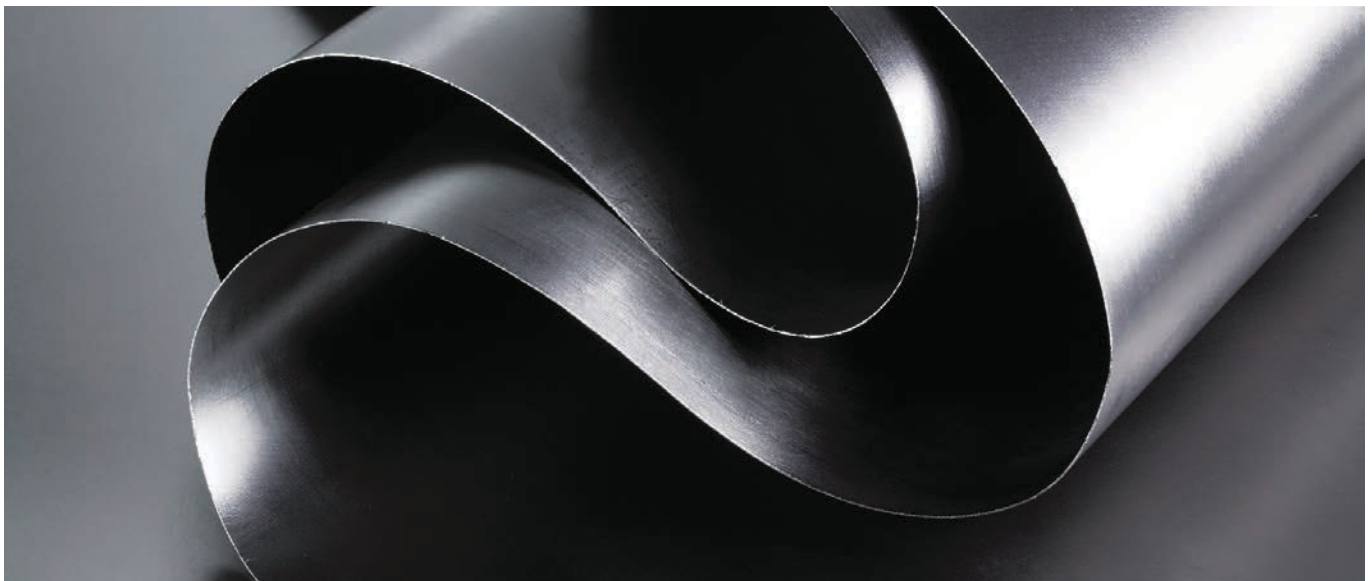


Chemical resistance of SIGRAFLEX® sealing materials



Chemical properties

Graphite is insoluble and infusible. It counts as one of the most chemically resistant materials.

Organic chemistry

Graphite is resistant to virtually all media in the field of organic chemistry. These typically include, for example, the intermediate and/or final products of the following industries:

- Petrochemistry
- Coal conversion
- Synthetics
- Varnish and paint
- Cosmetics
- Food and stimulants industry
- Photochemicals
- Cooling agents
- Anti-freezing agents

Inorganic chemistry

Graphite is resistant to almost all inorganic media as well, for example to many acids and bases, as well as probably all aqueous salt solutions and to most technical gases.

Comparison of medium resistance between sealing material made of pure PTFE, flexible graphite foil SIGRAFLEX and stainless steel

The following media resistance list shall provide an overview. For media which are not included it is generally advised to confer with the sealing manufacturer or with the SGL Carbon.

The following table provides information for the materials SIGRAFLEX flexible graphite, stainless steel and PTFE. Depending on the composition of the gasket material, either one, or two or all three columns need to be considered.

The resistance data apply to operating temperatures of the medium mentioned which are known to us. However for media being operated at above 450 °C or 842 °F, we generally ask for consultation.

Products containing PTFE must not be used above 300 °C or 572 °F.

The information is based on experience and laboratory tests but is partly only analogies. Therefore warranty may not be covered in individual cases. It should be noted, that mixtures can be partly more critical than pure media or vice versa. Four different cases can be distinguished:

1. resistant ●
2. not resistant ■
3. limited resistance ▲
4. insufficient data –

The third case depends on the stability of operation, operating temperatures or the concentration. It is advised to confer with the sealing manufacturer or with the SGL Carbon SE.

