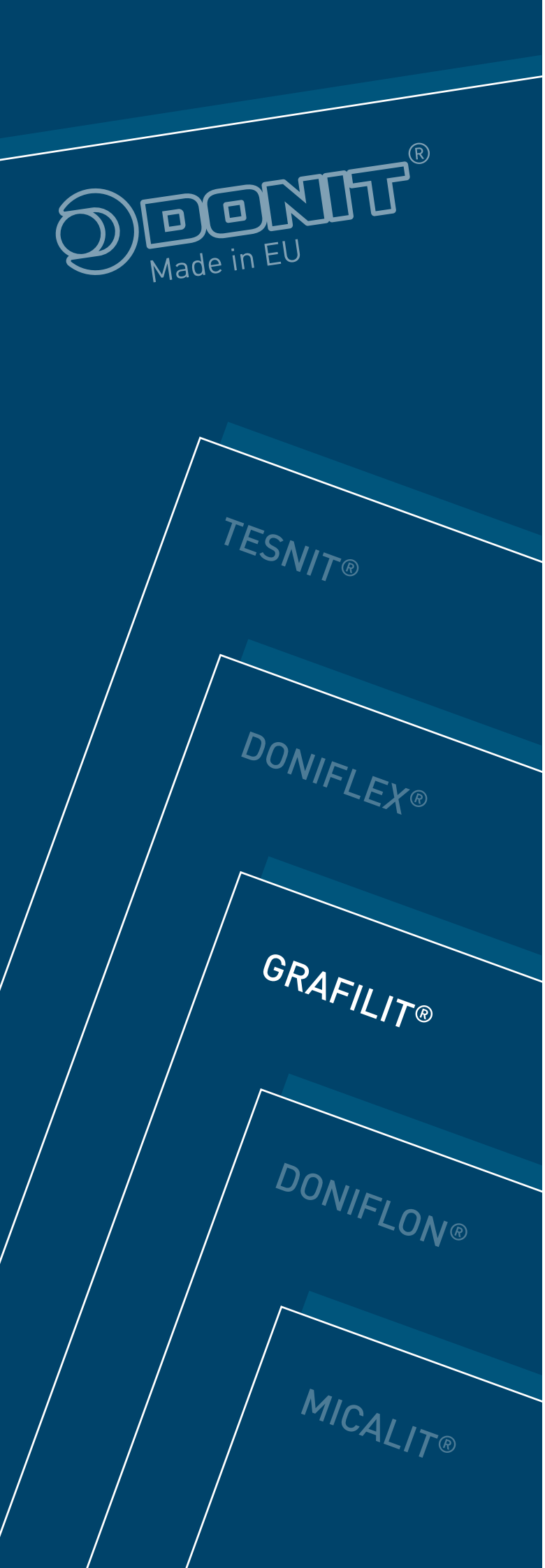


DONIT®
A perfect fit

WE ARE A TRUE PARTNER FOR YOUR SUCCESS

DONIT® Sealing technologies

As a leader in gaskets, gasket sheets, and advanced sealing technologies, we offer the optimum solution with a perfect fit for your most challenging sealing requirements. Backed by decades of excellence in understanding of sealing problems, extensive know how in application engineering, and consistent manufacturing of reliable high quality products, we are in position to respond quickly and efficiently to your inquiry.

WE ARE A TRUE PARTNER FOR YOUR SUCCESS

With a wide experience in problem-solving and unshaken commitment to high quality standards, we are dedicated to provide you the best service and products. In addition, through customer-driven innovation, our strong R&D team is qualified to successfully design the adequate sealing solution.

Our customer satisfaction rests upon four pillars:

- Complete production chain and international sales network
- Quality assurance and safety
- Application engineering
- Technical training courses and seminars

THE DONIT® PHILOSOPHY

Our philosophy is based on building long-term business relationship with our customers that extends across many sectors of industries. Customer satisfaction is our driving-force which is attained through the constant supply of reliable and high quality products embracing product improvement and support.

DONIT® gasket sheets and sealing solutions are high quality products which have received several industrial quality approvals. Our products support the environmental legislation without compromising their sealing performance.

EMPLOYEES

Over 200 employees dedicated to you:
We strive for permanent professional and personal growth. We promote teamwork and diversity.

Our international team supports you regardless your geographical location.

