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Devoid of any organic solvent, this graphite-based composite allaying aramid and special functional inorganics, is advanced heavy-duty material. It displays excellent physicochemical properties (thermal, chemical, stress resistance, etc.) with high compressibility and flexibility enabling it to conform to uneven surfaces. Steam supply, heating systems, and chemical industry are amongst its well-suited application. The version with a metal insert withstands higher pressures. Also, fitted with a highly performant anti-stick, gasket replacement is quite effortless following prolonged elevated temperature service.



LHELMSEN <sup>A</sup>/s

## APPROPRIATE INDUSTRIES & APPLICATIONS

- AUTOMOTIVE AND ENGINE BUILDING INDUSTRIES
  GENERAL PURPOSE
  HIGH-TEMPERATURE APP.
  FTROCHEMICAL INDUSTRY
  POWER PLANT
- CHEMICAL INDUSTRY

  HEATING SYSTEMS

  PAPER & CELLULOSE INDUSTRIES
  - POTABLE WATER SUPPLY
- STEAM SUPPLY
- WATER SUPPLY

GOOD

MECHANICAL RESISTANCE THERMAL RESISTANCE

MODERATE

Composition

SEALABILITY CHEMICAL PERFORMANCE RESISTANCE

# Graphite, aramid fibers, functional inorganic fillers, NBR binder; optionally available with expanded metal reinforcement (AISI 316L, 0.15 mm)

VALVES

Color	Anthracite				
Approvals and compliances	EC 1935/2004				
Sheet dimensions	Size (mm): 1500 x 1480   2000 x 1480 Thickness (mm): 0.8   1.0   1.5   2.0   3.0 Rolls: 1480 mm x L (m) Thickness (mm): 0.8   1.0   1.5   2.0 Other sizes and thicknesses available on request				
Tolerances	$\pm$ 5 % on length and width On thickness up to 1.0 mm $\pm$ 0.1 mm On thickness above 1.0 mm $\pm$ 10 %				
Surface finish	Standard: 4AS. Optional: IQ, graphite or PTFE				

#### TECHNICAL DATA Typical values for 2 mm thickness

Density	DIN 28090-2	g/cm <sup>3</sup>	1.25
Compressibility	ASTM F36J	%	35
Recovery	ASTM F36J	%	25
Tensile strength	ASTM F152	MPa	
Longitudinal			5
Transversal			5
Stress resistance	DIN 52913		
50 MPa, 16 h, 175°C		MPa	42
50 MPa, 16 h, 300°C		MPa	37
Specific leak rate	DIN 3535-6	mg/(s·m)	0.05
Thickness increase	ASTM F146		
Oil IRM 903, 5 h, 150°C		%	3
ASTM Fuel B, 5 h, 23°C		%	3
Weight increase			
Oil IRM 903, 5 h, 150°C		%	30
ASTM Fuel B, 5 h, 23°C		%	25
Compression modulus	DIN 28090-2		
At room temperature: ε <sub>ksw</sub>		%	30
At elevated temperature: $\epsilon_{WSW/200^{\circ}C}$		%	6
Creep relaxation	DIN 28090-2		
At room temperature: $\epsilon_{KRW}$		%	3.5
At elevated temperature: ε <sub>wRW/200°C</sub>		%	0.3
Creep deformation			
Change in thickness at 20°C, 50 MPa		%	30
Change in thickness at 300°C, 50 MPa		%	12
Change in thickness at 400°C, 50 MPa		%	15
Leachable chloride content	FSA NMG 202	ppm	<20
Leachable fluoride content	FSA NMG 203	ppm	<20

#### P-T diagram EN 1514-1, Type IBC, PN 40, DIN 28091-2 / 3.8, 2 mm



P-T diagrams indicate the maximum permissible combination of internal pressure and service temperature which can be simultaneously applied to a given gaskets 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
- Conditional suitability Appropriate measures ensure maximum performance for joint design and gasket installation. Technical consultation is recommended
- Limited suitability Technical consultation is mandatory.
- Saturated steam curve.