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
A			
Abietic acid	●	–	●
Accumulator acid	●	–	–
Acetal	●	–	–
Acetaldehyde	●	●	●
Acetamide	●	–	●
Acetanilide (= N-phenylacetamide)	●	–	●
Acetic acid 100% (= acetic acid glacial)	●	100 %, RT: ● 50 %, bp: ● 100 %, bp: ■	T < bp: ● bp: ■
Acetic acid butyl ester	●	●	●
Acetic acid ethyl ester (= ethyl acetate)	●	●	●
Acetic acid gas	●	■	■
Acetic acid glacial (= acetic acid 100%)	●	100 %, RT: ● 50 %, bp: ● 100 %, bp: ■	T < bp: ● bp: ■
Acetic anhydride	● at RT	●	●
Aceto acetic ester	●	●	–
Acetoin (= 3-hydroxy-2-butanone)	●	●	●
Acetone	●	●	●
Acetone cyanohydrin (= 2-hydroxy-2-methylpropionitrile = 2-cyanopropane-2-ol)	●	●	●
Acetonitrile	●	●	●
Acetophenone	●	–	–
Acetyl chloride	●	● [p.corr]	–
Acetylene	●	●	●
Acetylene tetrachloride	●	–	–
Acrolein (= propenal)	●	●	●
Acrylamide, aqueous solution	●	●	●
Acrylic acid ethyl ester	●	●	●
Acrylic acid, anhydrous	●	●	●
Acrylonitrile	●	●	●
Adipic acid	●	●	●
Adipic ester	●	●	●
Adiponitrile	●	●	–
Air [see technical information temperature resistance]	≤ 400 °C or 550 °C / 752 °F or 1022 °F: ●	–	–
Alcohol and alcoholic drinks	●	–	–

● resistant; ■ not resistant; ▲ limited resistance; – insufficient data; p.corr = pitting corrosion [stainless steel]; T = temperature; RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Alcohols	●	●	●
Aldehyde	●	-	-
Alkylamine	●	-	-
Alkylphenol	●	-	-
Alkylsulfonate acids	●	-	-
Allyl acetate [= propenyl-acetate]	●	-	●
Allyl alcohol	●	-	-
Allyl bromide	●	-	-
Allyl chloride	●	-	-
Allyl chloroformate	●	-	-
Allyl ether	●	-	-
Allyl glycidyl ether	●	-	-
Allyl iodide	●	-	-
Allyl isothiocyanate	●	-	-
Allylamine	●	-	-
Allyltrichlorosilane	●	-	-
Alpha-methylstyrene	●	●	■
Alpha-pinene	●	-	●
Alum [= aluminum potassium sulfate]	●	▲	●
Aluminum alkyl halides	●	-	-
Aluminum alkyl hydrides	●	-	-
aluminum alkyls	●	-	-
Aluminum chlorate	RT: ●	●	●
Aluminum chloride	●	■	●
Aluminum fluoride	●	■	●
Aluminum nitrate	▲	▲	-
Aluminum phosphate	●	-	-
Aluminum sulfate	●	RT: ● 10 %, bp: ● saturated, bp: ■	●
Aluminum triethyl	●	-	-
Amidosulfuric acid	●	-	-
Amine	●	-	-
Aminobenzene [= aniline]	●	●	●
Aminoethylethanolamine [= ethanolamine = monoethanolamine]	●	●	-
Aminophenols	●	-	-
Ammonia water [= ammonium hydroxide]	●	●	●
Ammoniac	●	●	●
Ammoniac, gaseous	●	●	●
Ammonium bifluoride	●	saturated, RT: ■	●
Ammonium carbonate	●	●	●
Ammonium chloride [= salmiac]	●	▲	●
Ammonium fluoride	●	anh: ●	●
Ammonium hydroxide [= ammonia solution]	●	●	●
Ammonium nitrate	▲	●	-
Ammonium nitrite, aqueous solution	●	-	-
Ammonium persulfate, aqueous solution	●	-	-
Ammonium phosphate	●	●	●
Ammonium phosphate, aqueous solution	●	-	-
Ammonium sulfate	●	▲	-
Ammonium sulfide, aqueous solution	●	▲	-
Ammonium sulfite	●	50 %: ●	-
Amyl acetate	●	●	●
Amyl alcohol	●	●	●
Amyl mercaptan	●	-	-
Amylamine	●	-	-
Anilin [= aminobenzene]	●	●	●

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion [stainless steel]; T = temperature;
RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Anisidine (= methoxyaniline)	●	-	-
Anisole	●	-	●
Anon (= cyclohexanone)	●	●	●
Anthranilic acid	●	-	-
Antraquinone	●	-	-
Antimony butter (antimony chloride), aqueous solution	●	■	●
Antimony trioxide	●	-	-
Argon	●	●	●
Arsenic acid	●	RT: ●	-
Arsenic chloride	●	-	-
Arsenic trioxide	●	▲	-
Asphalt	●	●	-
B			
Barium chloride	●	saturated ● [p.corr] melt: ■	●
Barium hydroxide	●	●	-
Barium salt, aqueous solution	●	●	●
Bayferrox (= ferrous oxide)	●	-	-
Beer	●	●	-
Benzalacetone	●	●	-
Benzaldehyde	●	●	-
Benzenesulfonic acid	●	▲	-
Benzenesulfonyl chloride	●	-	-
Benzene	●	●	●
Benzoic acid	●	●	●
Benzol	●	●	●
Benzoquinone	●	●	-
Benotriazole	●	●	-
Benzyl alcohol	●	●	-
Benzyl benzoate	●	●	-
Benzyl bromide	●	▲	-
Benzyl chloride	●	▲	-
Benzyl chloride	●	anh: ●	▲
Benzyl chloride	●	-	-
Benzyl chloroformate	●	-	-
Benzyl iodide	●	-	-
Benzylphenol	●	●	-
Bio-diesel	●	-	-
Bio-ethanol	●	●	-
Bisphenol A	●	●	-
Bisulfate base	●	-	-
Bitumen	●	●	-
Black liquor [sulfate]	●	-	●
Black liquor [sulfide]	●	-	●
Bleaching lime (= sodium hypochlorite = chlorine base)	●	■	●
Blood	●	●	-
Borax, aqueous solution (= sodium tetraborate decahydrate)	●	●	●
Borax, aqueous solution (= sodium tetraborate)	●	■	-
Boron trichloride	●	-	-
Brake fluids (glycolbased)	●	-	-
Bromine trifluoride	■	■	■
Bromine, liquid	■	■	●
Butadiene	●	●	●
Butanal oxime	●	-	-
Butane	●	●	▲
Butane	●	●	●
Butanedione	●	●	-

