

GRAFILIT® MultiForce is an expanded graphite based material with multiple stainless steel foil inserts, thus facilitating its handling, cutting and enhances the surface load. GRAFILIT® MultiForce has excellent chemical and thermal resistance. Its high creep resistance and high compressibility make it suitable for highly demanding conditions in the chemical and petrochemical industries. Also available for specific Nuclear applications. (NG - nuclear grade on request).



PROPERTIES

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

APPROPRIATE INDUSTRIES & APPLICATIONS

- WATER SUPPLY
- STEAM SUPPLY
- GAS SUPPLY
- CHEMICAL INDUSTRY
- PETROCHEMICAL INDUSTRY
- POWER PLANT
- REFRIGERATION AND COOLING
- HEATING SYSTEMS
- HIGH TEMP. APPLICATIONS
- COMPRESSORS AND PUMPS
- VALVES

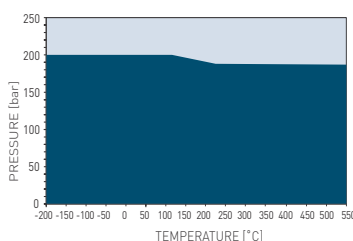
Composition	Expanded natural graphite (carbon content > 99 % graphite nuclear grade purity), impregnated with anti-oxidation inhibitor, multiple stainless steel (AISI 316L) flat foil inserts (thickness 0.05 mm).
Colour	Black
Approvals	Fire Safe according to API 6FB, DVGW DIN 3535-6, BAM (Oxygen) In compliance with: DVGW VP401 (fire safe)

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

Density	DIN 28090-2	g/cm ³	1.1
Compressibility	ASTM F36A	%	35
Recovery	ASTM F36A	%	> 20
Stress resistance	DIN 52913		
16 h, 50 MPa, 300 °C		MPa	>= 49
Specific leak rate	DIN 3535-6	mg/(s.m)	< 0.02
Total Chloride content	FSA NMG 202	ppm	< 25
Total Sulfur content		ppm	< 300
Total Halogen content		ppm	< 200
Ash content of graphite	DIN 51903	%	< 1.0
Oxidation rate in air at 670°C	LECO TGA	%/hr	<=3
Compression modulus	DIN 28090-2		
At room temperature: ϵ_{KSW}		%	35
At elevated temperature: $\epsilon_{WSW/300\text{ °C}}$		%	<= 3
Percentage 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 temperature			
- oxidizing atmosphere		°C/°F	550/1022
- reducing or inert atmosphere		°C/°F	700/1292
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 - Appropriate measures ensure maximum performance for joint design and gasket installation.
- Limited suitability - Technical consultation is mandatory.

Dimensions of standard sheets

Sheet size (mm): 1000 x 1000 | 1500 x 1500

Thickness (mm): 1.0 | 1.5 | 2.0 | 3.0

Other dimensions and thicknesses are available on request.

Acetamide	+	Dioxane	+	Oleic acid	+
Acetic acid, 10%	+	Dipht (Dowtherm A)	+	Oleum (Sulfuric acid, fuming)	-
Acetic acid, 100% (Glacial)	?	Esters	+	Oxalic acid	?
Acetone	+	Ethane (gas)	+	Oxygen (gas)	+
Acetonitrile	+	Ethers	+	Palmitic acid	+
Acetylene (gas)	+	Ethyl acetate	+	Paraffin oil	+
Acid chlorides	?	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%	?
Alcohols	+	Formaldehyde (Formalin)	+	Phosphoric acid, 85%	?
Aldehydes	+	Formamide	+	Phthalic acid	+
Alum	?	Formic acid, 10%	+	Potassium acetate	+
Aluminium acetate	?	Formic acid, 85%	?	Potassium bicarbonate	+
Aluminium chlorate	?	Formic acid, 100%	?	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	?
Ammonia (gas)	+	Fruit juices	+	Potassium hydroxide	+
Ammonium bicarbonate	+	Fuel oil	+	Potassium iodide	+
Ammonium chloride	?	Gasoline	+	Potassium nitrate	+
Ammonium hydroxide	+	Gelatin	+	Potassium permanganate	?
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	?
Asphalt	+	Hydraulic oil (Mineral type)	+	Silicones (oil/grease)	+
Barium chloride	?	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	?	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	?
Butyric acid	+	Isopropyl alcohol (Isopropanol)	+	Starch	+
Calcium chloride	?	Kerosene	+	Steam	+
Calcium hydroxide	+	Ketones	+	Stearic acid	+
Carbon dioxide (gas)	+	Lactic acid	?	Styrene	+
Carbon monoxide (gas)	+	Lead acetate	+	Sugars	+
Cellosolve	+	Lead arsenate	+	Sulfur	+
Chlorine (gas)	?	Magnesium sulfate	+	Sulfur dioxide (gas)	+
Chlorine (in water)	+	Maleic acid	+	Sulfuric acid, 20%	-
Chlorobenzene	+	Malic acid	?	Sulfuric acid, 98%	-
Chloroform	+	Methane (gas)	+	Sulfuryl chloride	-
Chloroprene	+	Methyl alcohol (Methanol)	+	Tar	+
Chlorosilanes	?	Methyl chloride (gas)	+	Tartaric acid	?
Chromic acid	-	Methylene dichloride	+	Tetrahydrofuran (THF)	+
Citric acid	?	Methyl ethyl ketone (MEK)	+	Titanium tetrachloride	-
Copper acetate	+	N-Methyl-pyrrolidone (NMP)	+	Toluene	+
Copper sulfate	+	Milk	+	2,4-Toluenediisocyanate	+
Cresosote	+	Mineral oil (ASTM no.1)	+	Transformer oil (Mineral type)	+
Cresols (Cresylic acid)	+	Motor oil	+	Trichloroethylene	+
Cyclohexane	+	Naphtha	+	Vinegar	+
Cyclohexanol	+	Nitric acid, 10%	?	Vinyl chloride (gas)	+
Cyclohexanone	+	Nitric acid, 65%	?	Vinylidene chloride	+
Decalin	+	Nitrobenzene	+	Water	+
Dextrin	+	Nitrogen (gas)	+	White spirits	+
Dibenzyl ether	+	Nitrous gases (NOx)	?	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 the suitable gasket type. As the function and durability of products is dependent upon a number of factors, the data may not be used to support any warranty claims.

- + Recommended |
- ? Recommendation depends on operating conditions |
- Not recommended |



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