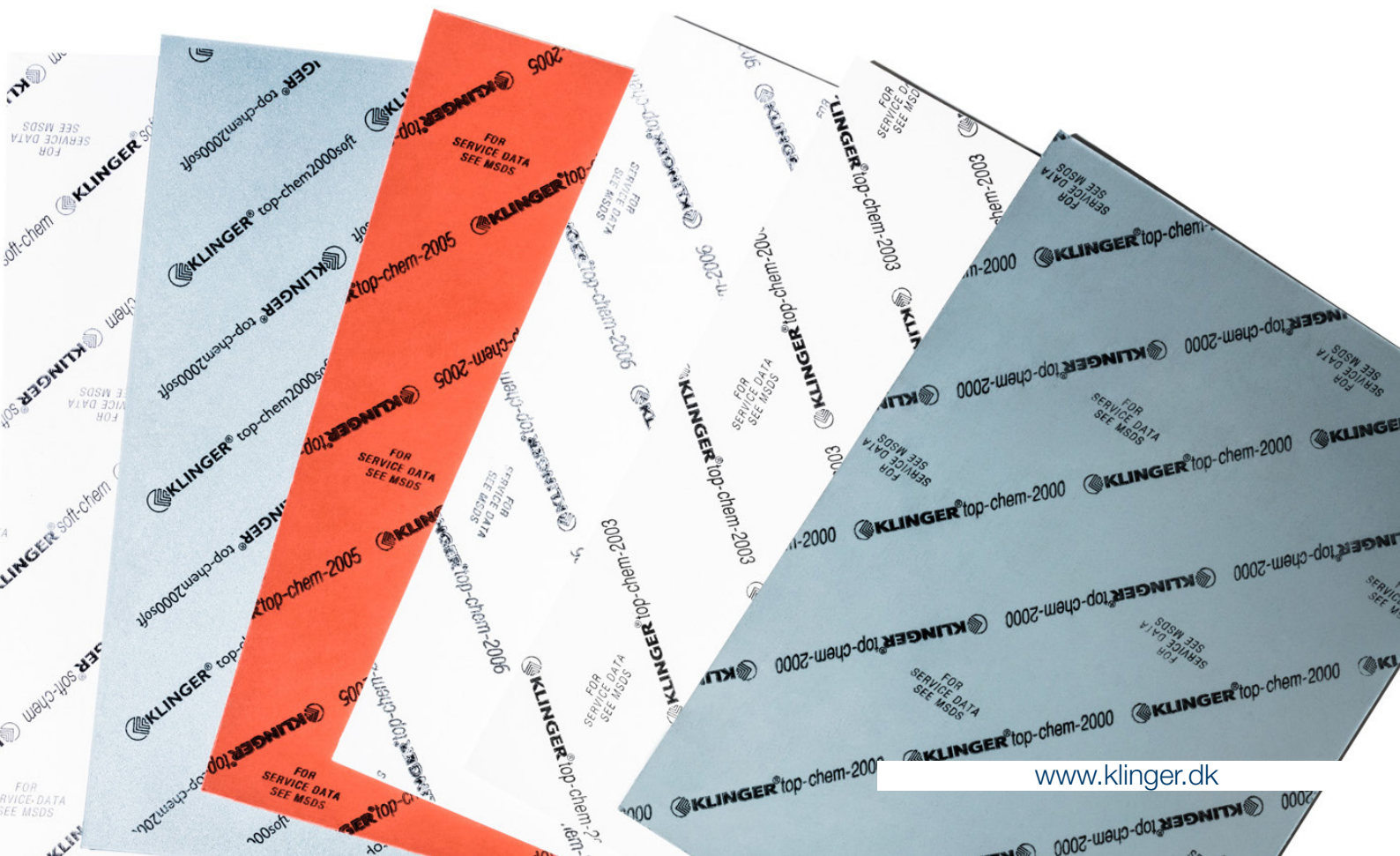




KLINGER® TOP-CHEM





The heavy-duty gaskets KLINGERtop-chem

KLINGERtop-chem	2000	2003	2005	2006
Ref. thickness of measured values, mm	1.5	2	1.5	1.5
Density, g/cm ³	2.5	1.7	2.2	3.0
Compressibility ASTM F 36 J, %	2	16	3	4
Recovery ASTM F 36 J, %	55	35	40	40