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion (stainless steel); T = temperature; RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Butanethiol	●	●	●
Butanol (= butyl alcohol)	●	●	●
Butanone (= methyl ethyl ketone)	●	●	●
Butin	●	●	-
Butter	●	RT: ●	-
Buttermilk	●	RT: ●	-
Butyl acetate	●	●	●
Butyl acrylate	●	●	-
Butyl alcohol (= butanol)	●	●	●
Butyl chloride	●	anh: ●	●
Butyl phosphite	●	-	-
Butyl vinyl ether	●	●	-
Butylamine	●	●	●
Butylbenzene	●	●	-
Butylcyclohexyl chloroformate	●	-	-
Butylphenol	●	●	●
Butyltoluene	●	●	-
Butyltrichlorosilane	●	■	●
Butyraldehyde (= butanal)	●	●	●
Butyraldehyde (= butyraldehyde)	●	●	●
Butyric acid	●	●	●
C			
Calcium acetate, aqueous solution	●	●	●
Calcium bisulfite (= sulfite liquor)	●	●	●
Calcium chloride	●	▲	●
Calcium hydroxide (= caustic lime = limewater)	●	●	●
Calcium hypochlorite	●	■	●
Calcium nitrate	▲	●	●
Calcium nitrate, aqueous solution	●	-	●
Calcium oxide	●	●	●
Calcium oxide (= calcium hydroxide = limewater)	●	●	●
Calcium phosphate, aqueous solution	●	-	●
Calcium sulfate	●	●	●
Calcium sulfide, aqueous solution	●	-	-
Calcium sulfite, cold saturated	●	RT: ●	●
Carbolic acid (= phenol)	●	●	●
Carbon dioxide	≤ 550 °C / 1022 °F: ●	●	●
Carbon disulfide (= carbon disulfide)	●	●	●
Carbon monoxide, dry	●	-	●
Carbon tetrachloride (= tetrachlorocarbon)	●	anh: ●	●
Caustic potash (= potassium hydroxide solution, aqueous)	●	●	●
Caustic soda (= sodium hydroxide = sodium hydroxide solution)	●	25%, RT: ●	●
Cesium melt	-	-	■
Chile saltpeter (= sodium nitrate) aqueous solution	●	●	-
Chile saltpeter (= sodium nitrate), melt	■	●	-
Chloracetic acid	●	■	-
Chlorhex isocyanate	●	-	-
Chlorinated lime	●	dry, RT: ● wet, RT: ■	●
Chlorine base (= sodium hypochlorite = bleaching lime)	●	■	●
Chlorine dioxide	■	■	●
Chlorine trifluoride	■	■	■
Chlorine water	■	■	●
Chlorine, damp	■	■	●
Chlorine, dry	●	●	●
Chloroacetone	●	-	-

