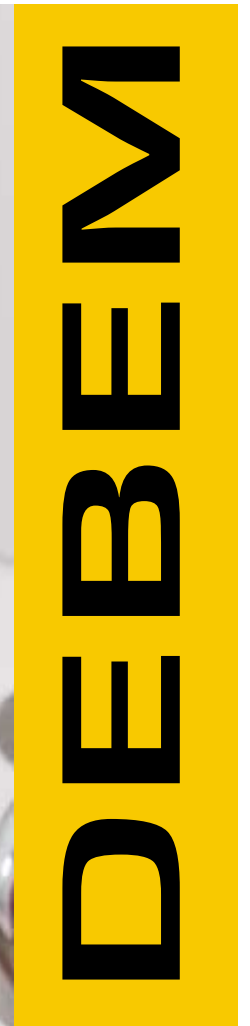


INDUSTRIAL PUMPS

petrochemical, food, mechanical, environmental, printing, chemical, painting, galvanic, textile and ceramic, industry



Chemical compatibility table



Chemical compatibility table

NB.

The information contained herein is only to be used with regard to the initial choice of pump construction materials.

We have obtained this information from reliable sources. Debem has not performed any form of testing in this regard and therefore accepts no liability for the accuracy of the details provided.

Each application has its own specific set of parameters as regards stress, exposure time, chemical concentration and temperature. Debem recommends practical testing of materials coming into contact with chemical substances.

NOTE REGARDING HALOGENATED SOLVENTS

In certain cases, the corrosive action of halogenated solvents coming into contact with aluminium or galvanised materials could cause an explosion. To avoid any form of danger, when transferring halogenated solvents, the use of steel or PVDF pumps is recommended.



Summary of the plastic and rubber materials

CODE/TRADENAME	MATERIAL	COMPOSITION	DEBEM CODE
NBR (PERBUNAN®)	Nitrile rubber	Acrylonitrile-Butadiene	N
EPDM (DUTRAL®)	Ethylene Propylene Rubber	Ethylene Propylene Terpolymer	D
PVDF (KYNAR®)	PVDF	Polyvinylidene Fluoride	F
ECTFE (HALAR®)	ECTFE	Poly(EthyleneChlorotrifluoroethylene)	E
PP	Polypropylene	Polypropylene	P
PPS (RYTON®)	PPS	Polyphenylene Sulfide	R
PTFE (TEFLON®)	PTFE	Polytetrafluoroethylene	T
FPM (VITON®)	Fluorocarbon Rubber	Fluoro-Elastomer	V
SANTOPRENE®	Thermosplastic rubber	Thermoplastic Elastomer	M
HMWHDPE(POLIZENE®)	High Molecular WeightHigh Density Polyethylene	Ethylene polymer	I
HYTREL ®	Fluoro-Elastomer	PolyesterElastomer	H



General characteristics of the plastic and rubber materials

- NITRILE RUBBER (NBR)

Excellent resistance to mineral, vegetal and animal oils and greases, to aliphatic hydrocarbons.

Resistant to alkalis. Not recommended for use with amines, ketones, benzene, ethers, chlorated solvents and concentrated acids.

APPLICATIONS

Oil splash guards, O-rings, seals.

Temperature of use: from -40°C to 120°C

- POLYPROPYLENE (PP)

The mechanical resistance values of PP are higher than those of the PE. Alkali and acid resistance makes it suitable in the chemical industry for items subject to relatively weak strains.

ADVANTAGES

- high chemical resistance
- resistance to tensile strength, high values as regards polyolefins
- low specific weight
- easily machinable by machines or for welding

DRAWBACKS

Low mechanical resistance compared to technopolymers: tensile, flexural, compression, and others as well as thermal stress. Stiffer and less resistant to impacts than PE.

APPLICATIONS

Mechanical: also used for mechanical items in corrosive environments; compared to high molecular weight polyethylenes, PP has a higher tensile strength than PE HMW

Food: physiologically inert if of natural color, it is approved for use in contact with food.

Electrical: good dielectric characteristics. Stability to bad weather makes it useful for this sector.

Chemical: PP is typically used by the chemical industry because of its high acid and alkali resistance and because it is much more resistant to heat than PVC. Used for components by the galvanic chemical and petrochemical industry to make valves, flanges, gears and others. Not recommended for use with highly concentrated oxidizing acids.

Temperature of use: from 4°C to 70°C.



PVDF

This is a new fluoro-polymer. As in the case of the fluoro-materials, chemical strength is its most interesting asset. Compared to PTFE, mechanical characteristics are much higher besides not being subject to deformation under load.

ADVANTAGES

High chemical strength typical of fluoro-materials. Compared to PTFE higher mechanical strength such as tensile and compression. Excellent resistance to both low and high temperatures up to 160°C, as well as to UV beams. Very good dimensional stability. Good wear strength.

DRAWBACKS

Lower resistance to high temperature (160°C) compared to PTFE.

Rather high linear thermal expansion coefficient. Only partially compatible with ketones, esters, ethers, organic bases and alkaline solutions.

APPLICATIONS

Chemical: the fluoro-polymers are typically very resistant to acids and alkali. Used to make components for the petrochemical and chemical industries.

Food: physiologically inert if of natural color, it is approved by various bodies for use in contact with food. Because of these characteristics, this material is often used in the construction of food machines, pumps for food liquids and others.

Electrical: because of its excellent dielectric characteristics, self-extinguishing capabilities without adding halogens and stability to bad weather, its use in this sector is increasing.

Mechanical: low friction coefficient makes it suitable for bearings even if they work in water.

Temperature of use: from -40° to 160°C.

ECTFE

Ethylene Chlorotrifluoroethylene copolymer with excellent chemical resistance and mechanical performances higher than PTFE

ADVANTAGES Features the high chemical strength typical of fluoro materials. Compared to PTFE, features higher mechanical strength including tensile and compression. Excellent resistance to both low and high temperatures up to 160°C, as well as to UV beams. Very good dimensional stability. Low flammability. Good wear resistance and excellent resistance to alkaline agents

DRAWBACKS

Lower temperature resistance than PTFE (160°C). Rather high linear thermal expansion coefficient. Only partially compatible with ketones, esters, ethers and organic bases.

APPLICATIONS (please see PVDF)



PTFE

Fluoro material widely used for its excellent chemical strength but with weak mechanical properties. Deformation even under very small loads represents a useful feature to make seals.

ADVANTAGES

High chemical resistance
Excellent resistance to both low and high temperatures up to 260°C
Low flammability
Low friction coefficient.

DRAWBACKS

Mechanical strength values such as tensile and compression are very low and in particular deformation strength underload is scarce.

APPLICATIONS

Mechanical: because of its low friction coefficient, PTFE can be used to make bearings as long as these are meant to support a weak load.

Food: physiologically inert, some bodies have it approved for applications in contact with food; however some nations have doubts as whether it can be used with food.

Electrical: excellent dielectric characteristics, self-extinguishing capabilities and stability to bad weather have increased its use in this sector.

Chemical: very high chemical resistance to acids and alkalis is typical of the fluoro-polymers. Used to make components of the petrochemical and chemical industries.

Temperature of use: from 4°C to 260°C.

EPDM

Excellent resistance to heat and to atmospheric agents and good service life length. Excellent compatibility with acids, alcohols and esters. Poor resistance to mineral oils and greases.

APPLICATIONS: sections and technical articles for the automotive industry, seals, items for anti-acid protection.

Temperature of use: from -40°C to 140°C



UMWHDPE POLYETHYLENE

High molecular weight polyethylene (> 1.000.000) with excellent impact strength. Compared to the PE's with lower molecular weights, this type of material is less stiff and more resistant to impact, which makes it more suitable for applications involving repeated shocks.

ADVANTAGES

Good impact strength even at low temperatures, high chemical strength typical of the polyolefin materials, high abrasion strength, low friction coefficient.

DRAWBACKS

Compared to technopolymers, mechanical strength values are low: tensile, flexural, compression, thermal and others. Less stiff than the PE's with lower molecular weight.

APPLICATIONS

Mechanical: because of its low friction coefficient, its high wear strength and its lack of hygroscopicity, it is suitable for bearing or other weak load mechanical parts even if they work in the water.

Food: physiologically inert and approved by various bodies for use in contact with food. Because of this feature, this material is often used in the construction of food processing machines, pumps for food liquids, and others.

Electrical: because of its excellent dielectric characteristics and weather stability it is being increasingly used in this sector.

Chemical: high resistance to solvents, greases, oils, paraffins, acids and alkalis. Used to make components for the chemical industry.

Temperature of use: from 4°C to 260°C.

THERMOPLASTIC ELASTOMERS (Santoprene®)

The thermoplastic elastomers (commonly known as TPE) are the link between vulcanized rubber and thermoplastic polymers; The TPE materials permit to obtain elastic and rubber-like characteristics often similar to those of vulcanized rubber but, on the other hand, can be transformed by means of the normal technologies applied to thermoplastic materials (injection molding, extrusion, blowing, etc.) besides permitting to recover processing scraps.

Santoprene® resists to ozone, solar beams, water, acids, bases, oily liquids and greases. It can be sterilized through vapor or through ethylene oxide. It also maintains its properties even after hours of work under repeated deflection.

Temperature of use: from -40°C to +120°C



HYTREL

General guide to product and its properties.

HYTREL is the trademark registered by Du Pont for its range of engineered thermoplastic elastomers.

Properties and characteristics.

HYTREL is a thermoplastic elastomer for engineering applications that combines several of the best features of high-performance elastomers and flexible thermoplastics. HYTREL boasts exceptional toughness and elastic flow, high creep, impact and flexural fatigue strength and excellent low-temperature flexibility, whilst also maintaining its properties at high temperatures to a large extent. It also resists the attack of many industrial chemicals, oils and solvents.



PPS - polyphenylene sulphide (e.g. RYTON®)

High-performance engineering resin.

INTRODUCTION

Polyphenylene sulphide (PPS) is an engineering resin for high-temperature technological applications. Marked by excellent processability, this family of resins behaves very similarly to reinforced thermosets, since when combined with various fillers (fibreglass, mineral fillers, pigments), it boasts exceptional mechanical, chemical and self-extinguishing properties. As can be seen from the table, PPS has a unique set of characteristics.

CHEMICAL FEATURES

PPS is an aromatic crystalline thermoplastic polymer with a straight-chain structure consisting of para-substituted benzene rings and sulphur atoms. The polymerisation process was perfected by Phillips Petroleum Company (USA) and consists of a reaction between p-dichlorobenzol and sodium sulphide in a polar solvent. PPS obtained from polymerisation is a fine white powder with a melting point of around 288°C. When heated to a sufficiently high temperature in the presence of air, this polymer's molecular chains undergo elongation and a cross-linking process, giving them excellent mechanical properties.

