



Data Sheet

Gasket material

RS stock numbers 681-570, 681-586

Klingersil C4400

Material description	Uses	Operating guidelines	(see note below)	Specifications/Approvals
Premium quality compressed synthetic fibre jointing composed of aramid fibres with NBR binder. Colour: Green both sides. Finish: 3 x Anti-stick surfaces.	General purpose material which is suitable for use with air, water, steam, oils, fuels and gases. Particularly suitable for use in internal combustion engines, compressors and hydraulics applications	Max. temperature Max. pressure Max. steam temperature	400°C 100 bar 180°C	BS2815B (Physical conformity) BAM UVV28 for use with oxygen DIN-DVGW 88.02e052 for Gas Industry

Typical original properties		1.5mm	2.0mm	Typical properties after fluid immersion (2.0mm thickness)		
Specific gravity		1.6	1.6	Thickness increase		
Compressibility	ASTM F36A	8%	8%	ASTM Oil 3	5 hours 150°C	0-5%
Recovery	ASTM F36A	Min. 50%	Min. 50%	ASTM Fuel A	5 hours 20°C	0-5%
Stress relaxation	BS 2815A DIN 52913	23N/mm ² -	- 25N/mm ²	ASTM Fuel B	5 hours 20°C	0-5%
Gas leakage	DIN 3535/6	0.2ml/min	0.2ml/max			

Klingersil C4500

Material description	Uses	Operating guidelines	(see note below)	Specifications/Approvals
Top quality compressed synthetic fibre jointing material composed of carbon fibre with NBR binder. Colour: Black both sides. Finish: 3 x A anti-stick surfaces.	Universal material with excellent steam (290°C) oil and chemical resistance. Particularly suitable for use in highly alkaline applications, and applications requiring high load bearing characteristics	Max. temperature Max. pressure Max. steam temperature	450°C 130bar 290°	BS2815A (Physical conformity) BS1832 (Physical conformity)

Typical original properties		1.5mm	2.0mm	Typical properties after fluid immersion (2.0mm thickness)		
Specific gravity		1.4	1.4	Thickness increase		
Compressibility	ASTM F36A	10-14°	10-14°	ASTM Oil 1	5 hours 150°C	0-10%
Recovery	ASTM F36A	Min. 60°	Min.60°	ASTM Fuel 3	5 hours 150°C	0-10%
Stress relaxation	BS 2815A DIN 52913	30N/mm ² -	- 32N/mm ²	ASTM Fuel A	5 hours 20°C	0-10%
				ASTM Fuel B	5 hours 20°C	0-10%
				Sodium Hydroxide 50%	10 hours 100°C	0-15%

