

FRIALIT®-DEGUSSIT® Oxide Ceramics
Corrosion Resistance



FRIALIT[®]-DEGUSSIT[®] OXIDE CERAMIC MATERIALS

FRIALIT[®] F99,7

Pure Al₂O₃; dense, extremely resistant to wear and corrosion, very high electrical insulating properties

DEGUSSIT[®] AL23

Pure Al₂O₃; dense, excellent thermal and electrical properties, corrosion resistant

FRIALIT[®] FZT

Al₂O₃ doped with ZrO₂; dense, high strength, good resistance to thermal shock, extremely resistant to wear and corrosion, fine grain size

FRIALIT[®] FZM

ZrO₂ partially stabilized with MgO; dense, high strength and wear resistance, extremely resistant to corrosion and thermal shock

The following table shows the corrosion properties of FRIALIT-DEGUSSIT oxide ceramics and other special materials. These data are based on chemical conditions as far as we know them.

To a large extent the corrosion resistance data of the different materials result from laboratory tests. Generally, however, corrosive conditions in practical operation are essentially more differentiated. The smallest portions of an intermediate product appearing only for short time may finally determine corrosive attacks.

In cases where particular applications cannot be based on reliable experiences, the corrosion resistance of our materials is to be determined by test specimens under process conditions.

ABBREVIATIONS:

A	resistant
B	weak reaction
C	strong reaction
rt	room temperature
s	boiling
conc.	concentrated
sat.	saturated

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon	
				F99,7 AL23	FZM	FZT									
Acetaldehyde	CH ₃ CHO		rt	A	A	A	A	A	C	C	C	B	B	C	
Acetic acid	CH ₃ COOH	5	rt	A	A	A	A	A	C	C	A	B	B	B	
		5	b	A	A	A	A	A	C	C	A	B	B	B	
		10	rt	A	A	A	A	A	C	C	A	B	B	B	
		10	b	A	A	A	A	A	C	C	A	B	B	B	
		50	rt	A	A	A	A	A	C	C	A	B	B	B	
		50	b	A	A	A	A	A	C		A	B	B	B	
		80	rt	A	A	A	A	A	C	C	A	B	B	B	
		80	b	A	A	A	A	A	C	C	A	B	B	B	
		conc.	rt	A	A	A	A	A	C	C	A	B	B	B	
		conc.	b	A	A	A	A	A	C	C	A	B	B	B	
Acetic acid anhydride	(CH ₃ CO) ₂ O		rt	A	A	A	A	A	C	C	A	B	B	B	
Acetone	CH ₃ CHOCH ₃	100	rt	A	A	A	A	A	C	C	B	B	A	C	
Alum	K ₂ Al ₂ (SO ₄) ₄	10	rt	A	A	A	A	A	A	B	A	A	A	A	
Aluminiumchloride	AlCl ₃	10	rt	A	A	A	A	A	A	B	A	B	A	A	
		10	100	A	A	A	A	A	A	B	A	B	A	A	
		25	60	A	A	A	A	A	A	B	A	B	A	A	
		25	100	A	A	A	A	A	A	B	A	B	A	A	
		80	b	A	A	A	A	A	A	B	A	B	A	A	
		10	rt	A	A	A	A	A	A	B	A	A	A	A	
		10	b	A	A	A	A	A	A	B	A	A	A	A	
Aluminiumsulfate	Al ₂ (SO ₄) ₃	15	50	A	A	A	A	A	A	B	A	A	A	A	
		20	55	A	A	A	A	A	A	B	A	A	A	A	
		25	b	A	A	A	A	A	A	B	A	A	A	A	
		50	b	A	A	A	A	A	A	B	A	A	A	A	
		55	40	A	A	A	A	A	A	B	A	A	A	A	
		57	120	A	A	A	A	A	A	B	A	A	A	A	
		10	rt	A	A	A	A	A	A	B	B	A	A	A	A
		10	b	A	A	A	A	A	A	B	B	A	A	A	A
Ammonia, Ammoniumhydroxide	NH ₃ NH ₄ OH	20	b	A	A	A	A	A	B	B	A	A	A	A	
		25	b	A	A	A	A	A	B	B	A	A	A	A	
		conc.	rt	A	A	A	A	A	B	B	A	A	A	A	
		conc.	100	A	A	A	A	A	B	B	A	A	A	A	
		10	25	A	A	A	A	A	A	A	A	A	A	A	A
Ammoniumbromide	NH ₄ Br	10-20	b	A	A	A	A	A	A	B	A	A	A	A	
		30	80	A	A	A	A	A	A	B	A	A	A	A	
		30	b	A	A	A	A	A	A	B	A	A	A	A	
		40	b	A	A	A	A	A	A	B	A	A	A	A	
		50	b	A	A	A	A	A	A	B	A	A	A	A	
		sat.	rt	A	A	A	A	A	A	B	A	A	A	A	
		sat.	b	A	A	A	A	A	A	B	A	A	A	A	
Ammoniumchloride	NH ₄ Cl	10	rt	A	A	A	A	A	A	A	A	A	A	A	
		10	b	A	A	A	A	A	A	A	A	A	A	A	
		25	rt	A	A	A	A	A	A	A	A	A	A	A	