80% - Secondary school / technical school or lower

18% - Bachelor or equivalent

2% - Doctoral or equivalent

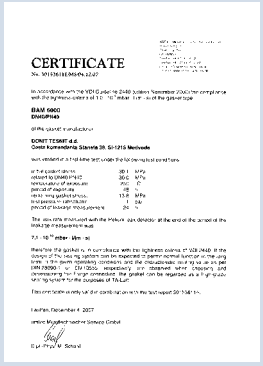
CERTIFIED QUALITY

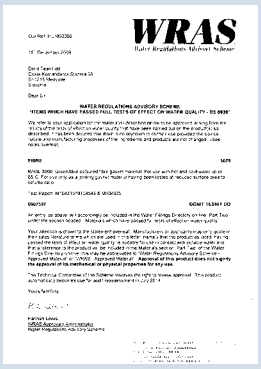
We assure high quality, environmentally friendly products to our customers. Quality and care for the environment is embedded in both our minds and our organization.

Care for the environment is embedded in our tradition. DONIT TESNIT d.o.o. is certified by international ISO 9001 and ISO 14001 standards.

We also ensure that product quality and safety is in accordance with a number of widely recognized international standards such as:

DVGW (DIN 3535-6, VP 401), SVGW (DIN 3535-6), DVGW KTW, DVGW W270, BAM, WRAS, TA-Luft (VDI 2440), API 6FA / API 607, ABS, Germanischer Lloyd

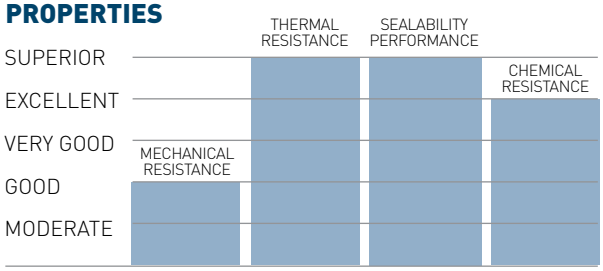




DONIT® | GRAFILIT® SF

GRAFILIT® SF is an expanded graphite based material that 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, gas supply, compressors and pumps.

PROPERTIES



APPROPRIATE INDUSTRIES & APPLICATIONS

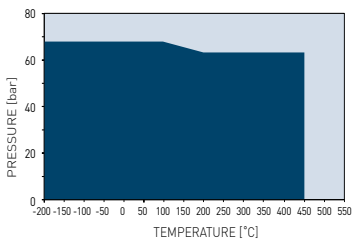
- WATER SUPPLY
- POTABLE WATER SUPPLY
- STEAM SUPPLY
- GAS SUPPLY
- CHEMICAL INDUSTRY
- PETROCHEMICAL INDUSTRY
- SHIPBUILDING
- POWER PLANT
- REFRIGERATION AND COOLING
- HEATING SYSTEMS
- HIGH TEMP. APPLICATIONS
- VALVES

Composition	Expanded natural graphite (>99% graphite purity)
Colour	Black
Approvals	DIN-DVGW DIN 3535-6, DVGW VP 401, BAM (Oxygen), Germanischer Lloyd

TECHNICAL DATA Typical values for a thickness of 1.5 mm

Density	DIN 28090-2	g/cm³	1.0
Compressibility	ASTM F36A	%	45
Recovery	ASTM F36A	%	13
Stress resistance	DIN 52913		
16 h, 50 MPa, 300 °C		MPa	49
Specific leak rate	DIN 3535-6	mg/(s·m)	0.05
Leachable chloride content	FSA NMG 202	ppm	20
Leachable fluoride content	FSA NMG 203	ppm	20
Ash content of graphite	DIN 51903	%	<1
Compression modulus	DIN 28090-2		
At room temperature: ε_{KSW}		%	41
At elevated temperature: $\varepsilon_{WSW/300\ °C}$		%	0.9
Percentage creep relaxation	DIN 28090-2		
At room temperature: ε_{KRW}		%	5.0
At elevated temperature: $\varepsilon_{WRW/300\ °C}$		%	4.0
Operating conditions			
Minimum temperature		°C/°F	-200/-328
Continuous temperature			
- oxidizing atmosphere		°C/°F	550/1022
- reducing or inert atmosphere		°C/°F	1000/1832
Pressure		bar/psi	80/1160

P-T DIAGRAM



- 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 Thickness (mm): 0.5 | 1.0 | 1.5 | 2.0 | 3.0 Other dimensions and thicknesses are available on request.

Acetamide	+	Dioxane	+	Oleic acid	+
Acetic acid, 10%	+	Diphyl (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	+
Creosote	+	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)	+		

All information and data quoted are based upon years 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.