RESISTANCE TO CHEMICAL AGENTS

A feature of PPS is its excellent resistance to chemical agents: in particular, it is insoluble in all solvents below 200°C. PPS has exceptional chemical resistance, as demonstrated by the immutability of tensile strength values following exposure at 93°C for a period of up to 3 months. In any event, PPS may be attacked by certain classes of chemical substances such as: oxidising agents, strong acids, halogens, amines and certain chlorinated hydrocarbons. Water absorption by PPS is very low (< 0,05%) and it also offers good hydrolysis resistance in hot water.



NBR

CHARACTERISTICS OF ELASTOMER COMPOSITES:

NON-PROPRIETARY NAME: **Nitrile rubber, NBR**

COMMERCIAL NAME: **Perbunan N, Europrene N.**

A butadiene-acrylonitrile copolymer whose ACN content can range from 18% to 50%.

CHARACTERISTICS

- Good mechanical properties
- Good compression set resistance
- Good impermeability to air and gases
- Good colourability
- Poor UV-radiation resistance
- Poor dielectric properties
- No flame resistance

CHEMICAL COMPATIBILITY AND BEHAVIOUR

Good resistance:

- Mineral oils and greases
- Light fuel oils, gas oil
- Aliphatic hydrocarbons
- Vegetable and animal oils and fats
- Hot water (100°C), seawater, salt solutions

Medium resistance:

- High-aromatic-content fuels
- Some types of Freon
- Dilute acid solutions
- Petroleum-based hydraulic fluids



- Diester-based synthetic lubricants

Poor resistance:

- Benzene and chlorinated hydrocarbons
- Aromatic hydrocarbons (benzol)
- Phosphoric-ester-based hydraulic fluids
- Glycol-based brake fluids



EPDM (e.g. DUTRAL®)

Excellent ozone and oxygen resistance. Articles manufactured from EPDM rubbers can tolerate the action of oxidising agents under both static and dynamic conditions. There is no need to add antioxidants or antioxidants in order to obtain this behaviour.

Excellent resistance to degradation caused by weathering.

Good high-temperature resistance (up to 150°C) in both dry and wet atmospheres (protected compounds).

Good low-temperature resistance: flexibility is maintained up to -55°C.

Excellent dielectric properties.

High compression set resistance.

High mechanical and elastic properties remaining constant over time.

Good resistance to numerous chemicals (organic and inorganic acids, alcohols, amines, phosphoric esters, hydraulic fluids, antifreeze and brine solutions, bleaching agents, biodegradable and non-biodegradable detergents, vegetable oils and fats) and polar solvents of low molecular weight (alkalis, ethers, ketones, glycols). Resistance to hydrocarbon solvents and mineral oils is poor.

Poor resistance to flame spread unless suitably formulated.

High water impermeability



FPM (FLUOROCARBON RUBBER) (e.g. VITON®)

APPLICATIONS

Fluoroelastomers notable resistance to heat and chemical agents has improved the performance of various auto and aircraft components and many types of industrial equipment. These mean that the industry can be supplied with items such as O-rings, diaphragms, coatings, rubberised fabrics, piping and a huge variety of special parts for use under an exceptionally-large range of operating conditions.

RESISTANCE TO OILS, FATS AND CHEMICAL AGENTS

The performance of fluorocarbon rubber in contact with fuels, oils, solvents and chemical agents cannot be equalled by any other type of synthetic rubber. It also offers excellent resistance to lubricants, most mineral acids and many aliphatic and aromatic hydrocarbons such as carbon tetrachloride, toluene, benzene and xylene.



chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
1 Chloro 1 Nitro Ethane	D	-	D	D	D	-	D	A	C	D	-
Acetaldehyde	B	A	D	A1	A	D	A	A	D	-	B
Acetamide	A	A	A	A1	A	C	A	A	B	-	-
Acetate Solvent A	A	C	B1	A	A	A	A	D	-	-	-
Acetic Acid	B	B	C	B	A	C	A	A	B	C	B
Acetic Acid 20%	B	A	B	A	A	A	A	A	B	C	B
Acetic Acid 80%	B	B	C	A	A	C	A	A	B	C	B
Acetic Acid, Glacial	B	A	C	A1	B	A1	A	A	D	-	B
Acetic Anhydride	A1	A	D	B1	B	B1	A	A	D	D	D
Acetone	A	A	D	A	A	D	A	A	D	A1	A2
Acetonitrile											
Acetophenone	B	B	D	A	A	A	B	A	D	A	-
Acetyl Bromide	-	-	-	-	-	-	-	A	-	-	-
Acetyl Chloride (dry)	D	A	D	D	D	A2	A	A	A	A	-
Acetylene	A	A	B	A1	A	A	A	A	A	-	-
Acryloacidnitrile	B1	A1	D	A1	D	A1	-	A	D	D	-
Adipic Acid	A	A2	C	B2	A2	A2	-	A	A2	-	-
Alcohols: Amyl	B	A	B	B1	A	A	A	A	A	A	A
Alcohols: Butyl	B	A	C	A	A2	A	A	A	A	B	A
Alcohols: Benzyl	B	B	D	A	B	A	A	A	A	-	A
Alcohols: Diacetone	A1	A	D	B2	A	A1	-	A	D	-	-
Alcohols: Ethyl	B	A	C	A	A	-	-	A	A	-	-
Alcohols: Hexyl	A	A	A	-	C	-	-	A	C	-	-
Alcohols: Isobutyl	B	A	B	A1	A	-	-	A2	A	-	A
Alcohols: Isopropyl	B	B	B	A2	A	-	-	A2	A	-	A



Chemical Compatibility:

A = Excellent **B** = Good **C** = Fair, not recommended **D** = Severe effect, not recommended
 1. Good resistance up to 22°C (72°F) 2. Good resistance up to 48°C (120°F) - = Data not available

WARNING: PLEASE REFER TO THE NOTEON PAGE 2 REGARDING CHEMICAL COMPATIBILITY

chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Alcohols:Methyl	A1	A	A	A2	A	A	A	A	C	A	A
Alcohols:Octyl	A	A	B	-	A	-	-	-	B	-	-
Alcohols: Propyl	A	A	A	A	A	A2	A	A	A	A	A
Alkazene	-	-	D	-	D	-	-	A	A	D	-
Allyl	-	-	-	-	-	-	-	-	-	-	-
Allyl Chloride	-	-	-	-	-	-	-	-	-	-	-
Aluminum Acetate	A	B	C	-	A	-	A	A	D	A	-
Aluminum Chloride	D	B	A	A	A	A	A	A	A	-	A
Aluminum Chloride 20%	D	C1	A	A	A	A	A	A	A	-	-
Aluminum Fluoride	B1	D	A	A	A	A	A	A	A	-	A
Aluminum Hydroxide	B1	C1	A	A	A	A	-	A	A	-	-
Aluminum Nitrate	D	A	A2	A2	A2	A2	-	A	A2	-	-
Aluminum Phosphate	-	A	A	-	A	-	-	A	A	-	-
Aluminum Potassium Sulfate 10%	C	A	A	A	A	B	-	A	A	-	A
Aluminum Potassium Sulfate 100%	C	B2	A	A	A	-	-	A	A	-	A
Aluminum Sulfate	B1	B2	A	A	A	A	A	A	A	A	A
Alum-Nh3-Cr-K	-	-	A	-	A	-	-	A	D	A	-
Alums	A	A	A	A	A1	-	-	A	A	-	-
Amines	B	A	D	B2	B	-	B	A2	D	-	A
Ammonia 10%	A2	A	A	A2	A	A	A1	A	D	-	A
Ammonia Gas (Hot)	-	-	C	-	C	-	A	A	D	C	-
Ammonia Gas (Cold)	-	-	A	B	D	-	-	-	A	D	-
Ammonia Nitrate	C	A	C	A	A	A	A	A	D	-	-
Ammonia Water	-	-	-	-	-	-	-	-	-	-	-
Ammonia, anhydrous	A1	A2	B	A	A	A	A1	A	D	-	A