Stress relaxation

DIN 52913, 16h, 50MPa, 300 °C	35	–	–	–
DIN 52913, 16h, 30MPa, 150 °C	28	13	25	18

Klinger cold/hot compression

23°C/ 50MPa, %	2	–	10	10
250°C/ 50MPa, %	5	–	30	40
23°C/ 25MPa, %	–	9	–	–
250°C/ 25MPa, %	–	38	–	–

Tightness

DIN 3535/6, ml/min	0.5	0.1	0.2	0.1
DIN 28090-2, mg/s m	0.05	0.01	0.02	0.01

Thickness/weight increase

H ₂ SO ₄ , 100%: 18h/ 23°C, %	1/1	1/1	1/1	–
HNO ₃ , 100%: 18h/ 23°C, %	1/2	0/5	1/2	1/2
NaOH, 33%, 72h/ 110°C, %	1/3	1/5	–	1/1

Permits/certifications

BAM certification	yes	yes	–	yes
KTW proposal	yes	yes	yes	yes
DIN-DVGW permit	yes	yes	yes	yes
Fire Safe	yes	–	–	–
FDA conformity	yes	yes	yes	yes
TA-Luft certification	yes	yes	yes	yes
Germanischer Lloyd	yes	yes	yes	yes
United States Coast Guard	yes	–	–	–
Registro Italiano Navale	yes	–	–	–
Det Norske Veritas AS	yes	–	–	–

Standard sizes (other sizes on request)

Sheet sizes mm	1,500 / 1,500	1,500 / 1,500	1,500 / 1,500	1,500 / 1,500
Thickness mm	1.0/ 1.5/ 2.0/ 3.0	1.0/ 1.5/ 2.0/ 3.0	1.0/ 1.5/ 2.0/ 3.0	1.0/ 1.5/ 2.0/ 3.0
Tolerances	thickness ± 10%, length ± 50 mm, width ± 50 mm			

Typical values

Subject to technical alterations.