CHEMICAL RESISTANCE CHART

The recommendations made here are intended to be a guideline for the selection of the suitable gasket quality. Because the function and durability of the products depend 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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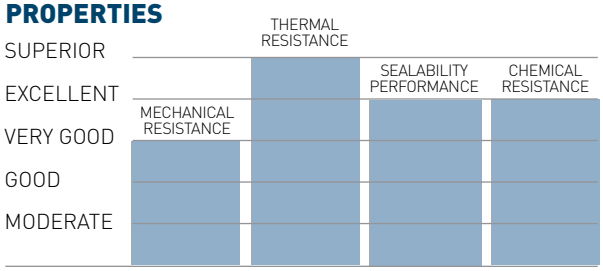
Date of issue: 06.2017 / TDS-GSF-05-2015

DONIT® | GRAFILIT® SL

GRAFILIT® SL is an expanded graphite based material with stainless steel foil insert, thus facilitating its handling and enhances the surface load. GRAFILIT® SL 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.

PROPERTIES



APPROPRIATE INDUSTRIES & APPLICATIONS

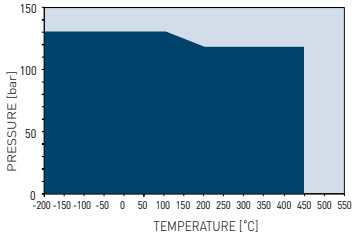
- WATER SUPPLY
- POTABLE WATER SUPPLY
- STEAM SUPPLY
- GAS SUPPLY
- CHEMICAL INDUSTRY
- PETROCHEMICAL INDUSTRY
- POWER PLANT
- REFRIGERATION AND COOLING
- HEATING SYSTEMS
- HIGH TEMP. APPLICATIONS
- COMPRESSORS AND PUMPS
- VALVES

Composition	Expanded natural graphite (>99% graphite purity), stainless steel foil insert (AISI 316; 0.05 mm)
Colour	Black
Approvals	BAM (Oxygen)

TECHNICAL DATA Typical values for a thickness of 1.5 mm

Density	DIN 28090-2	g/cm³	1.3
Compressibility	ASTM F36A	%	42
Recovery	ASTM F36A	%	15
Stress resistance	DIN 52913		
16 h, 50 MPa, 300 °C		MPa	49
Specific leak rate	DIN 3535-6	mg/(s·m)	0.05
Leachable chloride content	FSA NMG 202	ppm	20
Leachable fluoride content	FSA NMG 203	ppm	20
Ash content of graphite	DIN 51903	%	<1
Compression modulus	DIN 28090-2		
At room temperature: ε_{KSW}		%	38
At elevated temperature: $\varepsilon_{WSW/300\ °C}$		%	1.2
Percentage creep relaxation	DIN 28090-2		
At room temperature: ε_{KRW}		%	4.3
At elevated temperature: $\varepsilon_{WRW/300\ °C}$		%	3.6
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	100/1450

P-T DIAGRAM



- 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): 0.5 | 1.0 | 1.5 | 2.0 | 3.0 Other dimensions and thicknesses are available on request.

Acetamide	+
Acetic acid, 10%	+
Acetic acid, 100% (Glacial)	?
Acetone	+
Acetonitrile	+
Acetylene (gas)	+
Acid chlorides	?
Acrylic acid	+
Acrylonitrile	+
Adipic acid	+
Air (gas)	+
Alcohols	+
Aldehydes	+
Alum	?
Aluminium acetate	?
Aluminium chlorate	?
Aluminium chloride	-
Aluminium sulfate	+
Amines	+
Ammonia (gas)	+
Ammonium bicarbonate	+
Ammonium chloride	?
Ammonium hydroxide	+
Amyl acetate	+
Anhydrides	+
Aniline	+
Anisole	+
Argon (gas)	+
Asphalt	+
Barium chloride	?
Benzaldehyde	+
Benzene	+
Benzoic acid	+
Bio-diesel	+
Bio-ethanol	+
Black liquor	?
Borax	+
Boric acid	+
Butadiene (gas)	+
Butane (gas)	+
Butyl alcohol (Butanol)	+
Butyric acid	+
Calcium chloride	?
Calcium hydroxide	+
Carbon dioxide (gas)	+
Carbon monoxide (gas)	+
Cellosolve	+
Chlorine (gas)	?
Chlorine (in water)	
Chlorobenzene	+
Chloroform	+
Chloroprene	+
Chlorosilanes	?
Chromic acid	-
Citric acid	?
Copper acetate	+
Copper sulfate	+
Creosote	+
Cresols (Cresylic acid)	+
Cyclohexane	+
Cyclohexanol	+
Cyclohexanone	+
Decalin	+
Dextrin	+
Dibenzyl ether	+
Dibutyl phthalate	+
Dimethylacetamide (DMA)	+
Dimethylformamide (DMF)	+