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Ammonia, liquid	A	A2	C	A2	A	A	A1	A	D	-	-
Ammonium Acetate	A	A	B	A	A	-	-	A	A	-	-
Ammonium Bifluoride	B	B1	B	A	A2	A	-	A	A	-	-
Ammonium Carbonate	B	B	B	A	A	A	A	A	A	-	A
Ammonium Caseinate	-	A	-	-	-	-	-	-	-	-	-
Ammonium Chloride	B1	B2	B	A	A	A	A	A	A	-	A
Ammonium Fluoride	-	-	-	-	-	-	-	-	-	-	-
Ammonium Hydroxide	B2	A1	D	A	A	A	A	A	B	-	A
Ammonium Nitrate	B1	A	A	A	A	A	A	A	A	-	A
Ammonium Nitrite	-	-	A	A	A	-	-	A	-	A	-
Ammonium Oxalate	-	A	D	A	A	-	-	-	-	-	-
Ammonium Persulfate	D	B	A	A	B	A1	-	A1	A	-	A
Ammonium Phosphate, Dibasic	B1	C	A	A	A	A	A	A2	A	-	B
Ammonium Phosphate, Monobasic	B	C	A	A	A	-	-	A	A	-	B
Ammonium Phosphate, Tribasic	B	B	A	A	A	-	-	A	A	-	B
Ammonium Sulfate	A1	B	A	A	A	A	A	A	A	-	A
Ammonium Sulfite	D	B	A1	A2	A1	-	-	A2	D	-	D
Ammonium Thisulfate	-	A	A	-	A1	-	-	-	-	-	-
Amyl Acetate	A	A	D	B1	A	A2	A	A	D	D	B
Amyl Alcohol	B	A	B	B1	A	A	A	A	A	A	A
Amyl Chloride	A1	A2	D	D	D	A	-	A	B1	-	-
Amyl-Alcohol	B	B	B	B	A	A	B	A	B	A	-
Amyl-Borate	-	-	A	-	D	-	-	A	A	D	-
Amyl-Chloronapthalene	-	-	B	-	D	-	-	A	A	D	-
Amyl-Napthalene	-	-	D	-	D	-	-	-	-	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Aniline	C	B	D	A1	B	A1	A	A	A	A	B
Aniline Dyes	B	A	C	-	A	-	B	A	A	A	-
Aniline Hydrochloride	D	D	D	D	B	A2	-	A	A	-	-
Animal Fats	A	A	A	-	A	-	A	A	A	A	-
Ansul Ether	-	-	C	-	C	-	-	A	D	C	-
Antifreeze	A	A	A	D	A	-	-	-	A	A	-
Antymoni Trichloride	D	D	B	A	B1	A	-	A	A2	-	A
Aqua Regia (80% HCl, 20% HNO3)	D	D	D	B1	C	A2	D	A	B	-	B
Arochlor 1248	A	B	C1	D	B	-	-	A	A	-	-
Aromatic Hydrocarbons	A	C	D	D	-	-	-	A	A	-	-
Arsenic Acid	D	A2	A2	A	A2	A	A	A	A2	-	-
Arsenic Salts	-	-	-	-	-	-	-	-	A	-	-
Arsenic Trichloride	D	D	C	-	D	-	D	A	D	D	-
Askarel	-	-	B	-	D	-	-	A	A	D	-
Asphalt	A	A	B	B1	D	A	A	A1	A	-	-
Barium Carbonate	D	B	A2	A	A	A	A2	A	A	-	B
Barium Chloride	D	A1	A	A	A	A	A	A	A	-	B
Barium Cyanide	C1	A2	C	D	A	-	-	A1	A	-	-
Barium Hydroxide	D	B	A	B	A	A	A	A	A	-	-
Barium Nitrate	B	B	A2	A	A	-	-	A1	A	-	B
Barium Sulfate	B	B1	A	B1	A	A	A	A	A	-	A
Barium Sulfide	D	B2	A	B	A	A	-	A	A	-	A
Beer	A	A	A	A1	A	A	A2	A	A	-	A
Beet Sugar Liquids	A	A	A	A	A	-	A	A	A	A	-
Beet Sugar Liquors	A	A	A	-	A	A	A	A	A	A	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Benzaldehyde	B	B	D	D	A	A2	A	A1	D	D	-
Benzene	B	B	D	D	D	A2	A	A	A	D	C1
Benzene Sulfonic Acid	D	B	D	D	D	-	A	A	A	-	-
Benzol	B1	A1	D	B	D	A	A	A	A	-	-
Benzonic Acid	B	B	D	B1	D	A	A1	A2	A	-	A
Benzonitrile	-	D	-	-	-	-	-	A2	-	-	-
Benzyl Benzoate	A	B	D	-	B	-	A	A	A	B	-
Benzyl Chloride	D	B1	D	C1	D	-	-	-	A2	-	-
Bibutyl Sebecate	-	A	D	B	B	A	-	A	B	B	-
Blast Furnace Gas	-	-	-	-	B	A	A	-	-	-	-
Bleaching Liquors	-	-	D	A1	D	-	-	A	A	-	-
Borax (Sodium Borate)	B1	A	B	B	A	A	A	A	A	-	A
Bordeaux Mixture	D	A	A	-	A	-	D	A	A	A	-
Boric Acid	D	A1	A	A	A	A	A	A	A	A	A
Brewery Slop	-	A	A	-	-	-	-	-	A	-	-
Brine	C	-	A	A	A	A	C	A	A	A	-
Brnzol, Alcohol	-	-	-	-	-	-	-	-	-	-	-
Bromide-Trifluoride	D	B	D	D	D	-	D	A	D	D	-
Bromine	D	D	D	D	D	A	D	A	A	-	D
Bromine-Anhydrous	D	D	-	D	C	-	D	A	A	C	-
Bromine-Vapor	-	-	-	-	-	-	-	-	-	-	-
Bromine-Water	D	B	-	D	-	A	D	A	A	-	-
Bromobenzene	D	B	D	D	D	A	D	A	B	D	-
Bunker Oil	A	A	A	-	D	-	A	A	A	D	-
Butadiene	A	A1	D	C	C	A	A1	A2	B	-	C



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Butane	A	A2	A	A1	D	A	A	A	A	-	-
Butanol (Butyl Alcohol)	B	A1	A	A1	A2	A	A	A2	A	B	A
Butraldehyde	-	-	D	D	B	-	-	A	D	B	-
Butter	A	A	A	-	A	-	-	A	A	D	-
Buttermilk	A	A	A	A1	A1	-	-	A	A	-	-
Butyl Phthalate	B2	B2	D	B2	B2	B1	A	A2	C1	-	A
Butyl Acetyl Ricinoleate	A	A	A	-	D	-	A	A	A	D	-
Butyl Acrylate	-	-	D	D	D	-	-	A	D	D	-
Butyl Alcohol	-	-	-	-	-	-	-	-	-	-	-
Butyl Amine	A2	A	-	B1	-	A1	D	A2	D	D	-
Butyl Benzoate	B	B	-	-	B	-	B	A	A	B	-
Butyl Carbitol	-	-	A	-	A	-	-	A	A	A	-
Butyl Cellosolve	-	-	B	-	A	A	-	A	C	A	-
Butyl Chloride	-	-	-	-	-	-	-	-	-	-	-
Butyl Ether	A1	A1	B2	D	D	A1	A2	A1	D	D	-
Butyl Oleate	-	-	-	-	B	-	-	A	A	B	-
Butyl Stearate	B	B	A	-	B	A	B	A	A	B	-
Butylacetate	A	A	AD	B1	B	B2	A	A	D	-	B
Butylene	A	A	A	-	D	A	A	A	A	D	-
Butyric Acid	B	B2	D	B1	B	A	A	A2	B1	D	B
Caffiene Citrate	-	-	-	-	-	-	-	-	-	-	-
Calcium Bisulfate	-	A	A	-	A	-	-	-	-	-	-
Calcium Bisulfide	C	B	A1	A	C	A	-	A	A	-	-
Calcium Bisulfite	D	A	A	A	D	A	A	A	A	-	A
Calcium Carbonate	D	B	A	A	A	A	-	A	A	-	-



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WARNING: PLEASE REFER TO THE NOTEON PAGE 2 REGARDING CHEMICAL COMPATIBILITY

chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Calcium Chlorate	-	-	A	-	A	A	-	A	A	-	-
Calcium Chloride	D	B2	A	A2	A	A	A	A	A	-	A
Calcium Hydroxide	C1	B	A	A2	A	A2	A	A	A	-	D
Calcium Hypochlorite	D	B1	C1	A1	B1	A	A	A	A	-	A1
Calcium Nitrate	B1	B2	A2	A2	A2	A2	A	A2	A2	-	-
Calcium Oxide	C	A	A	A	A	A	A	A	B	-	-
Calcium Sulfate	C	B	A2	A	A	A	A	A	A	-	-
Calcium Sulfide	A	B	A	A	A	-	A	A	A	A	-
Calgon	-	A	A	A	A	-	-	-	A	-	-
Cane Juice	B	A	A	C1	A	A1	-	A	A	-	-
Cane Sugar Liquors	A	A	A	A	A	A	A	A	A	A	-
Carbamate	-	-	C	-	B	-	-	A	A	B	-
Carbitol	B	B	B	C	B	-	B	A	A	B	-
Carbolic Acid (Phenol)	A	B	D	B	B	A1	A	A	A	D	B
Carbon Bisulfide	B	B	C	D	D	-	-	-	A	-	-
Carbon Dioxide (dry)	B1	A1	A	A2	B	A	A	A	B	-	C
Carbon Dioxide (wet)	A1	A1	A	A2	B	A	A	A	B	-	C
Carbon Disulfide	C	A	D	B	D	A	C	A	A	D	-
Carbon Monoxide	A	A	A	A	A	B	-	A	A	-	C
Carbon Tetrachloride	D	B	D	D	D	A2	A	A	A	-	D
Carbon Tetrachloride (dry)	D	B2	C1	D	B1	A2	A2	A	A2	D	D
Carbon Tetrachloride (wet)	D	A2	D	D	D	A2	A2	A	-	D	C
Carbonated Water	A	A	A	B	-	-	-	-	A	-	-
Carnobic Acid	B1	A	D	A	B	A	A	A	A	D	A
Catsup	D	A	A	A	A	-	-	-	A	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Cellosolve	B	B	C	A	A	A	B	A	B	A	-
Cellosolve Acetate	-	-	C	-	A	A	-	A	A	A	-
Cellulube	-	-	D	-	A	-	-	A	A	A	-
Chloroacetic Acid	D	C	D	B	B	A	D	A	D	B	-
Chloric Acid	D	C1	-	-	-	-	-	A	-	-	-
Chlorinated Glue	-	A	B	-	B	-	-	-	A	-	-
Chlorine (dry)	C1	B	B	D	A	A	D	A	A	D	B
Chlorine Dioxide	D	D	D	-	C	A	D	A	A	C	-
Chlorine Gas (Wet)	-	-	-	-	-	-	-	-	-	-	-
Chlorine Gas (Dry)	-	-	-	-	-	-	-	-	-	-	-
Chlorine Trifluoride	D	A	D	-	D	-	D	A	C	D	-
Chlorine Water	D	C	D	D	C	B	D	A	A	D	-
Chlorine(Wet)	D	D	D	D	D	A	D	A	A	D	-
Chlorine, Anhydrous Liquid	D	C	D	D	B	A1	D	A	A	-	-
Chloroacetic Acid	D	A1	D	C1	B	A1	A	A	D	D	D
Chloroacetone	D	B	D	D	D	-	D	A	B	D	-
Chlorobenzene (Mono)	A	B	D	C1	D	A1	A	B	A	D	B
Chlorobromometene	-	-	D	A	B	-	-	A	A	-	-
Chlorobutadiene	D	A	D	D	D	-	D	A	A	D	-
Chlorododecane	D	-	D	D	D	-	D	A	A	D	-
Chloroform	B1	A	D	C1	D	A	A	A1	A	D	D
Chloronapthalene	D	B	D	D	D	-	D	A	A	D	-
Chlorosulfonic Acid	C	B2	D	D	D	D	D	A	D	-	D
Chlorotoluene	D	B	D	D	D	-	D	A	A	D	-
Chocolate Syrup	A	A	A	A2	A	-	-	A	A	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Chrome Plating Solutions	D	D	D	B	D	-	D	A	A	D	-
Chromic Acid 10%	D	B	D	D	C	A	A	A	B	-	A
Chromic Acid 30%	D	B2	D	D	B	A2	B	A	A	D	A
Chromic Acid 5%	C	A	D	D	A	A	A	A	A	-	A
Chromic Acid 50%	D	B2	D	D	B	A2	A1	A	A	D	A
Chromium Alum	-	-	-	-	-	-	-	-	-	-	-
Chromium Salts	-	-	-	-	-	-	-	-	-	-	-
Cider	B	A	A	A	A	-	-	-	A	-	-
Citric Acid	C	A2	A	A	A	A	A	A	A	A	A
Citric Oils	C	A	A	A	B	-	C	A	A	B	-
Clorox ® (Bleach)	A	A	D	D	B	A	D	A	A	-	-
Cobalt Chloride(2n)	D	-	A	A	C	-	D	A	A	C	-
Coffee	A	A	A	A	A	-	-	-	A	-	-
Coke Oven Gas	-	-	C	-	D	A	-	A	A	D	-
Copper Acetate	D	C	B	-	A	-	D	A	-	A	-
Copper Chloride	-	D	A	A	A	A	A	A	A	-	-
Copper Cyanide	D	B	A	A	A	A	A	A	A	-	-
Copper Fluoborate	-	D	B	-	-	-	-	-	A	-	-
Copper Fluoride	-	-	-	-	-	-	-	-	-	-	-
Copper Nitrate	D	A2	A	A	-	A	A	A	A	-	-
Copper Sulfate >5%	D	B	A	A	A	A	A	A	A	-	A
Copper Sulfate 5%	D	B	A	A	A	A	A	A	A	-	A
Cream	A	A	A	A	-	-	-	A	A	-	-
Cresols	A	A	D	D	D	A2	A	-	A	-	-
Cresylic Acid	B2	A	D	A1	D	B1	-	A	A	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Crude Oil	-	-	-	-	-	-	-	-	-	-	-
Cupric Acid	D	B2	B2	A2	A2	-	A	A	A2	-	-
Cyclohexane	A	A	B	D	D	A	A	A	A	D	A
Cyclohexanol	C	B	B	B	C	A	C	A	A	C	-
Cyclohexanone	A	A2	D	D	B	D	A	A	D	-	A
Cyniac Acid	-	A	C	-	-	-	-	A	A	-	-
Decane	-	-	B	A	C	-	-	A	A	C	-
Deklin	-	-	D	B	D	-	-	A	A	D	-
Denaturated Alcohol	A	A	A	A	A	-	A	A	B	A	-
Detergents	B	A1	A	A	A	A	A	A	A	-	A
Developing Fluids	-	B	A	-	A	-	-	A	A	A	-
Diacetone	A	A	D	D	A	A	A	A	D	A	-
Diacetone Alcohol	A1	B	D	A1	A	D	-	A	D	-	-
Dibenzyl Ether	B	B	D	-	C	-	B	A	C	C	-
Dibenzyl Sebecate	-	-	D	-	B	-	-	A	B	B	-
Dibutyl Amine	-	-	C	D	D	-	A	B	D	-	-
Dibutyl Ether	B	B	B	D	C	-	B	A	C	C	-
Dibutyl Phthalate	A	A	D	C	A	-	A	A	B	A	-
Dichloro Isopropyl Ether	D	-	D	D	C	-	D	A	C	C	-
Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-
Dichloroethane	B1	B	D	D	-	A	-	A1	C	D	D
Dichloroethylene	-	-	-	-	-	-	-	-	-	-	-
Diclorobenezene	B1	B1	D	C1	D	A	-	A	C	D	D
Dicyclohexylamine	-	-	D	-	D	-	-	A	B	D	-
Diesel Fuel	A1	A1	A	A1	D	A	A	A	A	D	D



