

Thermachem Drainage & Coupler

Chemical & Substance Resistance Table

If you need information on any chemicals that don't appear on the list or require clarification on any conditions please contact Naylors technical Thermachem team on +44 (0) 1226 794056 or thermachem@naylor.co.uk

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Key to use

✓	Excellent for use
?	See comments and check suitability with Naylor
✗	Unsatisfactory for use

Chemical / Substance	Alternative Name(s)	Chemical or Molecular Formula (if relevant)	Thermachem	COUPLER TYPE							Condition of use if ? (Contact Naylor for clarification of conditions)
				EPDM Push fit	Nitrile Push fit	EPDM Band-Seal	Nitrile Band-Seal	FKM Band-Seal	Fluoropolymer Liner Band-Seal	PTFE Sleeve Band-Seal	
Acetic acid (30%)	Ethanoic acid / Vinegar / Glacial acetic	CH ₃ COOH	✓	✓	✓	✓	✓	✓	✓	✓	
Acetone	Dimethyl ketone / DMK	(CH ₃) ₂ CO	✓	✓	✗	✗	✗	✗	✗	✓	
Aluminium chloride		AlCl ₃	✓	✓	✓	✓	✓	✓	✓	✓	
Aluminium phosphate		AlPO ₄	✓	✓	✓	✓	✓	✓	✓	✓	
Aluminium sulphate		Al ₂ (SO ₄) ₃	✓	✓	✓	✓	✓	✓	✓	✓	
Ammonium carbonate		(NH ₄) ₂ CO ₃	✓	✓	✗	✗	✗	✗	✗	✓	
Ammonium chloride	Sal Ammoniac	NH ₄ Cl	✓	✓	✓	✓	✓	✓	✓	✓	
Ammonium hydroxide	Household ammonia / Ammonia solution	NH ₄ OH	✓	✓	✗	✗	✗	✗	✗	✓	
Amyl chloride		C ₅ H ₁₁ Cl	✓	✗	✗	?	?	?	?	✓	
Aniline	Phenylamine / Aminobenzene	C ₆ H ₅ NH ₂	✓	✗	✗	✗	✗	?	?	✓	FKM will provide good resistance
Aniline hydrochloride	Anilinium chloride	C ₆ H ₅ ClN	?	?	?	?	?	?	?	✓	Resistance unknown - contact Naylor for info.
Barium bromide		BaBr ₂	✓	✓	✓	✓	✓	✓	✓	✓	
Barium carbonate		BaCO ₃	✓	✓	✓	✓	✓	✓	✓	✓	
Barium chloride		BaCl ₂	✓	✓	✓	✓	✓	✓	✓	✓	
Barium sulphate		BaSO ₄	✓	✓	✓	✓	✓	✓	✓	✓	
Benzaldehyde	Benzoic aldehyde / Oil of bitter almonds	C ₆ H ₅ CHO	✓	✓	✗	✗	✗	✗	✗	✓	
Benzene	Benzol	C ₆ H ₆	✓	✗	✗	✗	✗	✗	✗	✓	
Benzoic acid		C ₆ H ₅ COOH	✓	✗	✗	✗	✗	✗	✗	✓	
Benzyl alcohol	Phenylmethanol / Phenylcarbinol	C ₆ H ₅ CH ₂ OH	✓	✗	✗	?	✗	✓	✓	✓	Slow attack possible
Borax	Sodium tetraborate / Sodium borate	Na ₂ B ₄ O ₇ ·10H ₂ O	✓	✓	✓	✓	✓	✓	✓	✓	
Boric acid	Boracic acid / Ortho boric acid	H ₃ BO ₃	✓	✓	✓	✓	✓	✓	✓	✓	
Bromine		Br ₂	✓	✗	✗	✗	✗	?	?	✓	FKM provides good resistance
Butyl alcohol	N-Butanol	C ₄ H ₉ OH	✓	?	?	?	?	?	?	✓	OK in small amounts, otherwise slow attack
Butyl acetate	Butyl ethanoate	C ₈ H ₁₆ O ₂	✓	✗	✗	✗	✗	✗	✗	✓	
Butyric acid	Butanoic acid	CH ₃ CH ₂ CH ₂ -COOH	✓	✓	✗	✗	✗	✗	✗	✓	
Calcium chloride		CaCl ₂	✓	✓	✓	✓	✓	✓	✓	✓	