Dioxane	+
Diphyl (Dowtherm A)	+
Esters	+
Ethane (gas)	+
Ethers	+
Ethyl acetate	+
Ethyl alcohol (Ethanol)	+
Ethyl cellulose	+
Ethyl chloride (gas)	+
Ethylene (gas)	+
Ethylene glycol	+
Formaldehyde (Formalin)	+
Formamide	+
Formic acid, 10%	
Formic acid, 85%	?
Formic acid, 100%	?
Freon-12 (R-12)	+
Freon-134a (R-134a)	+
Freon-22 (R-22)	+
Fruit juices	+
Fuel oil	+
Gasoline	+
Gelatin	+
Glycerine (Glycerol)	+
Glycols	+
Helium (gas)	+
Heptane	+
Hydraulic oil (Glycol based)	+
Hydraulic oil (Mineral type)	+
Hydraulic oil (Phosphate ester based)	+
Hydrazine	+
Hydrocarbons	+
Hydrochloric acid, 10%	-
Hydrochloric acid, 37%	-
Hydrofluoric acid, 10%	-
Hydrofluoric acid, 48%	-
Hydrogen (gas)	+
Iron sulfate	+
Isobutane (gas)	+
Isooctane	+
Isoprene	+
Isopropyl alcohol (Isopropanol)	+
Kerosene	+
Ketones	+
Lactic acid	?
Lead acetate	+
Lead arsenate	+
Magnesium sulfate	+
Maleic acid	+
Malic acid	?
Methane (gas)	+
Methyl alcohol (Methanol)	+
Methyl chloride (gas)	+
Methylene dichloride	+
Methyl ethyl ketone (MEK)	+
N-Methyl-pyrrolidone (NMP)	+
Milk	+
Mineral oil (ASTM no.1)	+
Motor oil	+
Naphtha	+
Nitric acid, 10%	?
Nitric acid, 65%	?
Nitrobenzene	+
Nitrogen (gas)	+
Nitrous gases (NOx)	?
Octane	+
Oils (Essential)	+
Oils (Vegetable)	+

Oleic acid	+
Oleum (Sulfuric acid, fuming)	-
Oxalic acid	?
Oxygen (gas)	+
Palmitic acid	+
Paraffin oil	+
Pentane	+
Perchloroethylene	+
Petroleum (Crude oil)	+
Phenol (Carbolic acid)	+
Phosphoric acid, 40%	?
Phosphoric acid, 85%	?
Phthalic acid	+
Potassium acetate	+
Potassium bicarbonate	+
Potassium carbonate	+
Potassium chloride	+
Potassium cyanide	+
Potassium dichromate	?
Potassium hydroxide	+
Potassium iodide	+
Potassium nitrate	+
Potassium permanganate	?
Propane (gas)	+
Propylene (gas)	+
Pyridine	+
Salicylic acid	+
Seawater/brine	?
Silicones (oil/grease)	+
Soaps	+
Sodium aluminate	+
Sodium bicarbonate	+
Sodium bisulfite	+
Sodium carbonate	+
Sodium chloride	+
Sodium cyanide	+
Sodium hydroxide	+
Sodium hypochlorite (Bleach)	-
Sodium silicate (Water glass)	+
Sodium sulfate	+
Sodium sulfide	?
Starch	+
Steam	+
Stearic acid	+
Styrene	+
Sugars	+
Sulfur	+
Sulfur dioxide (gas)	+
Sulfuric acid, 20%	-
Sulfuric acid, 98%	-
Sulfuryl chloride	-
Tar	+
Tartaric acid	?
Tetrahydrofuran (THF)	+
Titanium tetrachloride	-
Toluene	+
2,4-Toluenediisocyanate	+
Transformer oil (Mineral type)	+
Trichloroethylene	+
Vinegar	+
Vinyl chloride (gas)	+
Vinylidene chloride	+
Water	+
White spirits	+
Xylenes	+
Xylenol	+
Zinc sulfate	+

CHEMICAL RESISTANCE CHART

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

\+ Recommended

? Recommendation depends on operating conditions

\- Not recommended

All information and data quoted are based upon years 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.