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion [stainless steel]; T = temperature;
RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Chlorobenzene (= monochlorobenzene)	●	anh: ●	●
Chlorobutadiene, (= chloroprene)	●	-	●
Chloroethene (= vinyl chloride)	●	●	●
Chloroform (= trichloromethane)	●	anh: ●	●
Chloromethane (mono chloromethane = methyl chloride)	●	anh: ●	●
Chloronitrobenzene (= nitrochlorobenzene)	●	≤ 120 °C / 248 °F: ●	-
Chloroprene (= 2-chlorobutadiene)	●	-	●
Chlorosulfonic acid	●	RT, 10 %: ■ RT, 100 %: ● [p.corr]	-
Chrome alum (= potassium chromium sulfate)	-	■	●
Chromic acid, aqueous solution	≤ 10 %: ●	■	●
Chroming solutions	▲	▲	-
Citric acid, aqueous solution	●	25 %: ●	●
Clophen	●	●	●
Cobalt chloride, aqueous solution	●	-	-
Cocoa butter	●	●	●
Cod liver	●	●	●
Coffee	●	●	●
Cooking salt (= sodium chloride)	●	saturated, RT: ● [p.corr] saturated, 100 °C / 212 °F: ■	●
Copper acetate	●	●	●
Copper carbonate	●	RT: ●	-
Copper chloride, aqueous solution	●	■	●
Copper cyanide, aqueous solution	●	●	-
Copper sulfate	●	●	●
Copper sulfate	●	●	●
Copper-II-nitrate	●	50 %: ●	-
Creosol	●	●	●
Creosote	●	●	-
Cresol	●	●	●
Crude oil	●	●	●
Cryolite (= sodium fluoroaluminate)	●	-	●
Cumene (= isopropyl benzene)	●	●	●
Cyan potassium (= potassium cyanide = cyanide of potassium)	●	●	●
Cycloheptadiene (norbornadiene)	●	●	-
Cyclohexane	●	●	●
Cyclohexanol	●	●	●
Cyclohexanone (= anon)	●	●	●
D			
Decahydronaphthalene	●	●	●
Decane	●	●	●
Dextrin, aqueous solution	●	●	●
Dextrose (= glucose)	●	●	●
Diacetone alcohol	●	●	●
Dibenzyl ether	●	●	●
Dibutyl ether	●	●	●
Dibutyl phthalate	●	●	●
Dibutylamine	●	●	●
Dichlor isopropyl ether	●	-	-
Dichlorhexylamine	●	-	●
Dichloroacetic acid methyl ester	●	-	●
Dichloroethane (= dichlorethylene = vinylidene dichloride)	●	bp, anh: ●	●
Dichloroethane (= ethylene dichloride = ethylene chloride)	●	RT, anh: ●	●
Dichloromethane (= methylene chloride)	●	anh: ●	▲
Diesel oil, diesel fuel	●	●	●
Diethylcetone	●	●	●
Diethyl ether	●	●	●

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion [stainless steel]; T = temperature; RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Diethyl sebacate	●	●	●
Diethyl succinate	●	●	-
Diethylene glycol	●	●	●
Difluoromethane	●	-	-
Diglycolic acid, aqueous solution	●	-	●
Dihydroxybenzene [= (p-) hydroquinone]	●	-	●
Diisobutyl ketone	●	●	●
Diisobutylene (iso-octene)	●	●	-
Diisopropyl ketone	●	●	●
Dimethyl phthalate	●	●	●
Dimethyl sulfate [= DMS]	●	-	-
Dimethyl urea	●	-	-
Dimethylacetamide [= DMAC]	●	-	-
Dimethylamine	●	●	●
Dimethylamino sulfochloride	●	-	-
Dimethylaniline	●	●	●
Dimethylformamide [= DMF]	●	●	●
Dinitrogen monoxide [= laughing gas]	RT: ●	●	●
Dioctyl phthalate [= DOP]	●	●	●
Dioctyl sebacate	●	●	●
Dioxane	●	●	●
Dipentene [= limonene]	●	●	●
Diphenyl ether	●	●	-
Dipropyl ketone	●	●	●
Disulfide [= carbon disulfide]	●	●	●
Disulfur dichloride	●	anh: ●	●
Dithiophosphoric acid	●	-	●
Dodecyl alcohol	●	●	●
E			
Epichlorohydrine	●	●	●
Epsom salt [= magnesium sulfate]	●	●	●
Ethandiole [= monoethylene glycol = ethylene glycol = glycol]	●	●	●
Ethane	●	●	●
Ethanol [= ethyl alcohol]	●	●	●
Ethanolamine [= monoethanolamine = aminoethylethanolamine]	●	●	-
Ethene [= ethylene]	●	●	●
Ether	●	●	-
Ethine	●	●	●
Ethyl acetate [= acetic acid ethyl ester]	●	●	●
Ethyl acrylate	●	●	-
Ethyl alcohol [= ethanol]	●	●	●
Ethyl benzene	●	●	●
Ethyl chloride	●	anh: ●	●
Ethyl ether	●	●	●
Ethyl formate	●	-	-
Ethyl mercaptan	●	-	-
Ethyl silicate	●	-	-
Ethylene chloride [= ethylene dichloride = dichloroethane]	●	RT, anh: ●	●
Ethylene chlorohydrin [= 2-chloroethanol]	●	-	-
Ethylene dibromide [= 1,2-dibromoethane]	●	-	-
Ethylene dichloride [= ethylene chloride = dichloroethane]	●	RT, anh: ●	●
Ethylene glycol [= mono ethylene glycol = ethanediol = glycol]	●	●	●
Ethylene oxide [= EO] (only use products with BAM test report)	●	●	■
Ethylenediamine [= EDA]	●	●	●
Ethylhexanol	●	●	-
F			
Fat (mineral/vegetable/animal)	●	-	-