Calcium hydroxide	Hydrated lime / Lime / Slaked lime	Ca(OH) ₂	?	✓	✓	✓	✓	✓	✓	✓	Slow attack from frequent hot discharges
Calcium hypochlorite	Chlorine powder / Bleach powder	Ca(ClO) ₂	✓	?	?	?	?	?	?	✓	Resistance unknown - contact Naylor for info.
Chloroacetic acid	Monochloroacetic acid (MCA)	ClCH ₂ CO ₂ H	✓	✗	✗	✗	✗	✗	✗	✓	
Chloric acid		HClO ₃	✓	?	✗	?	✗	?	?	✓	Potential slow attack on EPDM and FKM
Chlorobenzene	Benzene Chloride / Phenyl Chloride	C ₆ H ₅ Cl	✓	✗	✗	✗	✗	?	?	✓	FKM provides good resistance
Chloroform	Trichloromethane	CHCl ₃	✓	✗	✗	✗	✗	?	?	✓	FKM provides good resistance
Chlorosulfuric acid	Sulfurochloridic acid	HSO ₃ Cl	✓	✗	✗	?	?	?	?	✓	Contact Naylor re FKM
Citric acid		C ₆ H ₈ O ₇ ·H ₂ O	✓	✓	?	?	?	?	?	✓	Slow attack from strong solutions
Cobalt chloride		CoCl ₂	✓	✓	✓	✓	✓	✓	✓	✓	
Copper nitrate	Cupric nitrate	Cu(NO ₃) ₂	✓	✓	✓	✓	✓	✓	✓	✓	
Copper sulphate	Blue vitriol / Cupric sulphate	CuSO ₄	✓	✓	✓	✓	✓	✓	✓	✓	
Ether			✓	✗	✗	?	?	✗	✗	✓	
Ethyl alcohol	Ethanol / Alcohol	C ₂ H ₅ OH	✓	✓	✓	✓	✓	✗	✗	✓	
Fatty acids			✓	✗	?	?	?	?	?	✓	Resistance unknown - contact Naylor for info.
Formaldehyde	Methanal	CH ₂ O	✓	✓	✗	✗	✗	?	?	✓	FKM provides good resistance
Formic acid	Methanoic acid	HCOOH	✓	✓	✗	✗	✗	✗	✗	✓	
Fruit Juices			✓	✓	✓	✓	✓	?	?	✓	FKM provides good resistance
Furfural			✓	✗	✗	?	?	?	?	✓	Contact Naylor re FKM
Gallic acid			✓	?	?	?	?	?	?	✓	Resistance unknown - contact Naylor for info.
Hydrobromic acid	Hydrogen bromide	HBr	✓	✓	✗	✗	✗	✓	✓	✓	
Hydrochloric acid	Muriatic acid	HCl	✓	?	?	?	?	?	?	✓	EPDM OK to 20°C, NBR OK to 60°C and 10% conc. FKM OK to 37% conc and 52°C
Hydrofluoric acid	Hydrogen fluoride	HF	✗	✗	✗	✗	✗	?	?	✓	FKM good resistance if cold.
Hydrogen peroxide	Hydrogen dioxide / Hydroperoxide	H ₂ O ₂	✓	✗	✗	✗	✗	?	?	✓	Contact Naylor re FKM
Isopropyl Alcohol	Isopropanol / 2-Propanol	C ₃ H ₈ O	✓	✓	✗	✗	✗	✓	✓	✓	
Kerosene	Aviation fuel / Jet fuel		✓	✗	?	✗	✓	✓	✓	✓	Potential slow attack
Lactic acid	Milk acid / Sour milk acid	C ₂ H ₅ OHCOOH	✓	✓	✓	✓	✓	✓	✓	✓	
Lead (II) acetate	Sugar of lead	(Pb(CH ₃ COO) ₂)	✓	✓	?	?	?	✗	✗	✓	Potential slow attack
Magnesium chloride		MgCl ₂	✓	✓	✓	✓	✓	✓	✓	✓	
Magnesium nitrate		Mg(NO ₃) ₂	✓	✓	✓	✓	✓	✓	✓	✓	
Magnesium sulphate	Epsom salts	MgSO ₄	✓	✓	✓	✓	✓	✓	✓	✓	
Malic Acid	2-hydroxybutanedioic acid	HO ₂ CCH ₂ CHOHCO ₂ H	✓	✗	✓	✗	✓	✓	✓	✓	
Mercury			✓	✓	✓	✓	✓	✓	✓	✓	
Methanol			✓	✓	✓	✓	✓	?	?	✓	FKM provides good resistance