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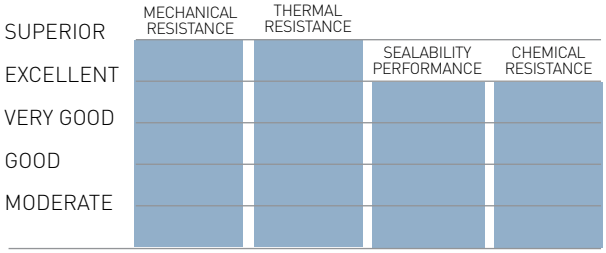
Date of issue: 06.2017 / TDS-GSL-05-2015

DONIT® | GRAFILIT® SP

GRAFILIT® SP is an expanded graphite based material with tanged stainless steel insert, thus enhances the surface load and blowout safety. GRAFILIT® SP has excellent chemical, thermal, and mechanical resistance. GRAFILIT® SP is gasket material used in wide range of industries, as gas and steam supply, chemical and petrochemical industry.

PROPERTIES



APPROPRIATE INDUSTRIES & APPLICATIONS

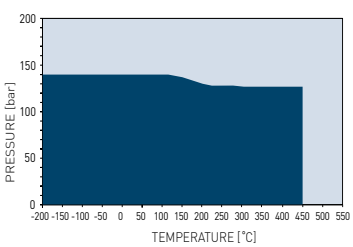
- GENERAL PURPOSE
- WATER SUPPLY
- POTABLE WATER SUPPLY
- STEAM SUPPLY
- GAS SUPPLY
- CHEMICAL INDUSTRY
- PETROCHEMICAL INDUSTRY
- PAPER AND CELLULOSE INDUSTRY
- AUTOMOTIVE AND ENGINE BUILDING INDUSTRY
- SHIPBUILDING
- POWER PLANT
- REFRIGERATION AND COOLING
- HEATING SYSTEMS
- HIGH TEMP. APPLICATIONS
- COMPRESSORS AND PUMPS
- VALVES

Composition	Expanded natural graphite (>99% graphite purity), tanged stainless steel sheet insert (AISI 316; 0.1 mm)
Colour	Black
Approvals	DIN-DVGW DIN 3535-6, DVGW VP 401 (5 bar), API 607, BAM (Oxygen), Germanischer Lloyd

TECHNICAL DATA Typical values for a thickness of 1.5 mm

Density	DIN 28090-2	g/cm³	1.5
Compressibility	ASTM F36A	%	35
Recovery	ASTM F36A	%	17
Stress resistance	DIN 52913		
16 h, 50 MPa, 300 °C		MPa	49
Specific leak rate	DIN 3535-6	mg/(s·m)	0.05
Leachable chloride content	FSA NMG 202	ppm	20
Leachable fluoride content	FSA NMG 203	ppm	20
Ash content of graphite	DIN 51903	%	<1
Compression modulus	DIN 28090-2		
At room temperature: ε_{KSW}		%	34
At elevated temperature: $\varepsilon_{WSW/300\ °C}$		%	1.2
Percentage creep relaxation	DIN 28090-2		
At room temperature: ε_{KRW}		%	4.2
At elevated temperature: $\varepsilon_{WRW/300\ °C}$		%	3.3
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	200/2900

P-T DIAGRAM



- 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): 0.5 | 1.0 | 1.5 | 2.0 | 3.0 Other dimensions and thicknesses are available on request.

Acetamide	
Acetic acid, 10%	+
Acetic acid, 100% (Glacial)	?
Acetone	+
Acetonitrile	+
Acetylene (gas)	+
Acid chlorides	?
Acrylic acid	+
Acrylonitrile	+
Adipic acid	+
Air (gas)	+
Alcohols	+
Aldehydes	+
Alum	?
Aluminium acetate	?
Aluminium chlorate	?
Aluminium chloride	-
Aluminium sulfate	+
Amines	+
Ammonia (gas)	+
Ammonium bicarbonate	+
Ammonium chloride	?
Ammonium hydroxide	+
Amyl acetate	+
Anhydrides	+
Aniline	+
Anisole	+
Argon (gas)	+
Asphalt	+
Barium chloride	?
Benzaldehyde	+
Benzene	+
Benzoic acid	+
Bio-diesel	+
Bio-ethanol	+
Black liquor	?
Borax	+
Boric acid	+
Butadiene (gas)	+
Butane (gas)	+
Butyl alcohol (Butanol)	+
Butyric acid	+
Calcium chloride	?
Calcium hydroxide	+
Carbon dioxide (gas)	+
Carbon monoxide (gas)	+
Cellosolve	+
Chlorine (gas)	?
Chlorine (in water)	
Chlorobenzene	+
Chloroform	+
Chloroprene	+
Chlorosilanes	?
Chromic acid	-
Citric acid	?
Copper acetate	+
Copper sulfate	+
Creosote	+
Cresols (Cresylic acid)	+
Cyclohexane	+
Cyclohexanol	+
Cyclohexanone	+
Decalin	+
Dextrin	+
Dibenzyl ether	+
Dibutyl phthalate	+
Dimethylacetamide (DMA)	+
Dimethylformamide (DMF)	+

