■	■	■								
Heating Oil		■	■	■	■	■	■			●	■	●					■	■		
Heptane, Hexane		■	■	■	■	■					▲	■						■	■	■
Hydrochloric Acid, Aqueous Solution 2%		■	▲	▲		▲	■			■	■	■	●	■	■					
Hydrochloric Acid, Aqueous Solution 36%		■	▲	▲		▲	▲		■	▲	■	■		●				●		▲
Hydrofluoric Acid, 40%		●	▲	▲	■	▲	▲		▲	●	■	■			●					
Hydrogen Peroxide, Aqueous Sol. 0.5%		■	●	■		▲	■		■									■	■	▲
Hydrogen Peroxide, Aqueous Sol. 30%		■	▲	■		▲	▲		▲					●	■			●	▲	
Hydrogen Sulphide Saturated		▲		▲	■	■		■												

■ = Resistant ● = Limited Resistance ▲ = Not Resistant ★ = Marked plastic materials are not offered by Maxspare. * Resistance also dependent upon concentration, time and temperature.																			
AGENTS, CONCENTRATION : WEIGHT - %	MATERIAL	★			★			★		★	★			★		★	★	★	
	ABS		Acetal (Copolymer)	Acetal (Homopolymer)	Noryl®	Nylon 6	PBT	PEEK	PET	Polycarbonate	Polyethylene	Polypropylene (Homopolymer)	PPS	PPSU (Radel® R)	PSU (Polysulfone)	PTFE	PVDF	Ultem®	Vespal® SP - 1
Ink		■				■	■		■	■	■	■				■	■		
Iodine Solution, Alcohol Solution		■	●	■		▲				■	●	■			■	■			■
Iso-octane		■		■		■					■	■		■	■	■		■	
Isopropanol		●	■	■	■	■	■		■	●	■	■	■	■	●	■	■		
Lactic Acid, Aqueous Solution 10%		■	■	●	■	■		■		■	■	■	■			■	■	■	
Lactic Acid, Aqueous Solution 90%		▲	■	▲	▲	▲				■	■	■	■			■	■	■	
Linseed Oil		■	■	■	■	■			■	■	■	■	■			■	■	■	
Methanol		●	■	■	■	■	■			▲	■	■		●	■	■	■	■	
Methyl Ethyl Ketone		▲	●	■	▲	■			■	▲	■	■	■	●	▲	■	●	■	
Methylene Chloride		▲	●	●		●	▲		▲	▲	●	▲	●	▲	▲	■	■	■	
Milk		■	■	■	■	■				■	■	■	■			■	■		
Nitric Acid, Aqueous Solution 2%		▲	▲	■		▲	▲	▲	▲	■	■	■	■	■	■	■	■	■	■
Nitrobenzene		▲	●	●		●				▲	■	■	●			■			
Oxalic Acid, Aqueous Solution 10%		■	▲	●	■	●		■		■	●	■				■	■		●
Ozone			▲	▲		▲				▲	●	■				■	■		
Paraffin Oil		■	■	■	■	■	■		■	■	■	■				■	■	■	
Perchloroethylene		●	■	■		●	●		●	●	▲	▲	●		▲	■	■		
Petroleum		●	■	■	■	■	■		■	▲	■	■	■			■	■		
Phenol, Aqueous Solution		●	▲	▲		▲	▲		▲	▲	■	■	●			■	■		■
Phosphoric Acid, Aqueous Solution 10%		■	●	▲	■	▲		■		■	■	■	■			■	■	■	▲
Phosphoric Acid, Concentrated		■				▲	■	■	■	■	■	■	■		■	■	■		
Potassium Dichromate, Aqueous Sol. 10%		■	■	●	■	■			■	■	■	■	■			■	■		
Potassium Iye, Aqueous 10%		■	■	▲	■	■	▲		▲	▲	■	■	■			■	●		
Potassium Iye, Aqueous 50%		■	■	▲	■	■	▲	■	▲	▲	■	■	■			■	▲		
Potassium Permagnate Aqueous Sol. 1%		■	●	■		▲	■	■	■	■	●	■			■			■	■
Propanol		■	■	■	■	■				■	■	■				■	■		
Pyridine		▲	■	●		■				▲	●	●	●			■	■	▲	
Pyridine 3 Solution, Aqueous Solution			▲			■			■						■				
Salicylc Acid		■		●		■										■	■		■
Silicone Oils		■	■	■	■	■	■		■	■	■	■	■			■	■		
Soap Solution, Aqueous Solution		■	■	■		■	■		■	■	■	■	■	■	■				●
Soda Iye, Aqueous 5%			■	▲	■	■				▲	■	■	■		■	■	■		
Soda Iye, Aqueous 50%		■	■	▲	■	■	▲		▲	▲	■	■	■					▲	
Soda Solution, Aqueous Solution 10%			■	■		■				■	■	■	■		■	■	■		●
Sodium Bisulphite, Aqueous Solution 10%			▲	■		■	▲		▲	■	■	■	■			■	■	■	■
Sodium Carbonate, Aqueous Solution 10%		■	●	■		■	■		■	■	■	■	■		■			■	●
Sodium Chloride, Aqueous Solution 10%		■	■	■	■	■	■		■	■	■	■	■	■		■	■	■	
Sodium Nitrate, Aqueous Solution 10%		■	■	■		■	■		■	■	■	■	■			■	■		
Sodium Thiosulphate 10%		■	■	■		■	■			■	■	■	■						
Styrene				■	▲	■				▲	●	●							■
Sulphur Dioxide		▲	■	■		■	■		■	▲	●	■				■	■		
Sulphuric Acid, Aqueous Solution 2%		■	▲	■		▲	■	■	■	■	■	■	■	■	■			■	■
Sulphuric Acid, Concentrated 98%		▲	▲	▲	▲	▲	▲	▲	▲	▲	●	■			▲		●		▲
Tar				■		●					■	■				■	■	■	■
Tartaric Acid		■	●	●	■	■		■		■	■	■							■
Tetrahydrofurane		▲	●	▲		■	▲		▲	▲	●	●	■				■	■	■
Tetralin		▲	■	■		■	■		■	▲	●	▲					■	■	■