Chemical compatibility chart

Medium	Klingersil		Medium	Klingersil	
	C-4400	C-4500		C-4400	C-4500
A Acetaldehyde CH ₃ CHO	B	B	Chlorine (wet) Cl ₂	B	B
Acetamide CH ₃ CO NH ₂	A	A	Chlorine water (ca, 0.5%0)	A	A
Acetic acid 10% CH ₃ COOH	A	A	Chloroform CHCl ₃	B	B
Acetic acid 100% CH ₃ COOH	A	A	Chloromethane (methylchloride) CH ₃ O	B	B
Acetic Ether CH ₃ COO C ₂ H ₅	B	B	Chromic acid H ₂ CrO ₄	B	B
Acetone CH ₃ CO CH ₃	B	B	Citric acid (CH ₂ COOH) ₂ C(OH)COOH	A	A
Acetylene C ₂ H ₂	A	A	Clophen T 64	B	B
Adipic acid COOH(CH ₂) ₄ COOH	A	A	Copper acetate Cu (CH ₃ COO) ₂	A	A
Air	A	A	Copper sulphate CuSO ₄	A	A
Alum KAl (SO ₄) ₂	A	A	Creosote	C	C
Aluminium acetate Al (CH ₃ COO) ₃	A	A	Cresol C ₆ H ₄ (OH)CH ₃	B	B
Aluminium chlorate Al (ClO ₃) ₃	A	A	Cyclohexanol C ₆ H ₁₁ OH	A	A
Aluminium chloride AlCl ₃	A	A	Cyclohexanone C ₅ H ₁₀ O	C	C
Ammonia NH ₃	A	A	D Dekalin C ₁₀ H ₁₈	A	A
Ammoniumbicarbonate NH ₄ HCO ₃	A	A	Di-ammonium phosphate (NH ₄) ₂ HPO ₄	A	A
Ammonium chloride (NH ₄)Cl	A	A	Di-benzyl ether (C ₆ H ₅ CH ₂) ₂ O	C	C
Ammonium hydroxide NH ₄ OH	A	A	Di-butyl phthalate C ₆ H ₄ (COO C ₄ H ₉) ₂	A	A
Amyl acetate CH ₃ COOC ₅ H ₁₁	B	B	Diesel oil	A	A
Aniline C ₆ H ₃ NH ₂	C	C	Dimethyl formamide HCON(CH ₃) ₂	C	C
Arcton 12 (Freon 12, Frigen 12)	A	A	Diphyl (Dowtherm A)	A	A
Arcton 22 (Freon 22, Frigen 22)	B	B	Dye liquor (alkaline, neutral, acidic)	A	A
Asphalt (Tar)	A	A	E Ethane C ₂ H ₆	A	A
ASTM Oil No. 1	A	A	Ethyl acetate CH ₃ COO C ₂ H ₅	B	B
ASTM Oil No. 3	A	A	Ethyl alcohol (ethanol) C ₂ H ₅ OH	A	A
Aviation fuel (Kerosene)	A	A	Ethyl chloride C ₂ H ₅ Cl	B	B
B Barium chloride BaCl ₂	A	A	Ethylene chloride (CH ₂ Cl) ₂	C	C
Benzene (Benzol) C ₆ H ₆	A	A	Ethylene glycol (CCH ₂ OH) ₂	A	A
Benzoic Acid C ₆ H ₅ COOH	B	A	Ethyl ether C ₂ H ₅ O C ₂ H ₅	A	A
Blast furnace gas	A	A	F Fluosilicic acid H ₂ SiF ₆	A	A
Bleach liquor Ca (OCl) ₂	A	A	Formaldehyde HCHO	A	A
Boiler feed water (alkaline)	A	A	Formamide HCO NH ₂	B	A
Borax Na ₂ B ₄ O ₇ (H ₂ O) ₁₀	A	A	Formic acid 10% HCOOH	A	A
Boric Acid H ₃ BO ₃	A	A	Formic acid 85% HCOOH	B	B
Brine NaCl	A	A	Freon 12 Frigen 12 CCl ₂ F ₂	A	A
Butane C ₄ H ₁₀	A	A	Freon 22 Frigen 22	B	B
Butanone (M.E.K.)	B	B	G Glacial acetic acid CH ₃ COOH	A	A
Butyl acetate CH ₃ COO C ₄ H ₉	B	B	Glycerine (CH ₂ OH) ₂ CHOH	A	A
Butyl alcohol (butanol) C ₄ H ₉ OH	A	A	H Heating oil	A	A
Butyric acid C ₃ H ₇ COOH	A	A	Heptane C ₇ H ₁₆	A	A
C Calcium chloride CaCl ₂	A	A	Hydraulic oil (Glycol based)	A	A
Calcium hydroxide (lime water) Ca(OH)	A	A	Hydraulic oil (mineral)	A	A
Calcium hypochlorite (Ca(OCl) ₂)	A	A	Hydraulic oil (phosphate ester)	B	B
Calcium sulphate CaSO ₄	A	A	Hydrazine hydrate (NH ₂) ₂ H ₂ O	A	A
Carbolic acid 100% (Phenol) C ₆ H ₅ OH	C	C	Hydrochloric acid 20% HCl	B	B
Carbon dioxide CO ₂	A	A	Hydrochloric acid 37% HCl	C	C
Carbon disulfide CS ₂	C	B	Hydrofluoric acid 10% HF	C	C
Carbon tetrachloride CCl ₄	B	B	Hydrogen H ₂	A	A
Castor oil	A	A	Hydrogen chloride (dry) HCl	A	A
Chlorine (dry) Cl ₂	A	A	Hydrogen peroxide (up to 6% W.W.)	A	A

The symbols used as follows:

A: Suitable for application

B: Suitability depends on operating conditions

C: Not suitable

Chemical compatibility chart (continued)