Dioxane	+
Diphyl (Dowtherm A)	+
Esters	+
Ethane (gas)	+
Ethers	+
Ethyl acetate	+
Ethyl alcohol (Ethanol)	+
Ethyl cellulose	+
Ethyl chloride (gas)	+
Ethylene (gas)	+
Ethylene glycol	+
Formaldehyde (Formalin)	+
Formamide	+
Formic acid, 10%	
Formic acid, 85%	?
Formic acid, 100%	?
Freon-12 (R-12)	+
Freon-134a (R-134a)	+
Freon-22 (R-22)	+
Fruit juices	+
Fuel oil	+
Gasoline	+
Gelatin	+
Glycerine (Glycerol)	+
Glycols	+
Helium (gas)	+
Heptane	+
Hydraulic oil (Glycol based)	+
Hydraulic oil (Mineral type)	+
Hydraulic oil (Phosphate ester based)	+
Hydrazine	+
Hydrocarbons	+
Hydrochloric acid, 10%	-
Hydrochloric acid, 37%	-
Hydrofluoric acid, 10%	-
Hydrofluoric acid, 48%	-
Hydrogen (gas)	+
Iron sulfate	+
Isobutane (gas)	+
Isooctane	+
Isoprene	+
Isopropyl alcohol (Isopropanol)	+
Kerosene	+
Ketones	+
Lactic acid	?
Lead acetate	+
Lead arsenate	+
Magnesium sulfate	+
Maleic acid	+
Malic acid	?
Methane (gas)	+
Methyl alcohol (Methanol)	+
Methyl chloride (gas)	+
Methylene dichloride	+
Methyl ethyl ketone (MEK)	+
N-Methyl-pyrrolidone (NMP)	+
Milk	+
Mineral oil (ASTM no.1)	+
Motor oil	+
Naphtha	+
Nitric acid, 10%	?
Nitric acid, 65%	?
Nitrobenzene	+
Nitrogen (gas)	+
Nitrous gases (NOx)	?
Octane	+
Oils (Essential)	+
Oils (Vegetable)	+

Oleic acid	+
Oleum (Sulfuric acid, fuming)	-
Oxalic acid	?
Oxygen (gas)	+
Palmitic acid	+
Paraffin oil	+
Pentane	+
Perchloroethylene	+
Petroleum (Crude oil)	+
Phenol (Carbolic acid)	+
Phosphoric acid, 40%	?
Phosphoric acid, 85%	?
Phthalic acid	+
Potassium acetate	+
Potassium bicarbonate	+
Potassium carbonate	+
Potassium chloride	+
Potassium cyanide	+
Potassium dichromate	?
Potassium hydroxide	+
Potassium iodide	+
Potassium nitrate	+
Potassium permanganate	?
Propane (gas)	+
Propylene (gas)	+
Pyridine	+
Salicylic acid	+
Seawater/brine	?
Silicones (oil/grease)	+
Soaps	+
Sodium aluminate	+
Sodium bicarbonate	+
Sodium bisulfite	+
Sodium carbonate	+
Sodium chloride	+
Sodium cyanide	+
Sodium hydroxide	+
Sodium hypochlorite (Bleach)	-
Sodium silicate (Water glass)	+
Sodium sulfate	+
Sodium sulfide	?
Starch	+
Steam	+
Stearic acid	+
Styrene	+
Sugars	+
Sulfur	+
Sulfur dioxide (gas)	+
Sulfuric acid, 20%	-
Sulfuric acid, 98%	-
Sulfuryl chloride	-
Tar	+
Tartaric acid	?
Tetrahydrofuran (THF)	+
Titanium tetrachloride	-
Toluene	+
2,4-Toluenediisocyanate	+
Transformer oil (Mineral type)	+
Trichloroethylene	+
Vinegar	+
Vinyl chloride (gas)	+
Vinylidene chloride	+
Water	+
White spirits	+
Xylenes	+
Xylenol	+
Zinc sulfate	+