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon	
				F99,7 AL23	FZM	FZT									
		25	b	A	A	A	A	A	A	A	A	A	A	A	
		50	rt	A	A	A	A	A	A	A	A	A	A	A	
Ammoniumchloride	NH ₄ Cl	50	b	A	A	A	A	A	A	A	A	A	A	A	
		sat.	rt	A	A	A	A	A	A	B	A	A	A	A	
		sat.	b	A	A	A	A	A	A	B	A	A	A	A	
Ammoniumfluoride	NH ₄ F	20	80				A				A	A			
Ammoniumhydroxide	NH ₄ OH	28	20-60	A	A	A	A	A	B	B	A	A	A	A	
Ammoniumnitrate	NH ₄ NO ₃	10	rt	A	A	A		A	A	B	A	A	A	A	
			20	rt	A	A	A		A	A	B	A	A	A	A
			20	rt	A	A	A		A	A	B	A	A	A	A
			50	rt	A	A	A		A	A	B	A	A	A	A
			50	b	A	A	A		A	A	B	A	A	A	A
Ammoniumsulfate	(NH ₄) ₂ SO ₄	all	rt	A	A	A	A	A	A	B	A	A	A	A	
		all	b	A	A	A	A	A	A	B	A	A	A	A	
Aniline	C ₆ H ₅ NH ₂		rt	A	A	A	A	A	A	C	C	B	A	C	
			b	A	A	A	A	A	A	C	C	B	A	C	
Aqua regia	HCl:HNO ₃	3:1	rt	A	A	A	A	A	B	C	C	C	C	B	
Arsenic acid	H ₃ AsO ₃		rt	A	A	A	A	A	A	B	A	A	A	A	
Bariumchloride	BaCl ₂	20	rt	A	A	A	A	A	A	A	A	A	A	A	
			20	100	A	A	A	A	A	A	A	A	A	A	A
Bariumhydroxide	Ba(OH) ₂	sat.	rt	A	A	A	A	A		A	A	A			
			sat.	b	A	A	A	A	A						
Benzenesulfonic acid	C ₆ H ₅ SO ₃ H		70	A	A	A	A	A				A			
Benzoic acid	C ₆ H ₅ COOH	all	rt	A	A	A	A	A				A			
Benzol, Benzene	C ₆ H ₆		rt	A	A	A	A	A	A	C	C	C	C	C	
Boric acid	H ₃ BO ₃	10	b	A	A	A	A	A	A	B	A	A	A	A	
			50	b	A	A	A	A	A	A	B	A	A	A	A
Bromine	Br	dry	rt	A	A	A	C	A	B	C	C	C	C	B	
			b	A	A	A	C	A	B	C	C	C	C	B	
Butylacetate	C ₆ H ₁₂ O ₂		rt	A	A	A	A	A	C	C	C	C	B	C	
Butylalcohol	C ₄ H ₉ OH		rt	A	A	A	A	A	A	B	A	A	A	B	
			b	A	A	A	A	A	A	B	A	A	A	B	
Butyric acid	C ₃ H ₇ COOH	100	rt	A	A	A	A	A			A	A			
			100	b	A	A	A	A	A			A	A		
Calcium bisulfite	Ca(HSO ₃) ₂		rt	A	A	A	A	A	A	C	B	B	A	A	
Calciumhypochlorite	CaCl ₂ O ₂	20	40	A	A	A	A	A	A	C	B	C	C	A	
Calciumnitrate	Ca(NO ₃) ₂		rt	A	A	A	A	A	A	B	A	A	A	A	
Calciumsulfate	CaSO ₄	1-5	rt	A	A	A	A	A	A	B	A	A	A	A	
			10	b	A	A	A	A	A	A	B	A	A	A	A
Carbon disulfide	CS ₂		rt	A	A	A	A	A	A	C	C	C	C	C	
			b	A	A	A	A	A	A	C	C	C	C	C	
Carbon tetrachloride	CCl ₄		rt	A	A	A	A	A	B	C	C	C	C	C	
Carnallite	MgCl ₂ KCl6H ₂ O		90	A	A	A	A	A	A	B	A	A	A	A	
Chloral	CCl ₃ CHO		50	A	A	A	A	A							
Chlorine	Cl ₂	dry	rt	A	A	A	A	A	A	C	C	C	B	B	