Status: September 2006



Chemical resistances of the 4 gasket materials

Medium	KLINGERTop-chem			
	2000	2003	2005	2006
Acetaldehyde	● 260°C	● 260°C	● 260°C	● 260°C
Acetamide	● 260°C	● 260°C	● 260°C	● 260°C
Acetic acid	● 260°C	● 260°C	● 260°C	● 260°C
Acetic acid ester	● 260°C	● 260°C	● 260°C	● 260°C
Acetone	● 260°C	● 260°C	● 260°C	● 260°C
Acetylene	● 260°C	● 260°C	● 260°C	● 260°C
Adipic acid	● 260°C	● 260°C	● 260°C	● 260°C
Air	● 260°C	● 260°C	● 260°C	● 260°C
Alum	● 260°C	● 260°C	● 260°C	● 260°C
Aluminium acetate	● 260°C	● 260°C	● 260°C	● 260°C
Aluminium chlorate	● 260°C	● 260°C	● 260°C	● 260°C
Aluminium chloride	● 260°C	● 260°C	● 260°C	● 260°C
Ammonia	● 260°C	● 260°C	■ 100°C	● 260°C
Ammonium carbonate	● 260°C	● 260°C	● 260°C	● 260°C
Ammonium chloride	● 260°C	● 260°C	● 260°C	● 260°C
Ammonium diphosphate	● 260°C	● 260°C	● 260°C	● 260°C
Ammonium hydroxide	● 260°C	● 260°C	● 260°C	● 260°C
Amyl acetate	● 260°C	● 260°C	● 260°C	● 260°C
Aniline	● 260°C	● 260°C	● 260°C	● 260°C
Anon cyclohexanone	● 260°C	● 260°C	● 260°C	● 260°C
Arcton 12	● 260°C	● 260°C	● 260°C	● 260°C
Arcton 22	● 260°C	● 260°C	● 260°C	● 260°C
Asphalt	● 260°C	● 260°C	● 260°C	● 260°C
Aviation fuel	● 260°C	● 260°C	● 260°C	● 260°C
Barium chloride	● 260°C	● 260°C	● 260°C	● 260°C
Benzene	● 260°C	● 260°C	● 260°C	● 260°C
Benzoic acid	● 260°C	● 260°C	● 260°C	● 260°C
Blast furnace gas	● 260°C	● 260°C	● 260°C	● 260°C
Bleaching solution	● 260°C	● 260°C	● 260°C	● 260°C
Boiler feed water	● 260°C	● 260°C	● 260°C	● 260°C
Borax	● 260°C	● 260°C	● 260°C	● 260°C
Boric acid	● 260°C	● 260°C	● 260°C	● 260°C
Brine	● 260°C	● 260°C	● 260°C	● 260°C
Butane	● 260°C	● 260°C	● 260°C	● 260°C
Butanol	● 260°C	● 260°C	● 260°C	● 260°C
Butanone	● 260°C	● 260°C	● 260°C	● 260°C
Butyl acetate	● 260°C	● 260°C	● 260°C	● 260°C
Butylamine	● 260°C	● 260°C	● 260°C	● 260°C
Butyle alcohol	● 260°C	● 260°C	● 260°C	● 260°C
Butyric acid	● 260°C	● 260°C	● 260°C	● 260°C
Caesium melt	▲ -	▲ -	▲ -	▲ -
Calcium chloride	● 260°C	● 260°C	● 260°C	● 260°C
Calcium hydroxide	● 260°C	● 260°C	■ 260°C	● 260°C
Calcium hypochlorite	● 260°C	● 260°C	● 260°C	● 260°C
Calcium sulphate	● 260°C	● 260°C	● 260°C	● 260°C
Carbolic acid	● 260°C	● 260°C	● 260°C	● 260°C
Carbon dioxide	● 260°C	● 260°C	● 260°C	● 260°C
Carbon disulphide	● 260°C	● 260°C	● 260°C	● 260°C
Carbon tetrachloride	● 260°C	● 260°C	● 260°C	● 260°C
Castor oil	● 260°C	● 260°C	● 260°C	● 260°C
Chlorine water	● 260°C	● 260°C	● 260°C	● 260°C
Chlorine, dry	● 260°C	● 260°C	● 260°C	● 260°C
Chlorine, moist	● 260°C	● 260°C	● 260°C	● 260°C