### **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.

Acetamide	+	Carbon dioxide (gas)	+	Freon 113	+	Methyl alcohol (Methanol)	+	Potassium hydroxide	0
Acetic acid, 10%	+	Carbon monoxide (gas)		Freon-134a (R-134a)	+	Methyl chloride (Gas)	0	Potassium iodide	+
Acetic acid, 100% (Glacial)	0	Cellosolve	•	Freon 717	÷	Methyl ethyl ketone (MEK)	+	Potassium nitrate	+
Acetic ester	+	Chlorine (gas)	0	Fruit juices	+	Methylene dichloride	0	Potassium permanganate	+
Acetone	+	Chlorine (in water)	+	Fuel oil	+	Milk	+	Propane (gas)	+
Acetylene (gas)	+	Chlorobenzene	+	Furfural	+	Mineral oil type ASTM 1	+	Pyridine	+
Acid chlorides	-	Chloroform	+	Gasoline	+	Motor oil	+	Salicylic acid	0
Acrylic acid	+	Chloroform	+	Gelatin	+	Naphtha	+	Seawater/brine	+
Acrylonitrile	+	Chloroprene	+	Glucose	+	Naphthalene	+	Silicones (oil/grease)	+
Adipic acid	+	Chlorosilanes	0	Glycerine (Glycerol)	+	Nickel salts	+	Soaps	+
Air (gas)	+	Chromic acid	+	Glycols	+	Nitric acid, 1%, 200°C	+	Sodium aluminate	+
Alcohols	+	Citric acid	+	Helium (gas)	+	Nitric acid, 5%, 90°C	+	Sodium bicarbonate	+
Aldehydes	0	Copper acetate	+	Heptane	+	Nitric acid, 10%, 65°C	+	Sodium bisulfite	+
Alum	+	Copper sulfate	+	Hydraulic oil (Glycol based)	+	Nitrobenzene	+	Sodium bromide	+
Aluminium acetate	+	Creosote	0	Hydraulic oil (Mineral)	+	Nitrogen (Gas)	+	Sodium carbonate	+
Aluminium chlorate	+	Cresols (Cresylic acid)	0	Hydraulic oil (Phosphate ester-based)	+	Nitrous gases (NOx)	0	Sodium chloride	+
Aluminium chloride	+	Cyclohexane	+	Hydrazine	+	N-Methyl-pyrrolidone (NMP)	0	Sodium cyanide	+
Aluminium sulfate	+	Cyclohexanol	+	Hydrobromic acid, 1%, 200°C	+	Octane	+	Sodium hydroxide, 1%, 200°C	+
Ammonia (Gas)	+	Cyclohexanone	+	Hydrobromic acid, 5%, 90°C	+	Oil of Turpentine	+	Sodium hydroxide, 10%, 65°C	+
Ammonia (in water)	+	Decalin	+	Hydrobromic acid, 10%, 65°C	+	Oils (Essential)	+	Sodium hydroxide, <15%, 40°C	+
Ammonium bicarbonate	+	Dextrin	+	Hydrobromic acid, <15%, 40°C	+	Oils (Vegetable)	+	Sodium hypochlorite (Bleach)	+
Ammonium chloride	+	Diamine	+	Hydrocarbons	+	Oleic acid	+	Sodium silicate (Water glass)	+
Ammonium hydroxide	+	Dibenzyl ether	0	Hydrochloric acid, 1%, 200°C	+	Oleum (Sulfuric acid, fuming)	-	Sodium sulfate	+
Ammonium nitrate	+	Dibutyl phthalate	+	Hydrochloric acid, 10%, 65°C	+	Oxalic acid	+	Sodium sulfide	+
Amyl acetate	+	Dimethylacetamide (DMA)	0	Hydrofluoric acid, 1%, 200°C	+	Oxygen (gas)	+	Starch	+
Anhydrides	0	Dimethylformamide (DMF)	+	Hydrofluoric acid, 10%, 65°C	+	Palmitic acid	+	Steam	+
Aniline	0	Dioxane	0	Hydrogen (gas)	+	Paraffin oil	+	Stearic acid	+
Anisole	+	Diphyl (Dowtherm A)	+	Hydrogen Chloride (dry)	+	Pentane	+	Styrene	0
Aqua Regia, 60°C	+	Esters	0	Iron sulfate	+	Perchloric acid, <15%, 40°C	+	Sugars	+
Argon (gas)	+	Ethyl acetate	0	Isobutane (Gas)	+	Petroleum (Crude oil)	+	Sulfur	0
Asphalt	+	Ethyl alcohol (Ethanol)	+	Isooctane	+	Petroleum ether	+	Sulfur dioxide (Gas)	+
Barium chloride	+	Ethyl cellulose	0	Isoprene	+	Phenol (Carbolic acid)	0	Sulfuric acid, 1%, 200°C	+
Benzaldehyde	0	Ethyl chloride	+	Isopropyl alcohol (Isopropanol)	+	Phosphoric acid, 5%, 90°C	+	Sulfuric acid, 5%, 90°C	+
Benzene	+	Ethyl chloride (gas)	0	Kerosene	+	Phosphoric acid, 10%, 65°C	+	Sulfuric acid, 10%, 65°C	+
Benzoic acid	+	Ethylene glycol	+	Ketones	0	Phosphoric acid, 85%	0	Sulfuric acid, 15%, 40°C	+
Butadiene (gas)	+	Formaldehyde (Formalin)	+	Lactic acid	+	Phthalic acid	+	Tannic acid, <15%, 40°C	+
Butane (gas)	+	Formamide	+	Lead acetate	+	Potassium acetate	+	Tar	+
Butyl alcohol (Butanol)	+	Formic acid, 10%	+	Lead arsenate	+	Potassium bicarbonate	+	Tartaric acid	+
Butyric acid	+	Formic acid, 85%	0	Magnesium sulfate	+	Potassium carbonate	+	Tetrachloroetylene	0
Calcium chloride	+	Formic acid, 100%	0	Maleic acid	+	Potassium chloride	+	Tetrahydrofuran (THF)	0
Calcium hypochlorite	+	Freon-12 (R-12)	+	Malic acid	+	Potassium cyanide	+	Toluene	+
Calcium nitrate	+	Freon-22 (R-22)	+	Methane (Gas)	+	Potassium dichromate	0	Transformer oil (Mineral type)	+
Tributyl phosphate	+								
Trichloroethane	+								
Trichloroethylene	0								
Urea	+								
Vaseline	+								

0100	
Vaseline	+
Vinegar	+
Vinyl acetat	+
Vinyl chloride (gas)	0
Vinylidene chloride	0
Water	+
White spirits	+
Xylenes	+
Xylenol	
Zinc Salts	+
Zinc sulfate	+

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.

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