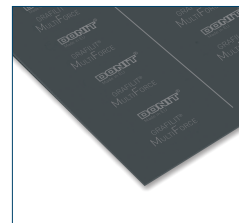


GRAFILIT® MultiForce is an expanded high-purity graphite gasket sheet with multiple stainless steel foil reinforcements, facilitating thus its handling and cutting, and allowing increased surface load. It has excellent chemical and thermal resistances, high creep resistance and high compressibility rendering it suitable for highly demanding conditions in chemical and petrochemical installations with hot and/or corrosive media. The combination of an oxidation inhibitor with a very low sulphur content makes this material the perfect solution for sealing applications in nuclear power plants.



PROPERTIES

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

APPROPRIATE INDUSTRIES & APPLICATIONS

- CHEMICAL INDUSTRY
- WATER SUPPLY
- PETROCHEMICAL INDUSTRY
- GAS SUPPLY
- NUCLEAR POWER PLANTS
- REFRIGERATION & COOLING
- HIGH-TEMPERATURE APP.
- COMPRESSORS & PUMPS
- HEATING SYSTEMS
- VALVES
- STEAM SUPPLY

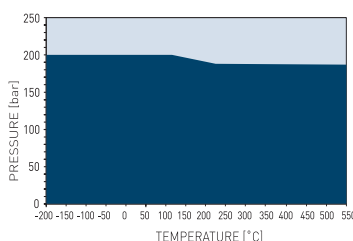
Composition	Expanded natural graphite foils (>99% purity) containing oxidation inhibitor, reinforced with multiple stainless steel flat foils (SS 316L; thickness 0.05 mm)
Color	Black
Approvals	Fire Safe API 6FB, DVGW DIN 3535-6, BAM (Oxygen)

TECHNICAL DATA Typical values for a thickness of 2.0 mm (contains 3 inserts of 0.05 mm)

Density (plain graphite)	DIN 28090-2	g/cm ³	1.1
Total sulfur content		ppm	< 250
Leachable chloride content	FSA NMG 202	ppm	< 20
Leachable halogen content		ppm	< 100
Ash content	DIN 51903	%	< 1.0
Oxidation rate in air at 670°C	LECO TGA	%/h	≤ 3
Compressibility	ASTM F36A	%	35
Recovery	ASTM F36A	%	20
Stress resistance	DIN 52913		
50 Mpa, 300°C, 16 h		MPa	49
Specific leak rate	DIN 3535-6	mg/(s·m)	< 0.02
Compression modulus	DIN 28090-2		
At room temperature: ϵ_{KSW}		%	35
At elevated temperature: $\epsilon_{WSW/300\text{ °C}}$		%	3
Creep relaxation			
At room temperature: ϵ_{KRW}		%	5
At elevated temperature: $\epsilon_{WRW/300\text{ °C}}$		%	4
Operating conditions			
Minimum temperature		°C/°F	-200/-328
Continuous maximum temperature			
- oxidizing atmosphere		°C/°F	550/1022
- reducing or inert atmosphere		°C/°F	700/1292
Maximum pressure		bar/psi	250/2900

P-T DIAGRAM

EN 1514-1, Type IBC, PN 40, DIN 28091-2 / 3.8, 2.0 mm



■ General suitability - Under common installation practices and chemical compatibility.

■ Limited suitability - Technical consultation is mandatory.

P-T diagram indicates the maximum permissible combination of internal pressure and service temperature which can be simultaneously applied for a given gasket's thickness, size and tightness class. Given the wide variety of gasket applications and service conditions, these values should only be regarded as a guidance for the proper gasket assembly. In general, thinner gaskets exhibit better P-T properties.

Standard dimensions of sheets

Size (mm): 1000 x 1000 | 1500 x 1500
 Thickness (mm): 1.0 | 1.5 | 2.0 | 3.0
 Other sizes and thicknesses are available on request

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

CHEMICAL RESISTANCE CHART

The recommendations made here are intended as a guideline for the selection of a suitable gasket material. As the product functionality and durability depend upon a number of factors, the data may not be used to support any warranty claims. If there are specific type-approval regulations, these have to be complied with.

- +
 - o
 -
- + Recommended
 o Recommendation dependent on operating conditions
 - Not recommended



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 Date of issue: 02.2020 / TDS-GMF-01-2017