Medium	KLINGERTop-chem			
	2000	2003	2005	2006
Chloroform	● 260°C	● 260°C	● 260°C	● 260°C
Chromic acid	● 260°C	● 260°C	● 260°C	● 260°C
Citric acid	● 260°C	● 260°C	● 260°C	● 260°C
Chlorotrifluoride	▲ -	▲ -	▲ -	▲ -
Condensation water	● 260°C	● 260°C	● 260°C	● 260°C
Copper acetate	● 260°C	● 260°C	● 260°C	● 260°C
Copper sulphate	● 260°C	● 260°C	● 260°C	● 260°C
Creosote	● 260°C	● 260°C	● 260°C	● 260°C
Cresol	● 260°C	● 260°C	● 260°C	● 260°C
Crude oil	● 260°C	● 260°C	● 260°C	● 260°C
Cyclohexanol	● 260°C	● 260°C	● 260°C	● 260°C
Decahydronaphthalene	● 260°C	● 260°C	● 260°C	● 260°C
Dibenzyl ether	● 260°C	● 260°C	● 260°C	● 260°C
Dibutyl phthalate	● 260°C	● 260°C	● 260°C	● 260°C
Diesel oil	● 260°C	● 260°C	● 260°C	● 260°C
Dimethyl formamide	● 260°C	● 260°C	● 260°C	● 260°C
Diphyl	● 260°C	● 260°C	● 260°C	● 260°C
Dye bath	● 260°C	● 260°C	● 260°C	● 260°C
Ethane	● 260°C	● 260°C	● 260°C	● 260°C
Ethanol	● 260°C	● 260°C	● 260°C	● 260°C
Ethyl acetate	● 260°C	● 260°C	● 260°C	● 260°C
Ethyl alcohol	● 260°C	● 260°C	● 260°C	● 260°C
Ethyl chloride	● 260°C	● 260°C	● 260°C	● 260°C
Ethyl ether	● 260°C	● 260°C	● 260°C	● 260°C
Ethylendiamine	● 260°C	● 260°C	● 260°C	● 260°C
Ethylene	● 260°C	● 260°C	● 260°C	● 260°C
Ethylene chloride	● 260°C	● 260°C	● 260°C	● 260°C
Ethylene glycol	● 260°C	● 260°C	● 260°C	● 260°C
Fluorine dioxide	▲ -	▲ -	▲ -	▲ -
Fluorine gaseous	▲ -	▲ -	▲ -	▲ -
Fluorine liquid	▲ -	▲ -	▲ -	▲ -
Fluorosilicic acid	▲ -	▲ -	▲ -	▲ -
Formaldehyde	● 260°C	● 260°C	● 260°C	● 260°C
Formamide	● 260°C	● 260°C	● 260°C	● 260°C
Formic acid	● 260°C	● 260°C	● 260°C	● 260°C
Freon 12	● 260°C	● 260°C	● 260°C	● 260°C
Freon 22	● 260°C	● 260°C	● 260°C	● 260°C
Generator gas	● 260°C	● 260°C	● 260°C	● 260°C
Glacial acetic acid	● 260°C	● 260°C	● 260°C	● 260°C
Glycerine	● 260°C	● 260°C	● 260°C	● 260°C
Heating oil	● 260°C	● 260°C	● 260°C	● 260°C
Heptane	● 260°C	● 260°C	● 260°C	● 260°C
Hydraulic oil	● 260°C	● 260°C	● 260°C	● 260°C
Hydraulic oil 2	● 260°C	● 260°C	● 260°C	● 260°C
Hydraulic oil 3	● 260°C	● 260°C	● 260°C	● 260°C
Hydrazine hydrate	● 260°C	● 260°C	● 260°C	● 260°C
Hydrochloric acid	● 260°C	● 260°C	● 260°C	● 260°C
Hydrofluoric acid	■ 150°C	▲ -	▲ -	● 260°C
Hydrofluosilic acid	▲ -	▲ -	▲ -	▲ -
Hydrogen	● 260°C	● 260°C	● 260°C	● 260°C
Hydrogen chloride	● 260°C	● 260°C	● 260°C	● 260°C
Hydrogen peroxide	● 260°C	● 260°C	● 260°C	● 260°C
Isooctane	● 260°C	● 260°C	● 260°C	● 260°C

● resistant
(Suitable for the appropriate use as a compressed gasket between flange areas)
■ suitable with sufficient surface stress
▲ do not use without contacting manufacturer