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion [stainless steel]; T = temperature; RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Fatty acid methyl ester	●	-	-
Fatty acids	●	▲	▲
Ferric chloride, ferric-III-chloride	●	■	●
Ferric-III-nitrate	▲	RT: ●	-
Ferric-III-sulfate, aqueous solution	●	10 %: ●	●
Ferric-II-sulfate, aqueous solution	●	RT: ●	-
Ferric oxide [= bayferrox]	●	-	-
Ferric phosphate	●	98 %: ●	●
Ferric sulfate, aqueous solution	●	-	-
Firewater	●	●	-
Fluorine dioxide	■	■	■
Fluorine, gaseous	■	■	■
Fluorine, liquid	■	■	■
Fluorobenzene	●	●	●
Fluoroboric acid	●	■	●
Fluorosilicic acid	-	●	●
Formaldehyde	-	bp: ●	-
Formaldehyde [= methanal = methyl aldehyde]	●	●	●
Formalin [= 40 % formaldehyde in water]	●	●	●
Formamide	●	●	●
Formic acid	●	RT: ● bp: ■	●
Fruit juices and fruit acids	●	●	-
Furan [= furfuran]	●	-	●
Furfurol	●	●	●
G			
Gallic acid, saturated [= trihydroxybenzoic acid]	●	●	-
Gelatin, aqueous solution	●	●	●
Glucose [= dextrose]	●	●	●
Glycerin [= propanetriol]	●	●	●
Glycerol triacetate	●	-	●
Glycol [= mono ethylene glycol = ethylene glycol = ethanediol]	●	●	●
Glycolic acid	●	-	●
Grain alcohol	●	●	●
Green liquor [= sulfate]	-	-	-
Green liquor [= sulfide]	-	-	-
H			
Heat carrier oil	●	●	●
Helium	●	●	●
Heptane	●	●	●
Heptanone	●	●	●
Hexachlorobutadiene	●	anh: ●	●
Hexachlorocyclohexane [= lindane]	●	-	●
Hexafluorosilicic acid	●	-	●
Hexafluorosilicic acid (containing-HF)	-	-	●
Hexamethylenediamine [= HMDA]	●	-	-
Hexamethylenetetramine [= urotropine]	●	-	-
Hexane	●	●	●
Hexanetriol	●	●	●
Hexyl alcohol	●	●	-
Hydraulic oil	●	●	●
Hydrazine	●	●	●
Hydrazine hydrate	●	●	●
Hydrazine sulfate	●	10 % bp: ●	-
Hydrazone ester	●	-	-
Hydrazone hydrazide	●	-	-
Hydrocarbons	●	●	●

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion (stainless steel); T = temperature; RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Hydrochloric acid	●	■	●
Hydrochloric acid (hydrogen chloride)	●	■	●
Hydrochlorofluorocarbons (= CFCS)	●	anh: ●	▲
Hydrocyanic acid	●	●	●
Hydrofluoric acid	●	■	▲
Hydrofluoric acid 40 % or 60 % (= hydrofluoric acid)	●	■	▲
Hydrofluorocarbons	●	anh: ●	●
Hydrofluorosilicic	●	-	●
Hydrofluorosilicic acid	●	vapors, 100 °C/212 °F: ■	●
Hydrogen	●	-	●
Hydrogen bromide	●	■	-
Hydrogen chloride (= hydrochloric acid)	●	■	●
Hydrogen peroxide (= hydrogen superoxide) (only use high-purity graphite in Z-quality, as impurities reduce the content of hydrogen peroxide!)	●	< 80 °C/176 °F: ●	●
Hydrogen sulfide	●	< 4 %, < 400 °C/752 °F: ●	●
Hydroquinone (= p-dihydroxybenzene)	●	-	●
Hydroxylamine sulfate, aqueous solution	●	10 %: ●	●
I			
Iodine	●	dry, RT: ● wet, RT: ● [p.corr]	●
Iodine tincture	●	■	●
Isobutyl alcohol	●	●	●
Isododecane	●	●	-
Isooctane	●	●	●
Isophorone diamine	●	-	-
Isophorone diisocyanate (= IPDI)	●	-	-
Isoprene	●	-	-
Isopropanol (isopropyl alcohol)	●	●	●
Isopropyl acetate	●	●	●
Isopropyl ether	●	●	●
Isopropylbenzene (= cumene)	●	●	●
K			
Kerosene	●	●	●
Ketone	●	●	●
L			
Lactam	●	●	●
Lactic acid	●	▲	●
Laughing gas (= dinitrogen monoxide)	RT: ●	●	●
Lauryl alcohol	●	●	●
Lead acetate	●	●	●
Lead arsenate	●	●	●
Lead nitrate, aqueous solution	●	RT: ●	-
Limewater	●	●	●
Limewater (= caustic lime = calcium hydroxide)	●	●	●
Limonene (= dipentene)	●	●	●
Lindane (= hexachlorocyclohexane)	●	-	●
Lithium bromide	●	●	●
Lithium chloride, aqueous solution	●	-	●
Lithium melt	-	-	■
Lysol	-	bp: ●	-
M			
Magnesium carbonate	●	RT: ●	-
Magnesium chloride, aqueous solution	●	30 %, RT: ● [p.corr]	●
Magnesium hydroxide	●	●	●
Magnesium sulfate (= epsom salt)	●	●	●
Maleic acid	●	●	●