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon
				F99,7 AL23	FZM	FZT								
			70	A	A	A	C	A	A	C	C	C	B	B
Chlorine	$Cl_2 + H_2O > 0,6\%$	moist	rt	A	A	A	A	A	A	C	C	C	C	B
			100	A	A	A	C	A	A	C	C	C	C	B
Chloroacetic acid	$CH_2ClCOOH$	50	20	A	A	A	A	A	C	C	C	C	B	B
			70	A	A	A	A	A	C	C	C	C	B	B
Chloroacetic acid	$CH_2ClCOOH$	100	rt	A	A	A	A	A	C	C	C	C	B	B
			100	A	A	A	A	A	C	C	C	C	B	B
Chlorobenzene	C_6H_5Cl		20	A	A	A	A	A	B	C	C	C	C	C
Chlorosulfonic acid	$SO_2(OH)Cl$		rt	A	A	A	A	A	C	C	C	C	C	C
			b	A	A	A	C	A	C	C	C	C	C	C
Chromium acid	H_2CrO_4	10	rt	A	A	A	A	A	A	C	C	C	C	B
			10	A	A	A	C	A	A	C	C	C	C	B
			50	A	A	A	C	A	A	C	C	C	C	B
			50	A	A	A	C	A	A	C	C	C	C	B
Citric acid	$C_6H_8O_7$	5	rt	A	A	A	A	A	A	B	A	A	A	A
			5	A	A	A	A	A	A	B	A	A	A	A
			25	A	A	A	A	A	A	B	A	A	A	A
			25	A	A	A	A	A	A	B	A	A	A	A
			50	A	A	A	A	A	A	B	A	A	A	A
			50	A	A	A	A	A	A	B	A	A	A	A
Copper sulfate	$CuSO_4$	5	rt	A	A	A	A	A	A	A	A	A	A	A
			5	A	A	A	A	A	A	A	A	A	A	A
			25	A	A	A	A	A	A	A	A	A	A	A
			50	A	A	A	A	A	A	A	A	A	A	A
			all	A	A	A	A	A	A	A	A	A	A	A
Copper-(II)-chloride	$CuCl_2 \cdot 2H_2O$	20	rt	A	A	A	A	A	A	A	A	A	A	A
			20	A	A	A	A	A	A	A	A	A	A	A
			40	A	A	A	A	A	A	A	A	A	A	A
			50	A	A	A	A	A	A	A	A	A	A	A
			sat.	A	A	A	A	A	A	A	A	A	A	A
Dichloro ethane	$C_2H_4Cl_2$	100	50	A	A	A	A	A		C		C		
Dichloro ethylene	$C_2H_2Cl_2$		b	A	A	A	A	A				C		
Dioxane	$O_2(CH_2)_4$			A	A	A	A	A		C	C	C	C	
Diphenyl	$C_6H_5C_6H_5$			A	A	A	A	A	C	C	C	C	C	
Ether	$(C_2H_5)_2O$		rt	A	A	A	A	A	C	C	C	C	C	C
Ethylacetate	$CH_3COOC_2H_5$		rt	A	A	A	A	A	C	C	C	C	B	C
Ethylalcohol, Ethanol	C_2H_5OH		rt	A	A	A	A	A	A	B	A	A	A	A
Ethylchloride	C_2H_5Cl		rt	A	A	A	A	A	B	C	C	C	C	C
Ferric nitrate	$Fe(NO_3)_3$	all	rt	A	A	A	A	A	A	B	A	A	A	A
Ferric-(II)-Chloride	$FeCl_2$	30	100	A	A	A	A	A	A	B	A	B	A	A
			10	A	A	A	A	A	A	B	A	B	A	A
			30	A	A	A	A	A	A	B	A	B	A	A
			50	A	A	A	A	A	A	B	A	B	A	A
			sat.	A	A	A	A	A	A	B	A	B	A	A
Ferric-(II)-Sulfate	$FeSO_4 \cdot 7H_2O$	10	rt	A	A	A	A	A	A	B	A	B	A	A