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Diethyl Benzene	-	-	D	-	D	-	-	A	A	D	-
Diethyl Ether	B	B	B	-	D	A	B	A	D	D	-
Diethyl Sebecate	A	A	D	A	B	-	A	A	A	B	-
Diethylamine	B	A	C	A1	B	D	-	D	A	-	-
Diethylene Glycol	B1	A	A2	A2	A2	A	-	A2	A2	-	-
Diisobutylene	B	B	B	-	-	-	B	A	A	-	-
Diisopropyl Benzene	-	-	D	-	D	-	-	A	A	D	-
Diisopropyl Ketone	-	-	D	-	A	A	-	A	D	A	-
Dimethyl Aniline	A	-	D	A	B	A	A	A	C	B	-
Dimethyl Formamide	A	A	C	A	-	A	A	A	A	-	-
Dimethyl Phthalate	-	B	D	A	B	A	-	A	C	B	-
Dinitrotoluene	-	-	D	-	D	-	-	A	B	D	-
Diocetyl Phthalate	A	A	D	-	B	A	A	A	A	B	-
Diocetyl Sebecate	-	-	D	-	B	-	-	A	B	B	-
Dioxane	B	A	D	C	A	A	B	A	D	A	-
Dioxolane	-	-	D	-	C	-	-	A	B	C	-
Dipentene	A	A	C	-	D	-	A	A	A	D	-
Diphenyl	B2	B	D	D	D	-	-	A	A2	-	-
Diphenyl Oxide	B1	A	A	D	D	B2	A	A1	A	-	-
Disodium Phosphate	-	-	-	-	-	-	-	-	-	-	-
Dowtherm Oil	C	A	-	-	D	A	C	A	A	D	-
Dry Cleaning Fluids	A	A	C	D	D	-	A	A	A	D	-
Dyes	B	A	-	-	-	-	-	-	A	-	-
Ehtyl Chloride	B	A	A	D	A	A	A	A	A	D	D
Epichlorohydrine	D	A	D	B	B	A	D	A	A	B	-



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Epsom Salts (Magnesium)	B1	B	A	A	A	A	A	A	A	-	-
Etanol	B	A	C	A	A	-	-	A	A	A	A
Ethane	-	A1	A	D	D	A	-	A	A	-	-
Ethanolamine	B	A	B	D	B	C1	A	A1	D	-	A
Ether	B1	A	D	D	C	B1	A	A	C	-	B
Ethyl Acetate	A	B	D	A	B	D	A	A	D	B	-
Ethyl Acetoacetate	A	-	D	-	B	A	A	A	A	B	-
Ethyl Alcohol Ethanol	-	-	-	-	-	-	-	-	-	-	-
Ethyl Benzene	A	B	D	D	D	-	A	A	A	D	-
Ethyl Benzoate	-	-	D	B1	-	D	-	A	A1	-	-
Ethyl Cellosolve	-	-	C	-	A	-	A	A	B	A	-
Ethyl Cellulose	B	B	B	-	B	-	B	A	A	B	-
Ethyl Chlorocarbonate	D	-	-	-	-	-	D	A	A	-	-
Ethyl Chloroformate	D	-	-	D	-	-	D	A	A	-	-
Ethyl Ether	B1	B	D	D	D	A2	A	A	D	-	D
Ethyl Formate	C	B	D	-	B	A	C	A	C	B	-
Ethyl Mercaptan	B	B	D	-	D	-	B	A	B	D	-
Ethyl Oxalate	A	-	D	-	A	-	A	A	B	A	-
Ethyl Pentochlorobenzene	D	-	D	D	D	-	D	A	A	D	-
Ethyl Silicate	B	A	A	-	A	-	B	A	A	A	-
Ethyl Sulfate	-	D	A	-	-	-	-	A	A	-	-
Ethylene	A	A	B	-	C	-	A	A	A	C	-
Ethylene Bromide	B	A	D	D	C	A	-	A	A	-	-
Ethylene Chloride	B	B	D	C1	D	A	A	A	B	-	B
Ethylene Chlorohydrin	B	B	D	D	B	A	-	A	A	D	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Ethylene Diamine	B1	B	A	-	A	B	A	A	B	-	A
Ethylene Dichloride	A1	B	D	D	C	A	A	A	A	D	C
Ethylene Glycol	A	B	A	A	A	A	A	A	A	A	A
Ethylene Oxide	D	B	D	D	C	A	D	A	D	-	-
Ethylene Trichloride	D	A	D	D	D	-	D	A	A	D	-
Fatty Acids	A	A	B	A	D	A	-	A	A	D	-
Ferric Chloride	D	D	A	A	A	A	A	A	A	-	D
Ferric Nitrate	D	B	A	A	A	A	A	A	A	-	A
Ferric Sulfate	D	A	A	A	A	A	A	A	A	-	-
Ferrous Chloride	D	D	A	A	-	A	A	A	A	-	A
Ferrous Sulfate	B1	B	A2	A	A	A	A	A	B	-	-
Fish Oil	-	-	A	-	-	-	-	A	A	-	-
Fluoboric Acid	D	B	A	A	A2	A1	A	A	B	-	A
Fluorinate Cyclic Ethers	D	-	-	D	-	-	D	-	-	-	-
Fluorine	A	A	D	D	A1	A1	D	D	C	-	C
Fluoro Carbon Oils	D	-	-	D	A	-	D	A	A	A	D
Fluorobenzene	D	-	D	D	D	-	D	A	A	D	-
Fluorolube	-	-	C	-	A	-	-	A	A	A	-
Fluosilicic Acid	D	B	A	A	A2	A1	A	A	B1	-	A
Formaldehyde 100%	A	A	C	C	A	A	B	A	D	A	A
Formaldehyde 40%	B	A	B	A	A	A	A	A	A	A	-
Formic Acid	A	A1	C	A1	A	A	A	A	C	A	A
Freon ® 11	D	A	B	A	D	A	A	A	B	-	-
Freon 113	-	-	A	D	D	B	A	A	B	-	-
Freon 12	B1	B	A	A2	B	A	A	A	B	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Freon 218	D	-	A	-	A	-	D	A	A	A	-
Freon 22	D	A	D	B	A	A	A	A	D	A	A
Freon Bf	D	-	B	-	-	-	D	A	-	-	-
Freon Mf	D	-	A	-	-	-	D	A	-	-	-
Freon T P35	D	-	A	-	A	-	D	A	A	A	-
Freon T Wd602	D	-	B	-	B	-	D	A	A	B	-
Freon Ta	D	-	A	-	A	-	D	A	C	A	-
Freon Tc	D	-	A	-	B	-	D	A	A	B	-
Freon TF	D	A	A	D	D	B	D	A	B	D	-
Freon Tmc	D	-	B	-	B	-	D	A	A	B	-
Freon112	D	-	B	-	D	-	D	A	A	D	-
Freon114	D	-	A	D	C	A	D	A	A	C	-
Freon114b2	D	-	B	-	D	-	D	A	B	D	-
Freon115	D	-	A	-	A	-	D	A	B	A	-
Freon13	D	-	A	D	A	-	D	A	A	A	-
Freon13b1	D	-	A	-	A	-	D	A	A	A	-
Freon142b	D	-	A	-	A	-	D	A	D	A	-
Freon152a	D	-	A	-	A	-	D	A	D	A	-
Freon21	D	-	D	D	D	A	D	A	A	D	-
Freon31	D	-	D	-	A	-	D	A	D	A	-
Freon32	D	-	A	-	A	-	D	A	D	A	-
Freon502	D	-	B	-	-	-	D	A	B	-	-
Freonc316	D	-	A	-	A	-	D	A	A	A	-
Freonc318	D	-	A	-	A	-	D	A	A	A	-
Fruit Juice	A	A	A	B	-	A	-	A	A	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Fuel Oils	C1	A	A	A	D	B	A	B	A	-	D
Fumaric Acid	-	-	C	-	-	-	-	A	A	-	-
Furan	-	-	D	C	D	-	-	A	C	D	-
Furan Resin	A	A	D	D	C	D	A	A	D	A	-
Furfural	A1	B	D	D	D	B2	A	A	D	-	A
Gallic Acid	D	B	B	A	B	A1	A	B	A	-	A
Gasoline (high-aromatic)	D	A	A	A	D	A	A	B	A	-	C
Gasoline, leaded, ref.	A	A2	A2	B	D	A	A	A	A1	-	C
Gasoline, unleaded	A2	A2	A1	C1	D	A	A	A	A1	-	C
Gelatin	A	A2	A	A	A	A	-	A	A	-	A
Glucose	A	A	A	A	A	A	B	A	A	-	A
Glue, P.V.A.	A	A2	A2	-	A	-	-	A	B	-	A
Glycerin	A	A	A	A	A	A	A	A	A	D	A
Glycolic Acid	-	A	A	A	A	B	A	A	A	-	-
Glycols	B	B	A	A	A	A	B	A	A	A	-
Gold Monocyanide	-	A	A	-	-	A	-	D	A	-	-
Grape Juice	-	A	A	-	A	A	-	A	A	-	-
Grease	-	A	A	-	D	A	-	A	A	D	-
Green Sulfate Liquor	-	-	A	A	A	-	-	A	A	A	-
Halowax Oil	-	-	D	-	D	-	-	A	A	D	-
Heptane	A	A	A	C2	D	A	A	A	A	A	A
Hexane	A	A	A	B1	D	A	A	A	A	-	C
Honey	A	A	A	A	A	A	-	A	A	-	-
Hydraulic Oil (Petro)	A	A	A	D	D	A	D	A	A	D	A
Hydraulic Oil (Synthetic)	A	A	D	D	A	A	-	A	A	-	-