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion [stainless steel]; T = temperature; RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Maleic acid anhydride [= MSA]	●	●	●
Malic acid	●	50 %, ≤ 100 °C / 212 °F: ●	-
Mercury	●	RT or 50 °C / 122 °F: ●	●
Mercury chloride, aqueous solution	●	▲	●
Mercury cyanide	●	RT: ●	●
Methacrylic acid methyl ester	●	●	●
Methanal [= formaldehyde = methyl aldehyde]	●	●	●
Methane	●	●	●
Methanol [= methyl alcohol]	●	●	●
Methoxyaniline [= anisidine]	●	-	-
Methyl acetate	●	●	●
Methyl acrylate	●	●	●
Methyl alcohol [= methanol]	●	●	●
Methyl aldehyde [= methanol = formaldehyde]	●	●	●
Methyl bromide	●	-	●
Methyl butyl ketone	●	●	-
Methyl chloride [= chloromethane = monochloromethane]	●	anh: ●	●
Methyl ether	●	●	●
Methyl ethyl ketone [= butanone]	●	●	●
Methyl formate	●	●	-
Methyl glycol acetate	●	●	-
Methyl isobutyl ketone	●	●	●
Methyl isopropyl ketone	●	●	●
Methyl methacrylate	●	●	●
Methyl oleate	●	●	-
Methyl sulfuric acid, aqueous solution	●	▲	-
Methylamine, aqueous solution	●	-	-
Methylcyclohexanol	●	●	-
Methylcyclopentane	●	●	-
Methylene chloride [= methylene dichloride = dichloromethane]	●	anh: ●	▲
Milk	●	≤ 70 °C / 158 °F: ●	-
Mine gas	●	●	●
Mineral oil	●	●	●
Mineral water	●	●	●
Molasses	●	●	●
Mono bromobenzene	●	anh: ●	●
Monochloroacetic acid	●	■	●
Monochlorobenzene [= chlorobenzene]	●	anh: ●	●
Monochloromethane [= chloromethane = methyl chloride]	●	anh: ●	●
Monoethanolamine [= MEA = ethanolamine = aminoethylethanolamine]	●	●	-
Monoethylene glycol [= ethanediol = ethylene glycol = glycol]	●	●	●
Morpholine	●	-	●
N			
Naphthalene	●	-	●
Naphtha	●	-	●
Natural gas	●	●	●
Neon	●	●	●
Nickel acetate, aqueous solution	●	●	●
Nickel chloride	●	■	●
Nickel nitrate, aqueous solution	●	RT: ●	-
Nickel sulfate, aqueous solution	●	RT and bp: ●	●
	10 %: ●		
	65 %, ≤ 85 °C / 185 °F: ▲	≤ 37 %, bp: ●	
Nitric acid	fuming: ■	≤ 66 %, RT: ●	●
Nitro thinner	●	●	-
Nitrobenzene	●	●	●

● resistant; ■ not resistant; ▲ limited resistance; - insufficient data; p.corr = pitting corrosion [stainless steel]; T = temperature;
RT = room temperature; bp = boiling point; anh = anhydrous

Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Nitrochlorobenzene (= chloronitrobenzene)	●	≤ 120 °C / 248 °F: ●	-
Nitroethane	●	-	●
Nitrogen	●	●	●
Nitrogen oxides (= nitrous fumes = NOx), damp	■	-	●
Nitrogen oxides (= nitrous fumes = NOx), dry	●	-	●
Nitrogen tetroxide	■	-	●
Nitrohydrochloric acid	■	■	●
Nitromethane	●	-	●
Nitropropane	●	-	●
Nitrosulfuric acid	■	▲	-
Nitrotoluene	●	●	●
Nitrous fumes (= nitrogen oxides = NOx), damp	■	-	●
Nitrous fumes (= nitrogen oxides = NOx), dry	●	-	●
Nonane	●	●	●
Norbornadiene (= bicycloheptadiene)	●	●	-
O			
Octadiene	●	●	●
Octane	●	●	●
Octanol (= octane alcohol)	●	●	●
Octyl cresol	●	●	●
Oil [mineral/vegetable/animal]	●	●	●
Oleic acid	●	hot (> 300 °C / 572 °F): ■	●
Oleum (= sulfuric acid, fuming)	■	■	●
Orthoboric acid	●	●	●
Oxalic acid	●	■	●
Oxygen until ca. 300 °C / 572 °F	●	≤ 10 %, RT: ●	●
Ozone or ozone-air-mixture until ca. 150 °C / 302 °F	●	●	●
P			
P-dihydroxybenzene (= hydroquinone)	●	-	●
Palmitic acid	●	●	●
Paraffin	●	RT or melt: ●	●
Pentachlorophenyl	●	-	●
Pentafluoroethane	●	-	-
Pentane	●	●	●
Pentene	●	●	●
Perchloroethylene (= perchlorate = tetrachloroethylene)	●	anh: ●	●
Perchloric acid [explosion danger when in contact with carbon materials]	■	■	●
Petroleum	●	●	●
Petroleum ether	●	●	●
Phenol (= carbolic acid)	●	●	●
Phenyl benzene	●	●	●
Phenylethyl ether	●	●	●
Phenyldiazine	●	●	●
Phosgene	●	anh: ●	●
Phosphoric acid	●	RT: ● bp: ■	●
Phosphoric acid 20 %	●	●	●
Phosphoric acid, impure	●	▲	●
Phosphorus oxychloride	●	■	●
Phosphorus trichloride	●	■	●
Phthalic acid	●	●	●
Phthalic acid anhydride (= PSA)	●	-	●
Picric acid, aqueous solution	●	RT: ●	●
Piperidine	●	●	●