<div>■ = Resistant</div> <div>● = Limited Resistance</div> <div>▲ = Not Resistant</div> <div>★ = Marked plastic materials are not offered by Maxspare.</div> <div>* Resistance also dependent upon concentration, time and temperature.</div> <div>AGENTS, CONCENTRATION : WEIGHT - %</div>	MATERIAL	★			★		★		★	★				★	★		★	★	★
	ABS		Acetal (Copolymer)	Acetal (Homopolymer)	Noryl®	Nylon 6	PBT	PEEK	PET	Polycarbonate	Polyethylene	Polypropylene (Homopolymer)	PPS	PPSU (Radel® R)	PSU (Polysulfone)	PTFE	PVDF	Ulitam®	Vespet® SP - 1
Toluene	▲	■	■		■	●	■	■	●	▲	●	■	●	●	▲	■	■	■	
Transformer Oil		■	■	■	■	■		■	■		■	●	■	■	■	■	■		
Trichlorethylene	▲	▲	▲	▲	●	▲	■	■	▲	▲	▲	●	●		▲	■	■		
Triethanolamine	■	■	▲							▲	■	■	●			■			
Trilon B, Aqueous Solution 10%					■										■				■
Urea, Aqueous Solution	■	■	■	■	■					■	■	■				■			
Vaseline	■	■	■			■			■		●						■	■	
Water, Cold	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Water, Warm	■	●	▲	■	●	▲	■	■	▲	●	■	■	●	●		■	■	■	▲
Wax, Molten		■	■	■	■	■	■	■	■	■	●	●				■	■	■	
Wine, Brandy	■	■	■	■	■					■	■	■				■	■		
Xylene	▲	■	■	▲	■	■	●	■	●	▲	▲	▲	■	■	▲	■	■	■	■
Zinc Chloride, Aqueous Solution 10%	■	▲	■		●	■			■				■	■	■	■	■	■	■

* These details correspond to the present state of our knowledge and are meant to provide information about our products and their applications. They do not mean that the chemical resistance of products or their suitability for a particular purpose is guaranteed in a legally binding way. Any existing commercial property rights are to be taken into account. We guarantee perfect quality within the scope of our general items and conditions. For specific applications it is recommended to establish suitability first. Standard testing is performed in normal climatic conditions 23 / 50 according to DIN 50 014. All statements, technical information and recommendations contained in this publication are presented in good faith, based upon tests believed to be reliable and practical self experience. The reader is cautioned, however, that Max Spare Limited, cannot guarantee the accuracy or completeness of this information, and it is the customer's responsibility to determine the suitability of specific products in any given application.

