



GRAFILIT[®] EM is an expanded graphite-based gasket material endowed with expanded stainless steel reinforcement for high operation pressures, including cycling loading. Uniform surface pressure distribution provides excellent thermomechanical properties and sealing characteristics, and increases blowout resistance. It is particularly suitable for high temperature applications in petrochemical industry and steam supply.

PROPERTIES

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

APPROPRIATE INDUSTRIES & APPLICATIONS

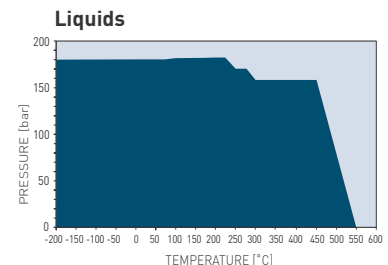
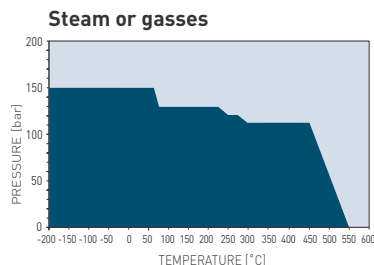
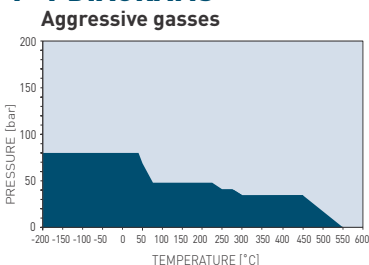
- GENERAL PURPOSE
- SHIPBUILDING
- STEAM SUPPLY
- POWER PLANT
- GAS SUPPLY
- REFRIGERATION & COOLING
- CHEMICAL INDUSTRY
- HEATING SYSTEMS
- PETROCHEMICAL INDUSTRY
- HIGH-TEMPERATURE APP.
- PAPER & CELLULOSE INDUSTRIES
- COMPRESSORS & PUMPS
- AUTOMOTIVE & ENGINE BUILDING INDUSTRIES
- VALVES

Composition	Expanded natural graphite (>99% purity), expanded stainless steel insert (AISI 316L; 0.15 mm).
Color	Black
Approvals	DVGW DIN 3535-6 ; ISO 10497 (API 607) ; TA-Luft (VDI 2440) ; DNV GL ; ABS

TECHNICAL DATA Typical values for a thickness of 1.5 mm

Density	DIN 28090-2	g/cm ³	1.4
Density (plain graphite)	DIN 28090-2	g/cm ³	1.0
Carbon content	DIN 51903	%	>98
Total sulfur content	ASTM D5016	ppm	<300
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	%	<2
Oxidation rate in air, 670 °C, 4 h (TGA)	DIN 28090-2	%/h	<4
Oxidation and corrosion inhibitor			yes
Compressibility	ASTM F36A	%	35
Recovery	ASTM F36A	%	20
Tensile strength	ASTM F152		
Transversal		MPa	9
Stress resistance	DIN 52913		
50 MPa, 300 °C, 16 h		MPa	48
Specific leak rate	DIN 5535-6	mg/(s·m)	<0.02
Thickness increase	ASTM F146		
Oil IRM 903, 150 °C, 5 h		%	4
ASTM Fuel B, 23 °C, 5 h		%	5
Compression modulus	DIN 28090-2		
At room temperature: ϵ_{KSW}		%	33
At elevated temperature: $\epsilon_{WSW/300\text{ °C}}$		%	2.5
Creep relaxation	DIN 28090-2		
At room temperature: ϵ_{KRW}		%	4.5
At elevated temperature: $\epsilon_{WRW/300\text{ °C}}$		%	3.5
Operating conditions			
Minimum temperature		°C/°F	-200/-328
Maximum continuous temperature			
- under oxidizing atmosphere		°C/°F	550/1022
- under reducing or inert atmosphere		°C/°F	700/1292
Maximum pressure		bar/psi	150/2175

P-T DIAGRAMS



P-T DIAGRAMS

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

P-T diagrams indicate 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.

- 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. If there are specific type-approval regulations, these have to be complied with.

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	+	Glycerine (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	+
Aluminium acetate	○	Copper acetate	+	Hydraulic oil (Mineral type)	+	Oleum (Sulfuric acid, fuming)	-	Steam	+
Aluminium chlorate	○	Copper sulfate	+	Hydraulic oil (Phosphate ester based)	+	Oxalic acid	○	Stearic acid	+
Aluminium chloride	-	Creosote	+	Hydrazine	+	Oxygen (gas)	+	Styrene	+
Aluminium sulfate	+	Cresols (Cresylic acid)	+	Hydrocarbons	+	Palmitic acid	+	Sugars	+
Amines	+	Cyclohexane	+	Hydrochloric acid, 10%	○	Parafin 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)	+	Isocotane	+	Phthalic acid	+	Tetrahydrofuran (THF)	+
Anisole	+	Dimethylformamide (DMF)	+	Isoprene	+	Potassium acetate	+	Titanium tetrachloride	-
Argon (gas)	+	Dioxane	+	Isopropyl alcohol (Isopropanol)	+	Potassium bicarbonate	+	Toluene	+
Asphalt	+	Diphtyl (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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