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WARNING: PLEASE REFER TO THE NOTEON PAGE 2 REGARDING CHEMICAL COMPATIBILITY

chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Hydraulic Oils (Petroleum)	A	A	A	D	C	A	A	A	A	C	C
Hydraulic Oils(Synthetic)	A	A	C	D	-	A	A	-	A	-	A
Hydrazine	-	A	B	C	A	A	-	A	A	-	-
Hydrobromic Acid 100%	D	D	D	C1	A	A	A1	A	A	-	A
Hydrobromic Acid 20%	D	D	D	A2	A	A	-	-	A	-	A
Hydrochloric Acid 10%	D	D	D	A	D	A	D	A	A	-	-
Hydrochloric Acid 38%	D	D	-	B	A	A	D	A	A	A	A
Hydrochloric Acid 37%	D	D	B	C	C	A	D	A	A	C	C
Hydrochloric Acid, Dry Gas	D	D	-	B	-	A	A	A	-	-	-
Hydrocyanic Acid	A	A	B	A	B	A	B	A	A	A	A
Hydrocyanic Acid (Gas 10%)	-	-	B	A	A	-	-	A	A	-	-
Hydrofluoric Acid 100%	D	B1	D	D	D	A	D	A	B	D	A1
Hydrofluoric Acid 20%	D	D	D	D	D	A	A	A	A	-	-
Hydrofluoric Acid 50%	D	D	D	D	D	A	A	A	B	-	-
Hydrofluoric Acid 75%	D	D	D	D	C	A	B	A	B	-	-
Hydrofluosilicic 20%	D	B1	A	A	A	A	A	A	A	-	-
Hydrofluosilicic Acid 100%	D	D	B	A	A	A1	A1	A	A	-	A
Hydrogen Gas	A	A	A	A	A	A	A	A	A	-	A
Hydrogen Peroxide 5%	-	-	-	-	-	-	-	-	-	-	-
Hydrogen Peroxide 10%	A	B	D	A	A	A	A	A	A	-	A
Hydrogen peroxide 100%	A	A2	D	B1	D	A1	C	A	A	-	-
Hydrogen Peroxide 30%	A	B	D	B1	B	A	A1	A	A	-	A
Hydrogen Peroxide 50%	A	A2	D	B1	B	A1	-	A	A	-	-
Hydrogen Sulfide (acqua)	B	A	D	A1	B	A	A	A	D	-	A
Hydrogen Sulfide (dry)	B	A	D	A1	B	A	A	A	D	-	A



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Hydrogen Sulfide (Wet) (Cold)	D	A	C	A	A	-	D	A	A	A	A
Hydrogen Sulfide (Wet) (Hot)	D	A	D	A	A	-	D	A	B	A	A
Hydroquinone	B	B	D	A	D	-	-	A	B	-	-
Hydroxyacetic Acid 70%	-	-	A	-	A	A	-	A	A	-	-
Hypochlorous Acid	D	D	D	A	B	A	D	A	A	B	-
Ink	-	C	A	-	-	A	-	A	A	-	A
Iodine	A	D	B	C	B	A2	D	A	A	-	A
Iodine (in alcohol)	B	-	-	-	A	A	-	-	-	-	-
Iodine Pentafluoride	-	-	D	-	D	-	-	A	D	D	-
Iodoform	-	A	D	-	A	C	-	C	-	-	-
Isobutyl Alcohol	-	-	-	-	-	-	-	-	-	-	-
Isooctane	A1	A1	A2	A2	D	A2	A	A	A1	D	A2
Isophorone	A	A	D	-	C	-	A	A	D	C	-
Isopropyl Acetate	D	A	D	B1	B	D	-	A	D	-	C
Isopropyl Chloride	D	A	D	D	D	-	D	A	B	D	-
Isopropyl Ether	A	A	B	B	D	D	-	A1	D	-	A
Isotane	D	-	A	D	-	A	-	-	A	-	-
Jet Fuel (JP3, JP4, JP5)	A	A	A	A1	D	B	A	A	A	D	-
Kerosene	A	A	A	B	D	A	A	A	A	D	C
Ketones	B	A	D	C	A	C1	A	A	D	D	C
Lacquer Thinners	A	A	D	D	D	-	-	A	D	D	-
Lacquers	A	A	D	D	D	D	-	A	D	-	-
Lactic Acid	B	B1	A	B	A	B1	A	A	A	-	A
Lard	A	A	A	B1	D	A	-	A	A	A	A
Latex	A	A2	A	A2	A	A	-	A	A	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Lead Acetate	D	B1	B	A1	A	A	A	A	D	-	A
Lead Nitrate	D	B1	A2	A2	A2	A2	A	A1	A2	-	A
Lead Sulfamate	C	C	B	A2	A	A	-	B	A	-	-
Ligroin	D	A	A	A2	D	A	-	A	A	-	-
Lime	A	A	A	-	D	A	-	A1	A	-	A
Lime Bleach	D	A	A	B	A	-	D	A	A	A	-
Lime Sulfur	-	A	D	A	C	A	-	A	A	C	-
Lindol	-	-	D	-	A	-	-	A	B	A	-
Linoleic Acid	A2	A	B1	B1	D	A2	-	A	B1	-	-
Liquefied Petroleum Gas	-	-	A	D	D	-	-	A	A	D	-
Lithium Chloride	D	A2	A2	A2	A1	A2	-	A	A1	-	D
Lithium Hydroxide	D	B	C	-	-	-	-	A	-	-	D
Lubricants	A2	A2	A	A1	D	A	A	A	A	-	A
Lubricating Oils (Petroleum)	A	A	A	B	D	A	A	A	A	D	-
Lye: Ca(OH) ₂ Calcium Hydroxide	C1	B	A	A2	A	A2	A	A	B1	-	-
Lye: KOH Potassium Hydroxide	D	A1	B1	A	A2	A	A	A	B	-	-
Lye: NaOH Sodium Hydroxide	D	B1	A1	A	B1	D	A	A	B1	A	A
Magnesium Bisulfate	D	A1	B	A2	-	-	-	A	-	-	-
Magnesium Carbonate	A	B	A2	A	A	A	-	A1	A	-	-
Magnesium Chloride	D	D	A2	A2	A	A	A1	A	A2	-	A
Magnesium Hydroxide	C1	A1	A	A	A	A	A	A	A	-	A
Magnesium Nitrate	B	B	A	A	A	A	A	A	A	-	A
Magnesium Oxide	B	A	A	-	-	-	-	A	C	-	-
Magnesium Sulfate (Epsom Salts)	B1	B	A	A	A	A	A	A	A	-	-
Maleic Acid	B1	B	D	A	D	A	B	A	A	-	A



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Maleic Anhydride	A	A	D	D	D	A	-	A	A	-	-
Malic Acid	B1	A2	A	A1	D	A	-	A	A	-	-
Manganese Sulfate	B1	B2	A2	-	A2	A2	A2	A	A2	-	-
Mash	A	A	A	-	A	-	-	-	A	-	-
Mayonnaise	A	A	C	-	-	A	-	A	A	-	-
Mehtyl Butyl Ketone	-	A	D	D	A1	D	-	-	D	-	-
Melamine	-	D	C	A	A	-	-	A	A	-	-
Mercuric Chloride (dilute)	D	D	A	B	A1	A	A	A	A	-	A
Mercuric Cyanide	D	C	A	B	A1	A	A	B	A1	-	-
Mercurous Nitrate	D	A1	B1	A	A1	A	-	A	A1	-	-
Mercury	D	A	A	B	A	A	-	A	A	-	A
Mesityl Oxide	A	A	D	-	B	-	A	A	D	B	-
Methane	A	A	A	A	D	A	-	A	A	D	-
Methanol (Methyl Alcohol)	A1	A	A	A2	A	A	A	A	C	A	A
Methyl Acetate	A	B	D	D	B	B1	-	A	D	-	-
Methyl Acetate	A	A	D	-	A1	D	-	A	D	-	-
Methyl Acrylate	-	-	D	D	B	B1	-	-	D	-	-
Methyl Alcohol 10%	A1	A	A	A2	A	A	A	A	C	-	A
Methyl Bromide	D	A	B1	C	D	A	-	A	A	D	C
Methyl Cellosolve	B	B	A1	B	B2	A	-	A	D	A	-
Methyl Chloride	D	A	D	D	D	A	B	A	A1	D	-
Methyl Cyclopentane	-	-	B	-	D	-	-	A	A	D	-
Methyl Dichloride	-	-	D	D	D	D	-	-	A1	-	-
Methyl Ethyl Ketone	B	A	D	B	A2	D	A	A	D	D	A
Methyl Ethyl Ketone Peroxide	-	-	D	-	D	-	-	-	D	-	-