Storage Conditions:

Most polymers, including vulcanized rubber and other elastomers, tend to change their properties during storage and may become unusable. This may be due to hardening, softening, cracking or other deterioration and may result from exposure to oxygen, ozone, light, heat and / or moisture.

The following recommendations indicate the most suitable storage conditions for elastomeric products, whether it is a single item or a composite product.

1. Temperature - Ideal storage temperature should be 25°C (77°F). Low temperatures are not permanently harmful provided the rubber items are handled carefully and not distorted. When taken from low temperatures items should be raised to approximately 30°C (86°F) before they are used.
2. Humidity – Relative humidity is of 40% to 70% in a draft-free atmosphere.
3. Light – The products should be protected from direct sunlight, ultraviolet and artificial light have a high UV content.
4. Oxygen and Ozone - Wrapping, storage in airtight containers or other suitable means should be used for vulcanised rubber items. Storage in containers that limit exposure to environmental conditions (e.g. sealed plastic bags) should be used for all materials.
5. Radiation – Products should be protected from all sources of ionizing radiation.
6. Deformation – The rubber items should be stored in a relaxed position, without tension or compression. Laying the product on a flat surface and preventing its suspension or crushing keeps it from deforming and minimizes deformation.
7. Contact with liquid or semi-liquid materials – Rubber should not come in to contact with liquid or semi liquid materials or their vapours at any time during storage, unless these materials are an integral part of the product or the manufacture's packaging.
8. Contact with Metals - Metals such as manganese, iron and copper, or copper alloys can have a harmful effect on rubber. A layer of paper, polyethylene or cellophane will keep these separated.
9. Contact with Non-Metals - Contact with other rubbers should be avoided.
10. Stock Rotation - Elastomers should be stored for as short a period as possible, and practice the First In First Out (FIFO) system) stock liquidation.
11. Cleaning - Organic solvents such as trichloroethylene, carbon tetrachloride and petroleum are the most harmful agents. Soap and water and methylated spirits are the least harmful, and all parts should be dried at room temperature before use.
12. Shelf Life - The table shows the storage life of seal components made from the more common materials under ideal conditions. Storing under less than ideal conditions will reduce the life of the component.

Careful inspection for the following should be made before installation after storage:

- Cracks or Surface crazing

• Mechanical damage

• Permanent distortion

• Surface softening or hardening

Guidelines of ISO 2230

Rubber / Elastomer	Max Code	Primary storage period (Years)	Extension of storage period after visual re-inspection (Years)
Nitrile Butadiene Rubber (NBR)	NT	7	3
Ethylene Propylene (EPDM)	EP	10	5
Fluorocarbon (FKM)	VT	10	5
Vinyl-Methyl-Silicon (VMQ)	SL	10	5
Polyurethane (PU)	PU	5	2
Engineering Thermoplastics:			
Acetal (POM)	ACT	Unlimited	-
Polyamide (PA)	NY		
Polytetrafluoroethylene (PTFE)	PFT		

