

GRAFILIT® SP-Pure is a gasket material made of high-quality expanded graphite mechanically bonded to tanged stainless steel foil. Its properties profile matches the production applications for foodstuff and consumables, where integrity and hygiene are the top priorities. With its excellent chemical resistance and operating temperature ranging from -200 to +550°C, this food-grade gasket material can be used extensively in a variety of food and beverage processing equipment. The material is taint- and taste-free and withstands harsh conditions during equipment operation as well as cleaning and sterilization.



## PROPERTIES

	MECHANICAL RESISTANCE	THERMAL RESISTANCE	SEALABILITY PERFORMANCE	CHEMICAL RESISTANCE
SUPERIOR	■	■	■	■
EXCELLENT	■	■	■	■
VERY GOOD	■	■	■	■
GOOD	■	■	■	■
MODERATE	■	■	■	■

## APPROPRIATE INDUSTRIES & APPLICATIONS

- GENERAL PURPOSE
- FOOD INDUSTRY
- POTABLE WATER SUPPLY
- STEAM SUPPLY
- GAS SUPPLY
- CHEMICAL INDUSTRY
- REFRIGERATION & COOLING
- HEATING SYSTEMS
- COMPRESSORS & PUMPS
- VALVES

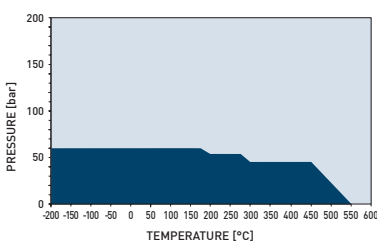
Composition	Expanded natural graphite (>99% carbon content), tanged stainless steel insert (AISI 316; 0.1 mm)
Color	Black
Approvals	LFGB and EU regulation EC 1935/2004 ; FDA § 21 CFR 177.1550 ; DVGW DIN 3535-6 ; DVGW DIN 30653 ; API 607 ; BAM (Oxygen) ; DNV GL

## TECHNICAL DATA Typical values for 2 mm thickness

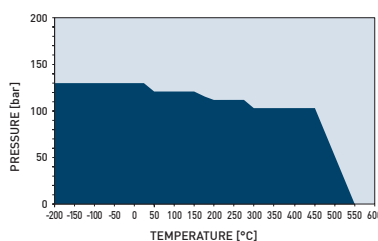
<b>Density</b>	DIN 28090-2	g/cm <sup>3</sup>	1.35
<b>Density (plain graphite)</b>	DIN 28090-2	g/cm <sup>3</sup>	1.0
Carbon content	DIN 51903	%	>99
Total sulfur content	ASTM D5016	ppm	<200
Leachable chloride content	FSA NMG 202	ppm	<20
Leachable fluoride content	FSA NMG 203	ppm	<20
Total halogen content	ICP AAS	ppm	<200
Ash content	DIN 51903	%	<1
<b>Compressibility</b>	ASTM F36A	%	>40
<b>Recovery</b>	ASTM F36A	%	>15
<b>Residual stress</b>	DIN 52913		
50 MPa, 300 °C, 16 h		MPa	>48
<b>Specific leak rate</b>	DIN 3535-6	mg/(s·m)	0.05
<b>Compression modulus</b>	DIN 28090-2		
At room temperature: $\epsilon_{KSW}$		%	40
At elevated temperature: $\epsilon_{WSW/300^\circ C}$		%	<4
<b>Creep relaxation</b>	DIN 28090-2		
At room temperature: $\epsilon_{KRW}$		%	5
At elevated temperature: $\epsilon_{WRW/300^\circ C}$		%	4
<b>Operating conditions</b>			
Minimum temperature		°C/°F	-200/-328
Maximum continuous temperature			
- under oxidizing atmosphere		°C/°F	550/1022
- reducing or inert atmosphere		°C/°F	700/1292
Pressure			
- Aggressive gases		bar/psi	60/870
- Steam or gases		bar/psi	130/1885
- Liquids		bar/psi	160/2320

## P-T DIAGRAMS

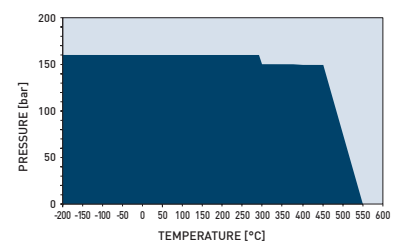
Aggressive gases



Steam or gases



Liquids



## P-T DIAGRAM

EN 1514-1, Type IBC, PN 40, DIN 28091-2 / 3.8, 1.5 mm

**P-T diagram** indicates the maximum permissible combination of internal pressure and service temperature which can be simultaneously applied for a given gasket according to its material type, thickness, size and tightness class. Given the wide variety of gasket applications and service conditions, these values should only be regarded as guidance for the proper gasket assembly. In general, thinner gaskets exhibit better P-T properties.

- General suitability - Under common installation practices and chemical compatibility
- Limited suitability - Technical consultation is mandatory

## CHEMICAL RESISTANCE CHART

The recommendations made here are intended as a guideline for the selection of a suitable gasket type. As the function and durability of products are dependent upon a number of factors, the data may not be used to support any warranty claims.