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Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Polyethersulfone	●	-	-
Potash [=potassium carbonate]	●	●	●
Potassium acetate	●	●	●
Potassium aluminum sulfate [= alum]	●	▲	●
Potassium bifluoride, saturated	●	RT: ■	●
Potassium borate, aqueous solution	●	-	●
Potassium bromate, aqueous solution	■	-	●
Potassium bromide, aqueous solution	●	RT: ● [p.corr]	●
Potassium carbonate [= potash]	●	●	●
Potassium chlorate, aqueous solution	RT: ●	●	●
Potassium chloride	●	saturated: ● [p.corr]	●
Potassium chromate	▲	■	●
Potassium chromium sulfate [= chrome alum]	-	■	●
Potassium cyanate	●	RT: ●	-
Potassium cyanide [= cyanide of potassium = cyan potassium]	●	●	●
Potassium formate	●	●	●
Potassium hexacyanoferrate III	●	saturated: ●	-
Potassium hydroxide [= caustic potash]	●	●	●
Potassium hydroxide [= potassium hydroxide]	●	●	●
Potassium hydroxide solution, aqueous [= caustic potash]	●	●	●
Potassium hydroxide, melt	-	■	-
Potassium hypochloride	●	■	●
Potassium hypochlorite	●	■	●
Potassium iodide	●	saturated, RT: ● [p.corr]	●
Potassium melt to 350 °C/662 °F	●	-	■
Potassium nitrate, aqueous solution	●	●	●
Potassium nitrate, melt [= saltpeter]	■	●	●
Potassium oxalate	●	●	-
Potassium permanganate	RT: ●	●	●
Potassium silicate [water glass]	●	●	●
Potassium sulfate, aqueous solution	●	●	●
Printer's acetate	●	●	●
Propane	●	●	●
Propanetriol [= glycerin]	●	●	●
Propanol	●	●	●
Propenal [= acrolein]	●	●	●
Propene [= propylene]	●	●	●
Propionic acid	●	-	-
Propyl acetate	●	●	●
Propyl alcohol [propanol]	●	●	●
Propyl nitrate	●	-	●
Propylamine	●	●	●
Propylene [= propene]	●	●	●
Propylene acetate [= allyl acetate]	●	-	●
Propylene glycol	●	●	●
Propylene oxide [only use products with BAM test report]	●	●	●
Pyridine	●	●	●
Pyrrrole	●	●	●
S			
Sal volatile, cold saturated	●	RT, bp: ●	-
Salicylic acid	●	●	●
Salmiac [= ammonium chloride]	●	▲	●
Salt water [seawater]	●	RT: ● [p.corr] bp: ■	-
Saltpeter [= potassium nitrate, melt]	■	●	●
Silicone greases, silicone oils	●	●	●

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Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Silver nitrate, aqueous solution	●	10 %, bp: ● melt/250 °C/482 °F: ●	●
Soap	●	RT: ●	●
Soda (= sodium carbonate)	●	≤ 100 °C / 212 °F: ● 900 °C / 1652 °F: ■	●
Sodium acetate	●	●	●
Sodium aluminate	●	-	●
Sodium ammonium hydrogen phosphate	●	●	●
Sodium base liquor (= caustic sodium = sodium hydroxide)	●	25 %, RT: ●	●
Sodium benzoate, aqueous solution	●	●	●
Sodium bicarbonate	●	●	●
Sodium bisulfate (= sodium hydrogen sulfate)	●	10 %, bp: ●	●
Sodium bisulfite, aqueous solution	●	50 %, bp: ●	●
Sodium borate, aqueous solution	●	-	●
Sodium carbonate (= soda)	●	≤ 100 °C / 212 °F: ● 900 °C / 1652 °F: ■	●
Sodium chlorate, aqueous solution	RT: ●	30 %, RT or bp: ●	●
Sodium chloride (= cooking salt)	●	saturated, RT: ● [p.corr] saturated, 100 °C / 212 °F: ■	●
Sodium chlorite, aqueous solution	■	■	-
Sodium cyanide	●	●	●
Sodium fluoride	●	5 %, RT: ●	●
Sodium hexafluoroaluminate (= cryolite)	●	-	●
Sodium hydrogen phosphate	●	bp: ●	●
Sodium hydrogen sulfite	●	●	●
Sodium hydroxide (= caustic soda = caustic soda solution)	●	25 %, RT: ●	●
Sodium hypochloride	●	■	●
Sodium hypochlorite (= chlorine base = bleach)	●	■	●
Sodium methoxide	●	-	-
Sodium melt to 350 °C	●	-	■
Sodium nitrate (= chile saltpeter), melt	■	●	-
Sodium nitrate (= chile saltpeter), aqueous solution	●	●	-
Sodium nitrite, aqueous solution, warm saturated	●	bp: ●	●
Sodium peroxide (= sodium superoxide)	■	▲	●
Sodium phosphate, dibasic	●	●	●
Sodium phosphate, tribasic	●	●	●
Sodium silicate	●	●	●
Sodium silicate (water glass)	●	●	●
Sodium sulfate (e. g. Glauber's salt sodium sulfate decahydrate)	●	●	●
Sodium sulfide	●	▲	●
Sodium sulfite	●	50 %, bp: ●	●
Sodium superoxide (= sodium peroxide)	■	▲	●
Sodium tetraborate (= borax, aqueous)	●	■	-
Sodium tetraborate decahydrate, (= borax, aqueous solution)	●	●	●
Sodium thiosulfate	●	25 %, RT or bp: ●	-
Starch, aqueous solution	●	●	●
Steam	●	●	●
Stearic acid	●	●	●
Styrene	●	●	■
Succinic acid	●	●	-
Succinic acid ester	●	●	-
Sugar solution	●	●	●
Sulfate	-	-	-
Sulfide	-	-	-
Sulfite base (= calcium bisulfite)	●	●	●