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Methyl alcohol	Methanol / Wood alcohol	CH ₃ OH	✓	✓	✓	✓	✓	✓	✓	✓	✓	FKM provides fair resistance
Methyl Chloride			✓	✗	✗	?	?	?	?	✓	✓	FKM provides fair resistance
Naphthalene	Tar Camphor / Moth Repellent	C ₁₀ H ₈	✓	✗	✗	✗	✗	✓	✓	✓	✓	
Nickel chloride		NiCl ₂	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Nickel nitrate		Ni(NO ₃) ₂	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Nickel sulphate		NiSO ₄	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Nitric acid	Aqua fortis	HNO ₃	✓	?	✗	?	✗	?	?	✓	✓	EPDM Ok if very dilute, FKM provides good resistance
Oxalic acid		H ₂ O ₂ .C ₄	✓	?	?	?	?	✓	✓	✓	✓	Only use up to 20°C, potential slow attack on NBR
Perchloric Acid	Hyperchloric acid	HClO ₄	✓	✗	?	?	✗	?	?	✓	✓	Potential slow attack
Petroleum	Gasoline		✓	✗	?	✗	✗	✓	✓	✓	✓	Slow attack, increasing with temperature.
Phosphoric acid	Orthophosphoric acid	C ₃ O ₄ P	✓	?	✗	?	✗	?	?	✓	✓	OK to 20% conc.
Picric acid			✓	✗	✗	?	?	?	?	✓	✓	
Potassium bromide		KBr	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Potassium carbonate	Potash	K ₂ CO ₃	?	✓	✓	✓	✓	✓	✓	✓	✓	Hot, strong solution may attack clay
Potassium chlorate		KClO ₃	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Potassium chloride		KCl	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Potassium chromate	Dipotassium salt	K ₂ CrO ₄	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Potassium cyanide	Potassium prussate	KCN	?	✓	✓	✓	✓	✓	✓	✓	✓	Hot, strong solution may attack clay
Potassium dichromate	Potassium bichromate	K ₂ Cr ₂ O ₇	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Potassium fluoride		KF	✓	✓	✗	✓	✗	?	?	✓	✓	Contact Naylor re FKM
Potassium hydroxide	Caustic potash	KOH	?	✓	✓	✓	✓	✗	✗	✓	✓	OK to 6% conc. and 50°C. Potential slow attack above.
Potassium nitrate	Saltpetre / Nitrate of potash	KNO ₃	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Potassium permanganate	Permanganate of potash	KMnO ₄	✓	✓	✗	✓	✗	✓	✓	✓	✓	
Potassium sulphate		K ₂ SO ₄	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Potassium sulphide			✓	✓	✓	✓	✓	✓	✓	✓	✓	
1-Propanol	n-propyl-alcohol / n-Propanol / propan-1-ol	CH ₃ CH ₂ CH ₂ OH	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Propylene dichloride			✓	✗	✗	?	?	?	?	✓	✓	Contact Naylor re FKM
Sal ammoniac			✓	✓	✓	✓	✓	✓	✓	✓	✓	