Legend: + Recommended ○ Recommendation dependent on operating conditions - Not recommended

Acetamide	○	Butyric acid	+	Formic acid, 85%	○	N-Methyl-pyrrolidone (NMP)	+	Silicones (oil/grease)	+
Acetic acid, 10%	+	Calcium chloride	○	Formic acid, 100%	○	Milk	+	Soaps	+
Acetic acid, 100% (Glacial)	○	Calcium hydroxide	+	Freon-12 (R-12)	+	Mineral oil (ASTM no.1)	+	Sodium aluminate	+
Acetone	+	Carbon dioxide (gas)	+	Freon-134a (R-134a)	+	Motor oil	+	Sodium bicarbonate	+
Acetonitrile	+	Carbon monoxide (gas)	+	Freon-22 (R-22)	+	Naphtha	+	Sodium bisulfite	+
Acetylene (gas)	+	Cellosolve	+	Fruit juices	+	Nitric acid, 10%	○	Sodium carbonate	+
Acid chlorides	○	Chlorine (gas)	○	Fuel oil	+	Nitric acid, 65%	+	Sodium chloride	+
Acrylic acid	+	Chlorine (in water)	-	Gasoline	+	Nitrobenzene	+	Sodium cyanide	+
Acrylonitrile	+	Chlorobenzene	+	Gelatin	+	Nitrogen (gas)	+	Sodium hydroxide	+
Adipic acid	+	Chloroform	+	Glycerin (Glycerol)	+	Nitrous gases (NOx)	○	Sodium hypochlorite (Bleach)	-
Air (gas)	+	Chloroprene	+	Glycols	+	Octane	+	Sodium silicate (Water glass)	+
Alcohols	+	Chlorosilanes	○	Helium (gas)	+	Oils (Essential)	+	Sodium sulfate	+
Aldehydes	+	Chromic acid	-	Heptane	+	Oils (Vegetable)	+	Sodium sulfide	○
Alum	○	Citric acid	○	Hydraulic oil (Glycol based)	+	Oleic acid	+	Starch	+
Aluminum acetate	○	Copper acetate	+	Hydraulic oil (Mineral type)	+	Oleum (Sulfuric acid, fuming)	-	Steam	+
Aluminum chlorate	○	Copper sulfate	+	Hydraulic oil (Phosphate ester based)	+	Oxalic acid	○	Stearic acid	+
Aluminum chloride	-	Creosote	+	Hydrazine	+	Oxygen (gas)	+	Styrene	+
Aluminum sulfate	+	Cresols (Cresylic acid)	+	Hydrocarbons	+	Palmitic acid	+	Sugars	+
Amines	+	Cyclohexane	+	Hydrochloric acid, 10%	○	Paraffin oil	+	Sulfur	○
Ammonia (gas)	+	Cyclohexanol	+	Hydrochloric acid, 37%	○	Pentane	+	Sulfur dioxide (gas)	○
Ammonium bicarbonate	+	Cyclohexanone	+	Hydrofluoric acid, 10%	-	Perchloroethylene	+	Sulfuric acid, 20%	○
Ammonium chloride	○	Decalin	+	Hydrofluoric acid, 48%	-	Petroleum (Crude oil)	+	Sulfuric acid, 98%	-
Ammonium hydroxide	+	Dextrin	+	Hydrogen (gas)	+	Phenol (Carbolic acid)	+	Sulfuryl chloride	-
Amyl acetate	+	Dibenzyl ether	+	Iron sulfate	+	Phosphoric acid, 40%	○	Tar	+
Anhydrides	+	Dibutyl phthalate	+	Isobutane (gas)	+	Phosphoric acid, 85%	○	Tartaric acid	○
Aniline	+	Dimethylacetamide (DMA)	+	Isooctane	+	Phthalic acid	+	Tetrahydrofuran (THF)	+
Anisole	+	Dimethylformamide (DMF)	+	Isoprene	+	Potassium acetate	+	Titanium tetrachloride	-
Argon (gas)	+	Dioxane	+	Isopropyl alcohol (Isopropanol)	+	Potassium bicarbonate	+	Toluene	+
Asphalt	+	Diphyt (Dowtherm® A)	+	Kerosene	+	Potassium carbonate	+	2,4-Toluenediisocyanate	+
Barium chloride	○	Esters	+	Ketones	+	Potassium chloride	+	Transformer oil (Mineral type)	+
Benzaldehyde	+	Ethane (gas)	+	Lactic acid	○	Potassium cyanide	+	Trichloroethylene	+
Benzene	+	Ethers	+	Lead acetate	+	Potassium dichromate	-	Vinegar	+
Benzoic acid	+	Ethyl acetate	+	Lead arsenate	+	Potassium hydroxide	+	Vinyl chloride (gas)	+
Bio-diesel	+	Ethyl alcohol (Ethanol)	+	Magnesium sulfate	+	Potassium iodide	+	Vinylidene chloride	+
Bio-ethanol	+	Ethyl cellulose	+	Maleic acid	+	Potassium nitrate	+	Water	+
Black liquor	○	Ethyl chloride (gas)	+	Malic acid	○	Potassium permanganate	○	White spirits	+
Borax	+	Ethylene (gas)	+	Methane (gas)	+	Propane (gas)	+	Xylenes	+
Boric acid	+	Ethylene glycol	+	Methyl alcohol (Methanol)	+	Propylene (gas)	+	Xylenol	+
Butadiene (gas)	+	Formaldehyde (Formalin)	+	Methyl chloride (gas)	+	Pyridine	+	Zinc sulfate	+
Butane (gas)	+	Formamide	+	Methylene dichloride	+	Salicylic acid	+		
Butyl alcohol (Butanol)	+	Formic acid, 10%	○	Methyl ethyl ketone (MEK)	+	Seawater/brine	○		

All information and data quoted are based upon decades of experience in the production and operation of sealing elements. This data may not be used to support any warranty claims. With its publication this latest edition supersedes all previous issues and is subject to change without further notice.

Sheet dimensions	Size (mm): 1000 x 1000   1500 x 1500 Thickness (mm): 1.0   1.5   2.0   3.0 Other sizes and thicknesses available on request
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Date of issue: 01.2022 / TDS-GSP-PURE-01-2022