Medium	Klingersil		Medium	Klingersil	
	C-4400	C-4500		C-4400	C-4500
I Iso-octane (CH ₃) ₃ C CH ₂ (CH ₃) ₂	A	A	Potassium permanganate KMnO ₄	A	A
	A	A	Producer gas (generator gas)	A	A
K Kerosene	A	A	Propane C ₃ H ₈	A	A
	A	A	Pydrol	A	A
L Lactic acid 50% CH ₃ CHOH COOH	A	A	Pyridine C ₅ H ₅ N	C	C
	A	A	R Rape seed oil	A	A
Lead acetate Pb (CH ₃ COO) ₂	A	A	S Salicylic acid C ₆ H ₄ (OH) COOH	A	A
Lead arsenate Pb ₃ (AsO ₄) ₂	A	A		Sea water	A
Lime water Ca(OH) ₂	A	A	Silicone oil	A	A
Linseed oil	A	A	Skydrol 500	C	C
M Magnesium sulphate MgSO ₄	A	A	Soap	A	A
	A	A	Soda (sodium carbonate) Na ₂ CO ₃	A	A
Malic acid HOOC CH ₂ CHOH COOH	A	A	Sodium aluminate Na ₃ AlO ₃	A	A
Methane CH ₄	A	A	Sodium bicarbonate NaHCO ₃	A	A
Methyl alcohol CH ₃ OH	A	A	Sodium bisulphite NaHSO ₃	A	A
Methylated spirits	A	A	Sodium chloride (Salt) NaCl	A	A
Methyl chloride CH ₃ Cl	B	B	Sodium cyanide NaCN	A	A
Methylene chloride CH ₂ Cl ₂	C	C	Sodium hydroxide NaOH	B	A
Methyl ethyl ketone (M.E.K.) CH ₃ CO C ₂ H ₅	B	B	Sodium silicate (water glass)	A	A
Mineral oil - ASTM No. 1	A	A	Sodium sulphate Na ₂ SO ₄	A	A
Mineral oil - ASTM No. 3	A	A	Sodium sulphide Na ₂ S	A	A
N Naphtha	A	A	Spinning baths (up to 10%) H ₂ SO ₄	B	A
	A	A	Starch (C ₆ H ₁₀ O ₅) _x	A	A
Natural gas (Methane) CH ₄	A	A	Steam H ₂ O	A	A
Nitric acid 20% HNO ₃	C	C	Steam condensate H ₂ O	A	A
Nitric acid 40% HNO ₃	C	C	Stearic acid C ₁₇ H ₃₅ COOH	A	A
Nitric acid 96% HNO ₃	C	C	Sugar	A	A
Nitrobenzene C ₆ H ₅ NO ₂	C	C	Sulphur dioxide SO ₂	C	B
Nitrogen N ₂	A	A	Sulphuric acid 30% H ₂ SO ₄	C	C
O Octane C ₈ H ₁₈	A	A	Sulphuric acid 50% H ₂ SO ₄	C	C
	A	A	Sulphuric acid 96% H ₂ SO ₄	C	C
Oleic acid C ₁₇ H ₃₃ COOH	A	A	Sulphurous acid H ₂ SO ₃	B	B
Oleum (Fuming sulphuric acid)	C	C	T Tannic acid C ₇₆ H ₅₂ O ₄₆	A	A
Oxalic acid (COOH) ₂	B	B		Tar (asphalt)	A
Oxygen O ₂ (check local regulations for use)	A	A	Tartaric acid (CHOH COOH) ₂	A	A
P Palmitic acid C ₁₅ H ₃₁ COOH	A	A	Tetrachloroethane C ₂ H ₂ Cl ₄	B	B
	A	A	Tetralin C ₁₀ H ₁₂	A	A
Paraffin (Kerosene)	A	A	Toluene C ₆ H ₅ CH ₃	B	B
Pentane C ₅ H ₁₂	A	A	Town's gas	A	A
Perchloroethylene C ₂ Cl ₄	B	B	Transformer oil	A	A
Petrol	A	A	Trichloroethylene C ₂ HCl ₃	B	B
Petroleum ether	A	A	Triethanolamine N(CH ₂ CH ₂ OH) ₃	A	A
Phenol C ₆ H ₅ OH	C	C	Turpentine	A	A
Phosphoric acid (all concs) H ₃ PO ₄	A	A	U Urea (NH ₂) ₂ CO	A	A
Phthalic acid C ₆ H ₄ (COOH) ₂	A	A		V Vinyl acetate CH ₃ COO C ₂ H ₃	A
Potassium acetate CH ₃ COOK	A	A	W Water H ₂ O	A	A
Potassium carbonate K ₂ CO ₃	A	A		Water glass Na ₂ SiO ₃ K ₂ SiO ₃	A
Potassium chlorate KClO ₃	A	A	White spirit	A	A
Potassium chloride KCl	A	A	X Xylol C ₆ H ₄ (CH ₃) ₂	A	A
Potassium chromium sulphate (KCr(SO ₄) ₂ ·2H ₂ O)	A	A			
Potassium cyanide KCN	A	A			
Potassium dichromate K ₂ Cr ₂ O ₇	A	A			
Potassium hydroxide KOH	B	A			
Potassium hypochlorite KClO	A	A			
Potassium iodide KI	A	A			
Potassium nitrate (saltpetre) KNO ₃	A	A			

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