Silver nitrate	Lunar Caustic	AgNO ₃	✓	✓	?	?	?	?	?	✓	✓	Moderate resistance
Sodium acetate		CH ₃ COONa	✓	✓	?	?	?	✗	?	✓	✓	Potential slow attack
Sodium bicarbonate	Bicarbonate of Soda / Baking soda	NaHCO ₃	✓	✓	?	?	?	?	?	✓	✓	Resistance unknown - contact Naylor for info.
Sodium bisulphate			✓	✓	?	?	?	?	?	✓	✓	
Sodium bisulphite			✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sodium bromide		NaBr	✓	✓	?	?	?	?	?	✓	✓	Nitrile OK to 20°C, contact Naylor re FKM
Sodium carbonate	Washing soda	Na ₂ CO ₃	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sodium chlorate		NaClO ₃	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sodium chloride	Common salt	NaCl	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sodium cyanide		NaCN	?	✓	✓	✓	✓	?	?	✓	✓	Hot, strong solution may attack Thermachem, contact Naylor re FKM
Sodium fluoride			?	✓	✓	✓	✓	?	?	✓	✓	Resistance unknown - contact Naylor for info.
Sodium hydroxide	Caustic soda	NaOH	?	✓	?	?	?	?	?	✓	✓	Thermachem OK up to 5% concentration at 90 deg. C FKM provides fair resistance
Sodium hypochlorite	Bleach	NaClO	✓	?	?	?	?	?	?	✓	✓	Attacked by strong solutions
Sodium nitrate	Chile saltpetre	NaNO ₃	✓	✓	?	?	?	?	?	✓	✓	Potential slow attack
Sodium sulphate	Thenardite	Na ₂ SO ₄	✓	✓	✓	✓	✓	?	?	✓	✓	FKM provides good resistance
Sodium sulphide		Na ₂ S	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sodium Sulphite			✓	✓	✓	✓	✓	✓	✓	✓	✓	
Stannic chloride	Tin (IV) chloride	SnCl ₄	✓	✗	✗	✗	✗	✓	✓	✓	✓	
Stannous chloride	Tin (II) chloride	SnCl ₂	✓	✗	✓	✗	✓	✓	✓	✓	✓	
Sulphur chloride			✓	✗	✗	?	?	?	?	✓	✓	
Sulphuric acid	Oil of Vitreol	H ₂ SO ₄	✓	?	✗	?	✗	?	?	✓	✓	Up to 50% concentration OK if 20°C or below.
Sulphurous acid		H ₂ SO ₃	✓	?	?	?	?	?	?	✓	✓	Potential slow attack
Toluene	Methylbenzene	C ₆ H ₅ CH ₃	✓	✗	✗	✗	✗	?	?	✓	✓	FKM provides good resistance
Trichloroethylene		C ₂ HCl ₃	✓	✗	✗	✗	✗	?	?	✓	✓	FKM provides good resistance
Trisodium phosphate	Sodium Phosphate	Na ₃ PO ₄	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Turpentine	Pine Oil	C ₁₀ H ₁₆	✓	✗	✗	✗	✗	✗	✗	✓	✓	
Urea	Carbamide	CO(NH ₂) ₂	✓	✗	✓	✗	✗	✓	✓	✓	✓	
Xylene (ortho-, meta- and para-)	Dimethyl benzene	C ₆ H ₄ (CH ₃) ₂	✓	✗	✗	✗	✗	✗	?	?	?	FKM provides good resistance
Zinc sulphate	White vitriol	ZnSO ₄	✓	✓	✓	✓	✓	✓	✓	✓	✓	

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