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Methyl Formate	A	B	D	-	A	-	A	A	D	A	-
Methyl Isobutyl Ketone	B	B	D	A	B1	D	A	A	D	-	-
Methyl isopropyl Ketone	A	A	D	-	C1	-	-	A	D	-	-
Methyl Methacrylate	-	B	D	D	D	B1	-	-	D	-	-
Methyl Oleate	-	-	D	-	C	-	-	A	B	C	-
Methyl Salicylate	A	-	D	B	C	-	A	A	B	C	-
Methylacrylic Acid	-	-	-	-	B	-	-	A	B	B	-
Methylamine	A	A	B	A2	A1	C	-	A	D	-	-
Methylene Chloride	C	B	D	B1	C1	B1	A	A	B	D	B
Milk	A	A	A1	B	A	A2	-	A	A	-	A
Mineral Spirits	A	A	A	B	D	-	A	A	A	-	-
Molasses	A	A	A	B	A1	B1	-	A	A	-	A
Mono, Di, Tribasic	D	A	A	A	-	-	D	-	A	B	A
Monobromoro Benzene	-	-	-	-	-	-	D	-	-	D	-
Monochloroacetic acid	D	A1	D	-	C	B1	-	A2	C	D	D
Monochlorobenzene	D	A	D	D	D	A	-	A	A	D	-
Monoethanolamine	B	A	B1	B	B	C	A	A	D	-	-
Monomethyl Aniline	-	-	D	C	D	-	-	A	C	A	-
Monomethyl Ether	-	-	B	-	A	-	-	A	A	A	-
Monovnyl Acetylene	-	-	A	-	A	-	B	A	A	A	-
Morpholine	A1	A1	D	B2	D	B1	C	A2	-	-	-
Motor Oil	A1	A2	A	A1	D	B	A	A	-	-	-
Mustard	B	A	B	A	A	A	-	A	D	A	-
N Hexaldehyde	A	A	D	-	B	-	A	A	C	B	-
N Hexene 1	-	-	A	-	D	-	-	A	A	D	-



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
N Octane	-	-	D	D	D	-	D	A	A	D	-
Naphtha	A	A	A	B	D	A	A	B	A	D	C
Naphthalene	B1	A	D	B	D	A2	A	A	A	D	A
Napthenic Acid	B	A	B	-	D	-	A	A	A	D	-
Natural Gas	A	A	A	A	D	-	-	A	A	D	-
Neatsfoot Oil	A	A	A	-	B	-	-	A	A	B	-
Neville Acid	-	-	C	-	B	-	D	A	A	B	-
Nickel Acetate	D	-	B	-	A	A	-	A	A	A	-
Nickel Chloride	D	C	A1	A	A1	A	A	A	A	-	A
Nickel Nitrate	D	B2	A1	A2	A2	A2	-	A2	A2	-	A
Nickel Sulfate	D	B1	A1	A	A1	A	A	A	A	-	A
Niter Cake	-	-	A	-	A	-	A	A	A	A	-
Nitrating Acid (<1% Acid)	D	A	-	C	-	-	C	A	-	D	-
Nitrating acid (<15% H2SO4)	D	C	-	C	-	-	C	A	-	D	-
Nitrating Acid (<15% HNO3)	D	D	-	C	-	-	C	A	-	D	-
Nitrating Acid (>15% H2SO4)	D	C	D	C	A1	-	D	A	-	D	-
Nitric Acid (20%)	D	A	D	A2	A1	A	C	A	A	D	D
Nitric Acid (50%)	D	A1	D	B	D	A1	C	A	A	D	D
Nitric Acid (5-10%)	A	A	D	A	A1	A1	B1	A	A	-	A
Nitric Acid (Concentrated)	D	A1	D	D	D	A1	C	A	A	D	D
Nitric Acid Red Fuming	A	A	D	D	D	-	-	A	B	D	-
Nitro Ethane	A	A	D	C	B	-	A	A	C	B	-
Nitrobenzene	B	B	D	B1	B1	A1	A2	A	B	-	A
Nitrobenzine	-	-	-	-	C	-	A	A	A	C	-
Nitrogen Fertilizer	-	-	-	-	-	-	-	A	-	-	-



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Nitrogen Tetroxide	D	-	D	D	C	-	-	A	C	C	-
Nitrogen(Gas)	A	A	A	A	A	A	D	A	A	A	-
Nitromethane	A	A1	D	B2	B2	A2	A2	A	D	-	-
Nitrous Acid	D	B	-	A	A	B	-	A	B	-	-
Nitrous Oxide	B	B	-	D	A	D	-	A	B	-	-
O Dichloro Benzene	A	-	D	D	-	-	A	-	A	A	-
Octachloratoluene	D	-	D	D	D	-	A	A	A	D	-
Octadecane	-	-	-	-	D	-	-	A	A	D	-
Octane	-	-	-	-	-	-	-	-	-	-	-
Oils: Aniline	D	A	D	A	B	A	-	A	C	-	-
Oils: Anise	-	A	-	-	-	-	-	-	-	-	-
Oils: Bay	-	A	-	-	-	A	-	-	A	-	-
Oils: Bone	-	A	A	A	-	A	-	A	A	-	-
Oils: Castor	A	A	B	A	B	A	-	A	A	D	-
Oils: Cinnamon	-	A	-	D	-	-	-	A	A	-	-
Oils: Clove	B	A	A	-	-	-	-	A	A	-	-
Oils: Coconut	A	A	A	A1	D	A	-	A	A	-	-
Oils: Cod Liver	A	A	A	A1	A	A	-	A	A	-	-
Oils: Corn	A	A	D	A2	C	A	-	A	B	A	-
Oils: Cottonseed	A	A	A	A	D	A	A	A	A	-	B
Oils: Creosote	B	B	D	C	D	-	-	A	A	-	A
Oils: Diesel Fuel (20, 30, 40, 50)	A	A	A	A1	D	A	A	A	A	D	D
Oils: Fuel (1, 2, 3, 5A, 5B, 6)	C1	A	B	B	D	B	A	A	B	-	D
Oils: Ginger	-	D	A	-	A	A	-	A	A	-	-
Oils: Hydraulic Oil (Petro)	A	A	A	D	D	A	D	A	A	D	A



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Oils: Hydraulic Oil (Synthetic)	A	A	D	D	A	A	-	A	A	-	-
Oils: Lemon	A	A	-	-	D	A	-	A	A	-	-
Oils: Linseed	B	A	A	A	D	A	B	A	A	-	A
Oils: Mineral	A	A	A	A	D	A	A	A	A	D	C
Oils: Olive	A	A	D	A	D	-	-	A1	A	-	-
Oils: Orange	A	A	A	A	-	A	-	-	A	-	-
Oils: Palm	-	A	A	-	A	A	-	A	A	-	-
Oils: Peanut	A	A	A	D	D	A	-	A	A	-	-
Oils: Peppermint	D	A	D	-	-	A	-	A	A	-	-
Oils: Pine	A	A	D	B	D	A	-	A	A	-	-
Oils: Rapeseed	-	A	D	D	A	A	-	A	A	-	-
Oils: Rosin	B1	A1	A	A2	-	A	-	A	A	-	A
Oils: sesame Seed	-	A	A	A	-	A	-	A	A	-	-
Oils: Silicone	A	A	A	A	A	A	A1	A	A	-	-
Oils: Soybean	A	A	A	A1	C	A	-	A	A	-	-
Oils: Sperm (whale)	-	A	A	-	-	A	-	A	A	-	-
Oils: Tanning	-	A	A	-	-	A	-	-	A	-	-
Oils: Tranformer	A	A	A	B	D	A	-	A	A	-	A
Oils: Turbine	A	A	B	B1	A	A	-	A	A	-	-
Oleic Acid	A	A	B	B1	B	A	A	A	B	-	A
Oleum 100%	B	A	D	D	D	D	A1	A	A	-	-
Oleum 25%	B	B	D	D	D	C1	A1	A	A	-	-
Oleum Spirits	D	B	D	D	C	-	A	A	A	C	D
Oxalic Acid (cold)	A	A	D	A2	A	B	A	A1	A	A	A
Oxgen Cold	A	A	C	C	B	A	A	A	A	B	-



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Oxygen 200 400 F	A	A	D	D	D	-	A	A	B	D	-
Ozone	B	A	D	B	A	A	-	A	A	-	B
Paint Thinner, Duco	A	A	A	D	D	-	-	A	B	D	-
Palmitic Acid	B	A1	A2	B1	B1	A2	-	A2	A1	A	-
Paraffin	A	A	B	A1	D	A	-	A	B	-	A
Pechloric Acid	D	C	D	C	B	A	-	A	A	-	C
Pentane	B	C	A	D	D	A	-	A	A	-	-
Perchloric Acid 10%	-	-	-	-	-	-	-	-	-	-	-
Perchloric Acid 70%	-	-	-	-	-	-	-	-	-	-	-
Perchloroethylene	C	A1	C	D	D	A	A	A	A	D	B
Petrolatum	-	A	A	D	A	A	-	C	A	-	-
Petroleum	D	A1	A2	B1	D	A	-	A2	A2	C	C
Petroleum Above 250	A	A	C	-	D	-	A	A	B	D	C
Petroleum Below 250	A	A	A	A	D	A	A	A	A	D	C
Phenil (Carbolic Acid)	A	B	D	B	B	A1	A	A	A	-	B
Phenol (10%)	A	B	D	B1	B	A	A	A	A	-	-
Phenol (Carbolic Acid)	B	A	D	C	C	A	B	A	A	C	D
Phenyl Ethyl Ether	-	-	D	D	D	D	-	A	C	D	-
Phenyl Hydrazine	-	-	D	D	C	C	-	A	A	C	-
Phenylbenzene	-	-	D	-	D	-	-	A	A	D	-
Phorone	-	-	D	D	C	C	-	A	A	C	-
Phosphoric Acid (<40%)	C	C	D	A2	B	B	A	A	A	-	-
Phosphoric Acid (>40%)	C	D	D	A2	B	B	A	A	A	-	A2
Phosphoric Acid (crude)	C	B	D	B2	B	A	A	A	A	-	-
Phosphoric Acid (molten)	C	C	-	D	-	D	-	-	-	-	-



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 1. Good resistance up to 22°C (72°F) 2. Good resistance up to 48°C (120°F) - = Data not available