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Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
Sulfur chloride	●	anh: ●	●
Sulfur dichloride	●	anh: ●	●
Sulfur dioxide	●	anh: ●	●
Sulfur hexafluoride	●	-	●
Sulfur trioxide	■	■	●
Sulfur, dry, liquid	●	130 °C / 266 °F: ● 445 °C / 833 °F: ■	●
Sulfur, wet	●	RT: ●	-
Sulfuric acid, fuming (= oleum)	■	■	●
Sulfuric acid 98 %	≤ 100 °C / 212 °F: ●	■	●
Sulfuric acid, until 70 %	●	■	●
Sulfurous acid	●	▲	●
T			
Tannic acid (= tannin)	●	●	●
Tannin (= tannic acid)	●	●	●
Tetrabromomethane	●	-	-
Tetrachlorocarbon (= carbon tetrachloride)	●	anh: ●	●
Tetrachloroethane	●	anh: ●	●
Tetrachloroethane (= tetrachloroethylene = perchlorethylene = perchlorate)	●	anh: ●	●
Tetrafluoroboric acid (containing-HF)	●	■	●
1,1,1,2-tetrafluoroethane	●	-	-
Tetrahydrofuran	●	●	●
Tetralin (= 1,2,3,4-tetrahydronaphthalene)	●	●	●
Tetramethylene	●	●	-
Thionyl chloride	●	-	●
Tin chloride, aqueous solution	●	▲	●
Tin, liquid	●	▲	-
Titanium tetrachloride	●	-	●
Toluene	●	●	●
Triacetin (= glycerol triacetate)	●	-	●
Tributyl phosphate	●	●	●
Tricalcium phosphate	●	●	●
Trichloroacetic acid	●	■	●
Trichloroethane	●	RT, anh: ●	●
Trichloroethene (= trichloroethylene)	●	bp, anh: ●	●
Trichloromethane (= chloroform)	●	anh: ●	●
Trichlorosilane	●	■	●
Trichlorotrifluoroethane (= freon 113)	●	anh: ●	▲
Triethanolamine	●	-	●
Triethylamine	●	●	●
Triethylenetetramine (= TETA)	●	-	●
Trihydroxybenzoic acid (= gallic acid, saturated)	●	●	-
Trimethylaluminum	●	-	■
Trioctyl phosphate	●	●	●
Tripin (= hexachlorobutadiene)	●	anh: ●	●
Trisodium phosphate	●	●	●
Turpentine	●	●	●
U			
Uranium hexafluoride	■	-	-
Urea	●	●	●
Urotropine (= hexamethylenetetramine)	●	-	-
V			
Vaseline	●	●	●
Vinegar 50 % [wine vinegar]	●	●	●
Vinyl chloride (= chloroethene)	●	●	●
Vinylidene dichloride (= dichloroethene)	●	bp, anh: ●	●

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Material suitability for specific media

Medium	SIGRAFLEX flexible graphite	Stainless steel 316, 316L, 1.4401, 1.4404	Pure PTFE
W			
Water	●	●	●
Water glass (sodium silicate, potassium silicate)	●	●	●
Water, purified	●	-	●
Wine	●	●	●
Wine vinegar (= vinegar 50 %)	●	●	●
X			
Xenon	●	●	●
Xylene	●	●	●
Y			
Yeast, aqueous solution	●	●	●
Z			
Zinc acetate, aqueous solution	●	●	●
Zinc chloride, aqueous solution	●	▲	●
Zinc cyanide	●	RT: ●	-
Zinc sulfate, aqueous solution	●	●	●
Zinc, liquid	●	■	-

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Graphite Materials & Systems | SGL CARBON GmbH | SGL TECHNIC Inc.
Sales Europe/Middle East/Africa | sigraflex-europe@sglcarbon.com
Sales Americas | sigraflex-americas@sglcarbon.com
Sales Asia/Pacific | sigraflex-asia@sglcarbon.com
www.sigraflex.com | www.sglcarbon.com

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