CHEMICAL RESISTANCE CHART

The recommendations made here are intended to be a guideline for the selection of the suitable gasket quality. Because the function and durability of the products depend 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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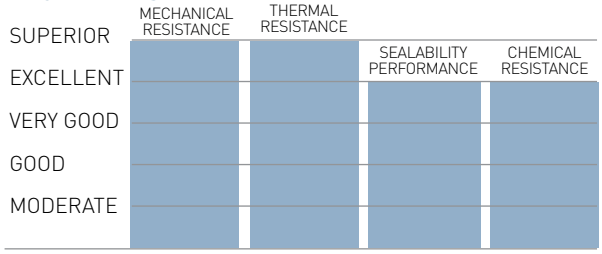
Date of issue: 06.2017 / TDS-GSP-05-2015

DONIT® | GRAFILIT® EM

GRAFILIT® EM is an expanded graphite based material with expanded stainless steel insert, which enables applications with high operation pressures, including cycling operations. Even surface pressure distribution on gasket provides excellent thermomechanical properties and sealing characteristics, and increase blowout resistance. Therefore material is particularly suitable for high temperature applications in petrochemical industry and steam supply.

PROPERTIES



APPROPRIATE INDUSTRIES & APPLICATIONS

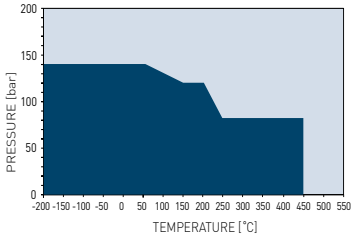
- GENERAL PURPOSE
- STEAM SUPPLY
- GAS SUPPLY
- CHEMICAL INDUSTRY
- PETROCHEMICAL INDUSTRY
- PAPER AND CELLULOSE INDUSTRY
- AUTOMOTIVE AND ENGINE BUILDING INDUSTRY
- SHIPBUILDING
- POWER PLANT
- REFRIGERATION AND COOLING
- HEATING SYSTEMS
- HIGH TEMP. APPLICATIONS
- COMPRESSORS AND PUMPS
- VALVES

Composition	Expanded natural graphite (>99% graphite purity), expanded stainless steel sheet insert (AISI 316L; 0.15 mm)
Colour	Black
Approvals	DIN-DVGW DIN 3535-6, ISO 10497, TA-Luft (VDI 2440)

TECHNICAL DATA Typical values for a thickness of 1.5 mm

Density	DIN 28090-2	g/cm³	1.4
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)	0.05
Leachable chloride content	FSA NMG 202	ppm	20
Leachable fluoride content	FSA NMG 203	ppm	20
Ash content of graphite	DIN 51903	%	<1
Compression modulus	DIN 28090-2		
At room temperature: ε_{KSW}		%	32
At elevated temperature: $\varepsilon_{WSW/300\,°C}$		%	2.5
Percentage creep relaxation	DIN 28090-2		
At room temperature: ε_{KRW}		%	4.5
At elevated temperature: $\varepsilon_{WRW/300\,°C}$		%	3.5
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	200/2900

P-T DIAGRAM



- 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): 0.5 | 1.0 | 1.5 | 2.0 | 3.0 Other dimensions and thicknesses are available on request.

Acetamide	+
Acetic acid, 10%	+
Acetic acid, 100% (Glacial)	?
Acetone	+
Acetonitrile	+
Acetylene (gas)	+
Acid chlorides	?
Acrylic acid	+
Acrylonitrile	+
Adipic acid	+
Air (gas)	+
Alcohols	+
Aldehydes	+
Alum	?
Aluminium acetate	?
Aluminium chlorate	?
Aluminium chloride	-
Aluminium sulfate	+
Amines	+
Ammonia (gas)	+
Ammonium bicarbonate	+
Ammonium chloride	?
Ammonium hydroxide	+
Amyl acetate	+
Anhydrides	+
Aniline	+
Anisole	+
Argon (gas)	+
Asphalt	+
Barium chloride	?
Benzaldehyde	+
Benzene	+
Benzoic acid	+
Bio-diesel	+
Bio-ethanol	+
Black liquor	?
Borax	+
Boric acid	+
Butadiene (gas)	+
Butane (gas)	+
Butyl alcohol (Butanol)	+
Butyric acid	+
Calcium chloride	?
Calcium hydroxide	+
Carbon dioxide (gas)	+
Carbon monoxide (gas)	+
Cellosolve	+
Chlorine (gas)	?
Chlorine (in water)	?
Chlorobenzene	+
Chloroform	+
Chloroprene	+
Chlorosilanes	?
Chromic acid	-
Citric acid	?
Copper acetate	+
Copper sulfate	+
Creosote	+
Cresols (Cresylic acid)	+
Cyclohexane	+
Cyclohexanol	+
Cyclohexanone	+
Decalin	+
Dextrin	+
Dibenzyl ether	+
Dibutyl phthalate	+
Dimethylacetamide (DMA)	+
Dimethylformamide (DMF)	+