Temperatures are max. values



Chemical resistances of the 4 gasket materials

Medium	KLINGERTop-chem			
	2000	2003	2005	2006
Isopropyl alcohol	● 260°C	● 260°C	● 260°C	● 260°C
Kerosene	● 260°C	● 260°C	● 260°C	● 260°C
Lactic acid	● 260°C	● 260°C	● 260°C	● 260°C
Lead acetate	● 260°C	● 260°C	● 260°C	● 260°C
Lead arsenate	● 260°C	● 260°C	● 260°C	● 260°C
Linseed oil	● 260°C	● 260°C	● 260°C	● 260°C
Lithium melt	▲ –	▲ –	▲ –	▲ –
Magnesium sulphate	● 260°C	● 260°C	● 260°C	● 260°C
Malic acid	● 260°C	● 260°C	● 260°C	● 260°C
MEK butanone	● 260°C	● 260°C	● 260°C	● 260°C
Methane	● 260°C	● 260°C	● 260°C	● 260°C
Methyl alcohol	● 260°C	● 260°C	● 260°C	● 260°C
Methyl chloride	● 260°C	● 260°C	● 260°C	● 260°C
Methylene chloride	● 260°C	● 260°C	● 260°C	● 260°C
Mineral oil no. 1	● 260°C	● 260°C	● 260°C	● 260°C
Mineral oil no. 2	● 260°C	● 260°C	● 260°C	● 260°C
Monochlorethane	● 260°C	● 260°C	● 260°C	● 260°C
Naphtha	● 260°C	● 260°C	● 260°C	● 260°C
Natural gas	● 260°C	● 260°C	● 260°C	● 260°C
Nitric acid	● 260°C	● 260°C	● 260°C	● 260°C
Nitrobenzene	● 260°C	● 260°C	● 260°C	● 260°C
Nitrogen	● 260°C	● 260°C	● 260°C	● 260°C
Octane	● 260°C	● 260°C	● 260°C	● 260°C
Oil	● 260°C	● 260°C	● 260°C	● 260°C
Oleanolic acid	● 260°C	● 260°C	● 260°C	▲ –
Oleic acid	● 260°C	● 260°C	● 260°C	● 260°C
Oxalic acid	● 260°C	● 260°C	● 260°C	● 260°C
Oxygen	● 260°C	● 260°C	● 260°C	● 260°C
Palminic acid	● 260°C	● 260°C	● 260°C	● 260°C
Pentane	● 260°C	● 260°C	● 260°C	● 260°C
Perchloroethylene	● 260°C	● 260°C	● 260°C	● 260°C
Petroleum	● 260°C	● 260°C	● 260°C	● 260°C
Petroleum benzin	● 260°C	● 260°C	● 260°C	● 260°C
Petroleum ether	● 260°C	● 260°C	● 260°C	● 260°C
Phenol	● 260°C	● 260°C	● 260°C	● 260°C
Phosphoric acid	● 260°C	● 260°C	● 260°C	● 260°C
Phthalic acid	● 260°C	● 260°C	● 260°C	● 260°C
Polychl. biphenyls.	● 260°C	● 260°C	● 260°C	● 260°C
Potassium acetate	● 260°C	● 260°C	● 260°C	● 260°C
Potassium carbonate	● 260°C	● 260°C	■ 260°C	● 260°C
Potassium chlorate	● 260°C	● 260°C	● 260°C	● 260°C
Potassium chloride	● 260°C	● 260°C	● 260°C	● 260°C
Potass. chrom.sulph.	● 260°C	● 260°C	● 260°C	● 260°C
Potassium cyanide	● 260°C	● 260°C	● 260°C	● 260°C
Potassium dichrom.	● 260°C	● 260°C	● 260°C	● 260°C
Potassium hydroxide	● 260°C	● 260°C	▲ –	● 260°C
Potassium hypochl.	● 260°C	● 260°C	● 260°C	● 260°C
Potassium iodide	● 260°C	● 260°C	● 260°C	● 260°C
Potassium melt	▲ –	▲ –	▲ –	▲ –
Potassium nitrate	● 260°C	● 260°C	● 260°C	● 260°C
Potassium nitrite	● 260°C	● 260°C	● 260°C	● 260°C
Potassium permang.	● 260°C	● 260°C	● 260°C	● 260°C
Propane	● 260°C	● 260°C	● 260°C	● 260°C