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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Phosphoric Acid Anhydride	C	-	D	A	-	D	D	-	-	-	-
Phosphorus	B	A2	-	A	-	A1	-	A2	-	-	A
Phosphorus Trichloride	D	A2	D	-	A1	A2	A	A2	A1	-	A
Photographic Developer	-	A	A	A	B	-	-	A	A	-	-
Photographic Solutions	-	-	B	A2	A1	B2	A2	A2	B1	-	A
Phtalic Acid	B2	A	D	A	A1	A2	-	A2	A1	-	A
Phtalic Anhydride	A	A	D	D	A	A	-	A	A	-	-
Pickling Solutions	-	-	-	-	C	C	-	A	B	C	-
Picric Acid	C	B	C	B1	B	A1	A	A	A	-	-
Pinene	-	-	B	B	D	D	-	A	A	D	-
Piperdine	-	-	D	D	D	D	-	A	C	D	-
Plating Solutions, Antimony Plating 130°F	A	A	A	A	-	A	-	A	A	-	-
Plating Solutions, Arsenic Plating 110°F	A	A	A	A	-	A	-	A	A	-	-
Plating Solutions, Brass Plating: High-Speed Brass Bath 110°F	A	A	A	A	-	B	-	A	A	-	A
Plating Solutions, Brass Plating: Regular Brass Bath 100°F	A	A	A	A	-	B	-	A	A	-	A
Plating Solutions, Bronze Plating: Cu-Cd Bath R.T.	A	A	A	A	A	A	-	A	A	-	-
Plating Solutions, Bronze Plating: Cu-Sn Bronze Bath 160°F	A	A	A	A	A	A	-	A	A	-	-
Plating Solutions, Bronze Plating: Cu-Zn Bronze Bath 100°F	A	A	A	A	-	A	-	A	A	-	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Plating Solutions, Cadmium Plating: Cyanide Bath 90°F	A	A	A	A	-	A	-	A	A	-	A
Plating Solutions, Cadmium Plating: Fluoborate Bath 100°F	A	A	B	A	-	A	-	A	A	-	A
Plating Solutions, Chromium Plating: Barrel Chrome Bath 95°F	A	D	D	A	-	C	-	A	C	-	-
Plating Solutions, Chromium Plating: Black Chrome Bath 115°F	A	C	C	A	-	C	-	A	C	-	-
Plating Solutions, Chromium Plating: Chromic-Sulfuric Bath 130°F	A	C	D	A	-	C	-	A	C	-	-
Plating Solutions, Chromium Plating: Fluoride Bath 130°F	A	D	D	A	-	C	-	A	C	-	-
Plating Solutions, Chromium Plating: Fluosilicate Bath 95°F	A	C	D	D	-	C	-	A	C	-	-
Plating Solutions, Copper Plating (Acid): Copper Fluoborate Bath 120°F	A	D	B	A	-	A	-	A	A	-	A
Plating Solutions, Copper Plating (Acid): Copper Sulfate Bath R.T.	A	D	A	A	-	A	-	A	A	-	A
Plating Solutions, Copper Plating (Cyanide): Copper Strike Bath 120°F	-	A	A	A	-	B	-	A	A	-	A
Plating Solutions, Copper Plating (Cyanide): High-Speed Bath 180°F	A	A	A	A	-	A	-	A	A	-	A
Plating Solutions, Copper Plating (Cyanide): Rochelle Salt Bath 150°F	A	A	A	A	-	A	-	A	A	-	A
Plating Solutions, Copper Plating (Misc): Copper (Electroless)	A	-	D	A	-	A	-	A	A	-	A
Plating Solutions, Copper Plating (Misc): Copper Pyrophosphate	A	A	A	A	-	A	-	A	A	-	A



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Plating Solutions, Gold Plating: Acid 75°F	-	C	A	A	-	-	-	A	A	-	A
Plating Solutions, Gold Plating: Cyanide 150°F	-	A	A	A	-	-	-	A	A	-	A
Plating Solutions, Gold Plating: Neutral 75°F	-	C	A	A	-	-	-	A	A	-	A
Plating Solutions, Indium Sulfamate Plating R.T.	-	C	A	A	-	-	-	A	A	-	-
Plating Solutions, Iron Plating: Ferrous Chloride Bath 190°F	-	D	B	C	-	-	-	A	A	-	-
Plating Solutions, Iron Plating: Ferrous Am Sulfate Bath 150°F	-	C	A	A	-	-	-	A	A	-	-
Plating Solutions, Iron Plating: Fluoborate Bath 145°F	-	D	B	A	-	-	-	A	A	-	-
Plating Solutions, Iron Plating: Ferrous Sulfate Bath 150°F	-	C	A	A	-	-	-	A	A	-	-
Plating Solutions, Iron Plating: Sulfamate 140°F	-	D	A	A	-	-	-	A	A	-	-
Plating Solutions, Iron Plating: Sulfate-Chloride Bath 160°F	-	D	B	A	-	-	-	A	A	-	-
Plating Solutions, Nickel Plating: Electroless 200°F	-	-	D	D	-	-	-	A	A	-	A
Plating Solutions, Nickel Plating: Fluoborate 100-170°F	-	C	B	A	-	-	-	A	A	-	A
Plating Solutions, Nickel Plating: High-Chloride 130-160°F	-	C	A	A	-	-	-	A	A	-	A
Plating solutions, Nickel Plating: Sulfamate 100-140°F	-	C	A	A	-	-	-	A	A	-	A



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Plating Solutions, Nickel Plating: Watts Type 115-160°F	-	C	A	A	-	-	-	A	A	-	A
Plating Solutions, Rhodium Plating 120°F	-	D	A	A	A	-	-	A	A	-	-
Plating Solutions, Silver Plating 80-120°F	-	A	A	A	A	-	-	A	A	-	A
Plating Solutions, Tin-Fluoborate Plating 100°F	-	C	B	A	-	-	-	A	A	-	A
Plating Solutions, Tin-Lead Plating 100°F	-	C	B	A	-	-	-	A	A	-	A
Plating solutions, Zinc Plating:Acid Chloride 140°F	-	D	A	A	-	-	-	A	A	-	A
Plating Solutions, Zinc Plating: Acid Fluoborate Bath R.T.	-	C	B	A	-	-	-	A	A	-	A
Plating Solutions, Zinc Plating: Acid Sulfate Bath 150°F	-	C	A	A	-	-	-	A	A	-	A
Potash (Potassium Carbonate)	D	B	A	A	A1	A	-	-	A	-	A
Potassium Acetate	D	B	B	B	A	A	D	A	B	A	-
Potassium Aluminum Sulfate	-	-	-	-	-	-	-	-	-	-	-
Potassium Bicarbonate	D	B	A	A	A	B	A	A	A	-	A
Potassium Bichromate	-	-	-	-	-	-	-	-	-	-	-
Potassium Bromide	C1	B	A	A	A1	A	A	A	A	-	A
Potassium Carbonate	C	A	A	A	A	A	-	A	A	A	-
Potassium Chlorate	B	B	A1	A	A1	A	A	A	A	-	A
Potassium Chloride	D	A1	A1	A	A1	A	A	A	A	-	A
Potassium Chromate	B1	B1	A1	A	A2	B	-	A1	A	-	-
Potassium Cupro Cyanide	-	-	A	-	A	-	-	A	A	A	-



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Potassium Cyanide Solutions	D	B1	A1	A	A1	A	A	A	A	-	-
Potassium Dichromate	B	B1	A1	A	A1	A	A	A	A	-	A
Potassium Ferricyanide	B2	B1	D	A2	A	A2	-	A2	A	-	-
Potassium Ferrocynaide	B1	B	D	A	A	A	-	A	A	-	-
Potassium Hydroxide (Caustic Potash)	D	A1	B1	A	A2	A	A	A	B	-	A
Potassium Hypochlorite	D	B	A1	-	A1	A1	A	A2	-	-	-
Potassium Iodide	B1	A1	A1	A2	A	A2	A2	A2	A	-	B
Potassium Nitrate	B	B	A2	A	A	A	A	A	A	-	A
Potassium Oxalate	B1	B1	-	-	-	-	-	A2	-	-	-
Potassium Permanganate	B1	B	C	A1	A	A	A	A	A	-	A
Potassium Sulfate	C	A	A2	A	A1	A	A	A	A2	-	A
Potassium Sulfide	D	B	A	A	A	A	A	A	A	-	-
Producer Gas	-	-	A	-	C	-	-	A	A	C	-
Propane (liquefied)	A	A	A	A	D	A	-	A	A	-	A
Propyl Acetate	-	-	D	C	C	A	-	A	D	C	-
Propyl Alcohol	-	-	-	-	-	-	-	-	-	-	-
Propyl Nitrate	A	-	-	-	B	-	A	A	C	B	-
Propylene	A	A1	D	-	D	-	-	A2	A1	-	-
Propylene Glycol	B	B	A	A2	A	-	-	A	A	-	B
Propylene Oxide	B	A	-	C	B	D	B	A	-	B	-
Pydrauls	-	-	D	-	B	A	-	A	A	B	-
Pyranol	-	-	A	-	D	-	-	A	A	D	-
Pyridine	B	A	D	A2	B	D	A	A	D	A	A
Pyrogallic Acid	B	B	-	A	B	A	-	A	A	-	-
Pyroligneous Acid	D	B	C	-	B	A	D	A	A	B	-



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chemical	aluminium	stainless steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Pyrrrole	-	-	D	-	C	-	-	A	C	C	-
Radiation	-	-	B	-	C	-	-	A	B	C	-
Red Oil	-	-	A	-	B	-	-	A	A	B	-
Resorcinol	-	-	-	A2	B1	-	-	A2	A1	D	-
Rosins	B1	A1	A2	A2	-	-	-	A	A	-	A
Rum	-	A	A	A	A	-	-	-	A	-	-
Rust Inhibitors	-	A	A	A	-	-	-	-	A	-	-
Sal Ammoniac	D	A	A	-	A	-	D	A	A	A	-
Salad Dressings	B	A	A	A	-	-	-	-	A	-	-
Salicyaldehyde	-	-	-	-	-	-	-	-	-	-	-
Salicylic Acid	B2	B2	B	A1	A	A	-	A2	A1	-	-
Salt Brine (NaCl saturated)	B1	A2	A	A	A	A	A	A2	A2	-	A
Sea Water	B	C	A2	A	A2	A	A	A	A	A	A
Sewage	B	A	A	A	B	-	B	A	A	B	-
Shellac (Bleached)	A	A	A2	A	A2	-	-	A	A	-	-
Shellac (Orange)	A	A	A	A	A	-	-	A	A	-	-
Silicate Esters	-	-	A	-	D	-	-	A	A	D	-
Silicone	A	A	A	A	A	A	A1	A	A	-	-
Silicone Greases	-	-	A	-	A	-	-	A	A	A	-
Silver Bromide	D	D	-	-	-	-	-	A	-	-	-
Silver Chloride	-	-	-	-	-	-	-	-	-	-	-
Silver Cyanide	-	-	-	-	-	-	-	-	-	-	-
Silver Nitrate	D	B	B	A1	A	A	A	A	A	-	A
Skydrol 500	-	-	D	-	A	A	-	A	C	A	-
Skydrol 7000	-	-	D	-	C	A	-	A	B	C	-