Dioxane	+
Diphyl (Dowtherm A)	+
Esters	+
Ethane (gas)	+
Ethers	+
Ethyl acetate	+
Ethyl alcohol (Ethanol)	+
Ethyl cellulose	+
Ethyl chloride (gas)	+
Ethylene (gas)	+
Ethylene glycol	+
Formaldehyde (Formalin)	+
Formamide	+
Formic acid, 10%	?
Formic acid, 85%	?
Formic acid, 100%	?
Freon-12 (R-12)	+
Freon-134a (R-134a)	+
Freon-22 (R-22)	+
Fruit juices	+
Fuel oil	+
Gasoline	+
Gelatin	+
Glycerine (Glycerol)	+
Glycols	+
Helium (gas)	+
Heptane	+
Hydraulic oil (Glycol based)	+
Hydraulic oil (Mineral type)	+
Hydraulic oil (Phosphate ester based)	+
Hydrazine	+
Hydrocarbons	+
Hydrochloric acid, 10%	-
Hydrochloric acid, 37%	-
Hydrofluoric acid, 10%	-
Hydrofluoric acid, 48%	-
Hydrogen (gas)	+
Iron sulfate	+
Isobutane (gas)	+
Isooctane	+
Isoprene	+
Isopropyl alcohol (Isopropanol)	+
Kerosene	+
Ketones	+
Lactic acid	?
Lead acetate	+
Lead arsenate	+
Magnesium sulfate	+
Maleic acid	+
Malic acid	?
Methane (gas)	+
Methyl alcohol (Methanol)	+
Methyl chloride (gas)	+
Methylene dichloride	+
Methyl ethyl ketone (MEK)	+
N-Methyl-pyrrolidone (NMP)	+
Milk	+
Mineral oil (ASTM no.1)	+
Motor oil	+
Naphtha	+
Nitric acid, 10%	?
Nitric acid, 65%	?
Nitrobenzene	+
Nitrogen (gas)	+
Nitrous gases (NOx)	?
Octane	+
Oils (Essential)	+
Oils (Vegetable)	+

Oleic acid	+
Oleum (Sulfuric acid, fuming)	-
Oxalic acid	?
Oxygen (gas)	+
Palmitic acid	+
Paraffin oil	+
Pentane	+
Perchloroethylene	+
Petroleum (Crude oil)	+
Phenol (Carbolic acid)	+
Phosphoric acid, 40%	?
Phosphoric acid, 85%	?
Phthalic acid	+
Potassium acetate	+
Potassium bicarbonate	+
Potassium carbonate	+
Potassium chloride	+
Potassium cyanide	+
Potassium dichromate	?
Potassium hydroxide	+
Potassium iodide	+
Potassium nitrate	+
Potassium permanganate	?
Propane (gas)	+
Propylene (gas)	+
Pyridine	+
Salicylic acid	+
Seawater/brine	?
Silicones (oil/grease)	+
Soaps	+
Sodium aluminate	+
Sodium bicarbonate	+
Sodium bisulfite	+
Sodium carbonate	+
Sodium chloride	+
Sodium cyanide	+
Sodium hydroxide	+
Sodium hypochlorite (Bleach)	-
Sodium silicate (Water glass)	+
Sodium sulfate	+
Sodium sulfide	?
Starch	+
Steam	+
Stearic acid	+
Styrene	+
Sugars	+
Sulfur	+
Sulfur dioxide (gas)	+
Sulfuric acid, 20%	-
Sulfuric acid, 98%	-
Sulfuryl chloride	-
Tar	+
Tartaric acid	?
Tetrahydrofuran (THF)	+
Titanium tetrachloride	-
Toluene	+
2,4-Toluenediisocyanate	+
Transformer oil (Mineral type)	+
Trichloroethylene	+
Vinegar	+
Vinyl chloride (gas)	+
Vinylidene chloride	+
Water	+
White spirits	+
Xylenes	+
Xylenol	+
Zinc sulfate	+

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+ Recommended

? Recommendation depends on operating conditions

- Not recommended

All information and data quoted are based upon years 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.

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A perfect fit
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High level of flexibility
Adapt to new changes
Broad portfolio of gasket materials and products
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