Medium	KLINGERTop-chem			
	2000	2003	2005	2006
Pydraul	● 260°C	● 260°C	● 260°C	● 260°C
Pyridine	● 260°C	● 260°C	● 260°C	● 260°C
Rape seed oil	● 260°C	● 260°C	● 260°C	● 260°C
Rubidium melt	▲ –	▲ –	▲ –	▲ –
Salicylic acid	● 260°C	● 260°C	● 260°C	● 260°C
Sea water	● 260°C	● 260°C	● 260°C	● 260°C
Silicon oil	● 260°C	● 260°C	● 260°C	● 260°C
Skydrol 500	● 260°C	● 260°C	● 260°C	● 260°C
Soap	● 260°C	● 260°C	● 260°C	● 260°C
Soda	● 260°C	● 260°C	▲ –	● 260°C
Sodium aluminate	● 260°C	● 260°C	● 260°C	● 260°C
Sodium bicarbonate	● 260°C	● 260°C	● 260°C	● 260°C
Sodium bisulphite	● 260°C	● 260°C	● 260°C	● 260°C
Sodium chloride	● 260°C	● 260°C	● 260°C	● 260°C
Sodium cyanide	● 260°C	● 260°C	● 260°C	● 260°C
Sodium hydroxide	● 260°C	● 260°C	▲ –	● 260°C
Sodium melt	▲ –	▲ –	▲ –	▲ –
Sodium silicate	● 260°C	● 260°C	● 260°C	● 260°C
Sodium sulphide	● 260°C	● 260°C	● 260°C	● 260°C
Sodium sulphate	● 260°C	● 260°C	● 260°C	● 260°C
Spinning baths	● 260°C	● 260°C	● 260°C	● 260°C
Spirit	● 260°C	● 260°C	● 260°C	● 260°C
Starch	● 260°C	● 260°C	● 260°C	● 260°C
Steam	● 260°C	● 260°C	● 260°C	● 260°C
Stearic acid	● 260°C	● 260°C	● 260°C	● 260°C
Sugar	● 260°C	● 260°C	● 260°C	● 260°C
Sulphur dioxide	● 260°C	● 260°C	● 260°C	● 260°C
Sulphuric acid	● 260°C	● 260°C	● 260°C	▲ –
Sulphurous acid	● 260°C	● 260°C	● 260°C	● 260°C
Table salt	● 260°C	● 260°C	● 260°C	● 260°C
Tannic acid	● 260°C	● 260°C	● 260°C	● 260°C
Tannin	● 260°C	● 260°C	● 260°C	● 260°C
Tar	● 260°C	● 260°C	● 260°C	● 260°C
Tartaric acid	● 260°C	● 260°C	● 260°C	● 260°C
Tetrachloroethane	● 260°C	● 260°C	● 260°C	● 260°C
Tetrahydronaphthale	● 260°C	● 260°C	● 260°C	● 260°C
Toluene	● 260°C	● 260°C	● 260°C	● 260°C
Town gas	● 260°C	● 260°C	● 260°C	● 260°C
Transformer oil	● 260°C	● 260°C	● 260°C	● 260°C
Trichloroethylene	● 260°C	● 260°C	● 260°C	● 260°C
Triethanolamine	● 260°C	● 260°C	● 260°C	● 260°C
Turpentine	● 260°C	● 260°C	● 260°C	● 260°C
Urea	● 260°C	● 260°C	● 260°C	● 260°C
Vinyl acetate	● 260°C	● 260°C	● 260°C	● 260°C
Water	● 260°C	● 260°C	● 260°C	● 260°C
Water flask	● 260°C	● 260°C	● 260°C	● 260°C
Water vapour	● 260°C	● 260°C	● 260°C	● 260°C
White spirit	● 260°C	● 260°C	● 260°C	● 260°C
Xylene	● 260°C	● 260°C	● 260°C	● 260°C

● resistant
(Suitable for the appropriate use as a compressed gasket between flange areas)
■ suitable with sufficient surface stress
▲ do not use without contacting manufacturer

Temperatures are max. values



Udgave 2019 | Vi tager forbehold for skrive- og trykfejl

KLINGER Denmark A/S
Nyager 12-14
DK-2605 Brøndby
T +45 4364 6611