List of Tests performed on Polymers

Sr. No.	Tests	Testing Range	Units	Reference IS Std.	Reference ASTM Std.
1	Hardness	15 to 95	Shore 'A'	IS 3400 Part 2	ASTM D 2240
2	Hardness	46 to 72	Shore 'D'	IS 3400 Part 2	ASTM D 2240
3	Tensile Strength	Max. 250 Kg/Cm ²	Kg/cm ²	IS 3400 Part 1	ASTM D 412
4	Elongation at Break	Max. 1000	(N/mm2, MPa, psi)	IS 3400 Part 1	ASTM D 638
5	Modulus		%	IS 3400 Part 1	ASTM D 412
6	Specific Gravity		Kg/cm ²	IS 3400 Part 1	ASTM D 638
7	Compression Set		9/cc	IS 3400 Part 9	ASTM D 792
8	Rebound Resilience	Temp. 23°C to 200°C & Time 24 Hrs. to 72 Hrs.	%	IS 3400 Part 10	ASTM D 395
9	Ash Content	0 to 100	%	IS 3400 Part IX	ASTM D 2632
10	Ageing Properties in Air (Hardness Change)	800°C for 2 Hrs.	%	IS 3400 Part IV	ASTM D 297
11	Ageing Properties in Air (Tensile Strength Change)	Temp. 23°C to 250°C & Time 24 Hrs. to 672 Hrs.	Points	IS 3400 Part IV	ASTM D 573
12	Ageing Properties in Air (Elongation Change)	Temp. 23°C to 250°C & Time 24 Hrs. to 672 Hrs.	%	IS 3400 Part IV	ASTM D 573
13	Fluid Resistance (Hardness Change)	Temp. 23°C to 250°C / Time 24 Hrs. to 672 Hrs./Testing Medium:- ASTM Oil -1, ASTM oil -3, Liquid 101	Points	IS 3400 Part 6	ASTM D 471
14	Fluid Resistance (Tensile Strength Change)	Fuel A, Fuel B, Fuel C, Fuel D, Fuel E & Petroleum Oil	%	IS 3400 Part 6	ASTM D 471
15	Fluid Resistance (Elongation Change)	Temp. 23°C to 250°C / Time 24 Hrs. to 672 Hrs./Testing Medium:- ASTM Oil -1, ASTM Oil -3, Liquid 101	%	IS 3400 Part 6	ASTM D 471
16	Fluid Resistance (Volume Change)	Fuel A, Fuel B, Fuel C, Fuel D, Fuel E & Petroleum Oil	%	IS 3400 Part 6	ASTM D 471
17	Resistance Ozone	Temp. 23°C to 250°C / Time 24 Hrs. to 672 Hrs./Testing Medium:- ASTM Oil -1, ASTM Oil -3, Liquid 101	Cracks	IS 3400 Part 6	ASTM D 1171
18	Brittleness test in Low Temperature	Fuel A, Fuel B, Fuel C, Fuel D, Fuel E & Petroleum Oil	Cracks		ASTM D 1149
19	Water Resistance (Hardness Change)	Temp. 23°C to 100°C / Time 24 Hrs. to 72 Hrs./Testing Medium - Mineral Water, Sea Water	Points	IS 3400 Part 6	ASTM D 2137
20	Water Resistance (Tensile Strength Change)	Temp. 23°C to 100°C / Time 24 Hrs. to 72 Hrs./Testing Medium - Mineral Water, Sea Water	%	IS 3400 Part 6	ASTM D 471
21	Water Resistance (Elongation Change)	Temp. 23°C to 100°C / Time 24 Hrs. to 72 Hrs./Testing Medium - Mineral Water, Sea Water	%	IS 3400 Part 6	ASTM D 471
22	Water Resistance (Volume Change)	Temp. 23°C to 100°C / Time 24 Hrs. to 72 Hrs./Testing Medium - Mineral Water, Sea Water	%	IS 3400 Part 6	ASTM D 471
23	Tear Resistance		N/min.	IS 3400 Part 12	ASTM D 624
24	Abrasion Resistance		Mm ³	IS 3400 Part 3	DIN 53516
					ASTM D 5963

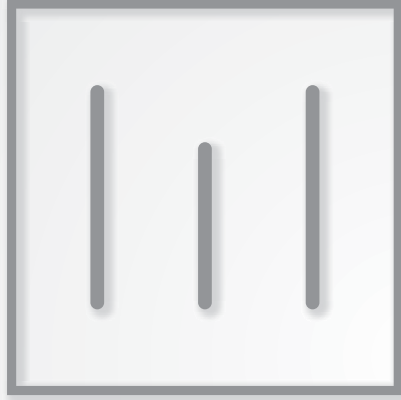
List of Tests performed on Products

Sr. No.	Tests	Testing Range
1	Gyraton Rotary machine for testing oil seals	Temp - Max 150°C, Speed -200-3000 RPM, Pressure - 0.5 to 30 Bars
2	Hydraulic Seals Endurance Testing	Size starting for 50 mm, Temp. - Max 200°C, Speed - 5 strokes/min. (Strokes vary depending upon the Rod length), Pressure - Max. 150 Bars
3	Optical Dimension Testing	Speed - 600 pieces checked per hour for O.D. / I.D. / Cross Section at a time.
4	Lip Opening Test (LOP)	Pressure upto - 6 Kg/Cm ²
5	V - Belt Endurance Testing	Dead Load Testing - Size : 'A' Section 35" to 80", 'B' Section 40" to 100", 'C' Section 45" to 110", Speed - 2800 RPM (Speed can be increased or decreased as per requirement).
		Dynamic Testing - Size: 60" to 150", Speed - 1000 / 3000 RPM.
6	Flex Test	
7	Adhesive Testing (Product Testing)	

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