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Soap Solutions	C	A1	A	A	A	A1	A	A	A	A	A
Soda Ash (see Sodium Carbonate)	D	A	A1	A	A2	A	A	A	A	-	A
Sodium Acetate	B	B1	B	A	A	A	A	A	D	-	A
Sodium Aluminate	-	A	A	-	A	-	A	A	A	-	-
Sodium Benzoate	A1	-	B	A2	A	A2	-	A2	A1	-	A
Sodium Bicarbonate	D	A1	A1	A	A2	A	A	A	A	-	A
Sodium Bichromate	-	-	-	-	-	-	-	-	-	-	-
Sodium Bisulfate	D	C	B2	A	A2	A	A	A	A	-	A
Sodium Bisulfite	D	B1	A2	A	A2	A	A	A	A	-	A
Sodium Borate	C	B	A	A	A	A	C	A	A	A	A
Sodium Borate (Borax)	C	B	A1	A2	A	A	A	A	A	-	A
Sodium Bromide	D	C	-	-	A	A2	-	A2	A1	-	-
Sodium Carbonate	D	A	A	A	A2	A	A	A	A	-	-
Sodium Chlorate	B	A	A	A	A	A	B	A	A	A	B
Sodium Chloride	C	C	A	A	A	A	C	A	A	A	A
Sodium Chromate	D	-	A	A	-	-	D	A	A	A	-
Sodium Cyanide	D	B1	A	A	A2	A	A	A	A2	-	A
Sodium Dichromate	-	-	-	-	-	-	-	-	-	A	-
Sodium Ferrocyanide	A	B	A	A	A	A	-	A	A	-	-
Sodium Fluoride	B	D	A1	A	A	A	-	A1	A	-	-
Sodium Hydrosulfite	A	-	C	-	B	-	-	A	A	-	-
Sodium Hydroxide [20%]	D	B2	A	A	B	A	A	A	C	-	A
Sodium Hydroxide [50%]	D	B1	A1	A	B1	A	A	A	D	-	A
Sodium Hydroxide [80%]	D	B1	D	A	B1	A	A	A1	D	-	A
Sodium Hypochlorite (<20%)	D	C	B	C	B	A	A	A	A1	-	A



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Sodium Hypochlorite (100%)	D	D	D	C	B1	A	A	A	A1	-	A
Sodium Hyposulfate	D	A	-	-	-	-	-	A	-	-	-
Sodium Metaphosphate	C	A	A	A1	A	A	-	A	A	-	A
Sodium Metasilicate	D	A	A	A	A1	-	-	A	A	-	-
Sodium Nitrate	B	B1	A1	A	A	A	A	A	A	-	A
Sodium Nitrite	-	-	-	-	-	-	-	-	-	-	-
Sodium Perborate	C	B	B	A	A	-	-	A	A	-	A
Sodium Peroxide	C	A	B	B	A	A	-	A	A	-	A
Sodium Polyphosphate	D	B	A	A	A	A	-	A	A	-	A
Sodium Silicate	A	B	A	A	A	A	A	A	A	-	A
Sodium Sulfate	A	B1	A	A	A	A	A	A	A	-	A
Sodium Sulfide	D	D	A	A	A2	A	A	A	A2	-	A
Sodium Sulfite	C1	A	A	A2	A	A	-	A	A2	-	A
Sodium Tetraborate	C	A	A	-	A	-	-	A	A	-	A
Sodium Thiosulfate	A	B	B	A2	A2	A	A	A	A	-	A
Sorghum	-	A	A	-	-	-	-	-	A	-	-
Soy Sauce	A	A	A	-	-	-	-	-	A	-	-
Stannic Chloride	D	D	A	A	A	A	A	A	A	-	-
Stannic Fluoborate	-	A	A	-	-	-	-	-	A	-	-
Stannic Fluoroborate	D	-	A	-	-	-	D	-	A	D	-
Stannous Chloride	D	A2	A	A	C	A	A1	A	A	-	-
Starch	A	A	A	A2	A	-	-	A	A	-	-
Steam 220 300 F	A	A	D	-	A	A	A	D	D	A	-
Stearic Acid	B	A	B	A2	B	A	-	A	A1	A	-
Stoddard Solvent	A	A	A	C	D	A	A	A	A	D	-



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Styrene	A	A	D	-	D	-	-	A	B	-	-
Sucrose Solutions	-	-	A	-	A	-	-	A	A	C	-
Sugar (Liquids)	A	A	A	A	A	-	-	A	A	-	-
Sulfate (Liquors)	D	B	A2	A	A	A	-	A	A1	-	A
Sulfite Liquors	D	B	A	-	B	A	D	A	A	-	-
Sulfur	D	A	B	A	A	A	D	A	A	-	-
Sulfur Chloride	D	D	D	C	D	A	D	A	A	A	C
Sulfur Dioxide	D	A	D	A	A	A	D	A	D	A	B
Sulfur Dioxide (dry)	B	A	D	A1	A2	A	A	A	A	-	A
Sulfur Hexafluoride	D	-	B	-	A	-	D	A	A	A	B
Sulfur Trioxide	D	B	C	-	C	-	D	A	A	-	C
Sulfur Trioxide Dry	A	C	D	D	C	-	A	A	A	C	-
Sulfuric Acid (<10%)	D	B	A1	A2	A	A	A	A	A	-	D
Sulfuric Acid (10-50%)	D	D	B1	B1	B2	A	A	A	A2	A	D
Sulfuric Acid 75-100%)	D	D	C	C1	B1	A	A1	A	A1	C	D
Sulfuril Chloride	-	-	-	-	-	-	-	A	-	-	-
Sulfurous Acid	B1	B	B1	A	B	A	A	A	A	-	D
Syrup	A	A	A	A	-	-	A	-	A	-	-
Tall Oil	-	-	-	-	-	-	-	-	-	-	-
Tallow	A	A	A	A2	A	-	-	A	A	-	A
Tannic Acid	C	A	A	A	A	B	A	A	A	A	A
Tanning Liquors	A	A2	B1	A1	B	-	-	A	A	-	-
Tar, Bituminous	-	B	B	D	D	A	-	A	A	D	-
Tartaric Acid	B1	C2	A	A	B	B	A	A	A	A	A
Terpineol	A	A	C	B	B	-	A	A	A	B	-



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chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Tertiary Butyl Alcohol	-	-	A	B	A	-	-	A	B	A	-
Tertiary Butyl Catechol	C	A	D	B	B	-	C	A	A	B	-
Tertiary Butyl Mercaptan	-	-	D	D	D	-	-	A	A	D	C
Tetra Bromo Methane	D	-	D	D	D	-	D	A	A	D	-
Tetra Butyl Titanate	-	-	B	B	B	-	-	A	A	B	-
Tetrachloroethane	C	A	D	C	D	A	-	A	A	D	-
Tetrachloroethylene	-	A	D	D	D	-	-	A	A	-	B
Tetraethyl Lead	-	-	B	A	D	-	-	A	A	D	-
Tetrahydrofuran	-	A	D	C2	D	B1	A	A	D	D	B
Tetralin	A	A	D	D	D	-	A	A	A	D	-
Thionyl Chloride	D	-	D	D	D	A	D	A	A	D	-
Tin Salts	D	D	A	A	B	A	-	A	A	-	-
Titanium Tetrachloride	D	B	C	D	D	-	D	A	A	D	-
Toluene (Toluol)	A	A	D	C	D	A	A	A	C	D	C
Toluene Diisocyanate	-	-	-	-	A	-	-	A	-	A	-
Tomato Juice	A	A	A	A	A	A	A	A	A	-	A
Transformer Oil	A	A	B	B	D	A	A	A	A	D	-
Transmission Fluid Type A	A	A	A	-	D	-	A	A	A	A	-
Triacetin	B	-	A	-	A	-	B	A	C	A	-
Triaryl Phosphate	D	D	-	A	-	-	A	A	A	-	-
Tributoxy Ethyl Phosphate	-	-	D	-	A	-	-	A	B	A	-
Tributyl Mercaptan	-	-	D	-	D	-	-	A	A	D	-
Trichloroacetic Acid	D	C	-	A	B	B	A	A	C	-	-
Trichloroethane	D	B	D	C	D	A	-	A	A	D	-
Trichloroethylene	D	B	D	C1	D	B	A1	A	A	D	C1



Chemical Compatibility:

A = Excellent **B** = Good **C** = Fair, not recommended **D** = Severe effect, not recommended
 1. Good resistance up to 22°C (72°F) 2. Good resistance up to 48°C (120°F) - = Data not available

WARNING: PLEASE REFER TO THE NOTEON PAGE 2 REGARDING CHEMICAL COMPATIBILITY

chemical	aluminium	stainless Steel Aisi 316	NBR	polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Trichloropropane	D	A	D	-	-	-	-	A1	A	-	-
Tricresylphosphate	D	B	D	A1	A	D	-	A	A2	-	-
Triethanol Amine	B	A	B	A	B	A	B	A	B	B	-
Triethyl Aluminum	-	D	D	-	-	-	-	A	B	-	-
Triethyl Borane	-	D	D	-	-	-	-	A	A	-	-
Triethylamine	-	A	C	D	A	A2	-	A	D	-	-
Trinitrotoluene	-	D	D	-	D	-	-	A	C	D	-
Trioctyl Phosphate	-	D	D	-	A	-	-	A	B	A	-
Trisodium Phosphate	D	B	A	A	A	A	A	A	A	-	A
Tung Oil	A	A	A	-	C	-	A	A	B	C	-
Turpentine	A	A	-	D	D	A	A	A	A	D	D
Unleaded Gasoline	A	D	A	D	D	-	A	A	A	D	-
Urea	B	B	B	A	A	A	A	A	A	-	A
Uric Acid	D	B	-	-	-	-	-	A	-	A	-
Urine	B	A	A1	A	A1	A	-	A1	A1	-	A
Varnish	A	A	B	A	D	-	-	A	A	-	A
Vegetable Juice	D	A	A2	-	A	-	-	A	A	-	-
Vinegar	D	A	B	A	A	B	A	A	A	-	A
Vinyl Acetate	A1	B	D	B1	B2	A2	-	A2	A1	-	D
Vinyl Chloride	B1	A1	D	-	C	B1	-	A2	A1	-	-
Water, Acid, Mine	D	B	A	A	A	A	A	A	A	-	-
Water, Deionized	A2	A2	A1	A2	A1	A2	A	A2	A1	-	-
Water, Demineralized											
Water, Distilled	A	A	A	A	A	A	A	A	A	A	-
Water, Fresh	B	A	A	A	A	A	A	A	A	A	A



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WARNING: PLEASE REFER TO THE NOTEON PAGE 2 REGARDING CHEMICAL COMPATIBILITY

chemical	aluminium	stainless steel Aisi 316	NBR	Polypropylene	EPDM	PVDF/ECTFE	PPS	PTFE	FPM	Santoprene®	HMWHDPE
Water, Salt	B	B	A	A	A	A	A	A	A	A	A
Weed Killers	D	A	A	-	-	-	-	-	A	-	-
Whey	B	A	A	-	-	-	-	A	A	-	-
Whiskey & Wines	C1	A	A	A	A	A	-	A	A	-	A
White Liquor (Pulp Mill)	B	A	A	A1	-	A1	-	A	A	-	-
White Water (Paper Mill)	-	A	-	A	-	-	-	-	A	-	-
Xylene	A1	B	D	B	D	A	A	A	B	D	C1
Zinc Chloride	D	B	A	A	A	A	A	A	A	A	A
Zinc Hydrosulfite	D	A	A	-	A	-	A	A	-	-	-
Zinc Sulfate	-	-	-	-	-	-	-	-	-	-	-



Chemical Compatibility:

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