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon
				F99,7 AL23	FZM	FZT								
Ferric-(III)-Chloride	FeCl ₃	all	b	A	A	A	A	A	A	B	A	B	A	A
		5	25	A	A	A	A	A	A	B	A	B	A	A
		10	65	A	A	A	A	A	A	B	A	B	A	A
		15	25	A	A	A	A	A	A	B	A	B	A	A
		45	25	A	A	A	A	A	A	B	A	B	A	A
Ferric-(III)-Sulfate	Fe(SO ₄) ₃	50	50	A	A	A	A	A	A	B	A	B	A	A
		50	b	A	A	A	A	A	A	B	A	B	A	A
		rt	rt	A	A	A	A	A	A	B	A	B	A	A
Flourosilic acid	H ₂ SiF ₆	til 30	til 65	A	A	A	A	A	A	B	A	B	A	A
		30	30	A	C	A	A	A			A	A		
Formaldehyde	CH ₂ O	all	til b	A	A	A	A	A	A	B	A	A	A	A
Formic acid	HCOOH	10	rt	A	A	A	A	A	B	C	B	B	A	A
		10	65	A	A	A	A	A	B	C	B	B	A	A
		10	b	A	A	A	A	A	B	C	B	B	A	A
		20-40	65	A	A	A	A	A	B	C	B	B	A	A
		50	rt	A	A	A	A	A	B	C	B	B	A	A
		50	b	A	A	A	A	A	B	C	B	B	A	A
		60	65	A	A	A	A	A	B	C	B	B	A	A
		80	rt	A	A	A	A	A	B	C	B	B	A	A
		80	65	A	A	A	A	A	B	C	B	B	A	A
		80	b	A	A	A	A	A	B	C	B	B	A	A
		90	100	A	A	A	A	A	B	C	B	B	A	A
		conc.	rt	A	A	A	A	A	B	C	B	B	A	A
		conc.	b	A	A	A	A	A	B	C	B	B	A	A
Fuming sulfuric acid	H ₂ S ₂ O ₇	10	rt	A	A	A	C	A	A	C	C	C	C	B
		10	b	A	A	A	C	A	A	C	C	C	C	B
		25	rt	A	A	A	C	A	A	C	C	C	C	B
		25	b	A	A	A	C	A	A	C	C	C	C	B
Furfuryl alcohol	C ₅ H ₄ O ₂	25	b	A	A	A	A	A	C	C	C	A	A	A
		100	rt	A	A	A	A	A	C	C	C	A	A	A
		100	b	A	A	A	A	A	C	C	C	A	A	A
Glycerine	CH ₂ OHCH ₂ OH		rt	A	A	A	A	A	A	A	A	A	A	A
			b	A	A	A	A	A	A	A	A	A	A	A
Hydrochloric acid	HCl	0,5	rt	A	A	A	A	A	A	C	B	B	B	A
		0,5	b	A	A	A	A	A	B	C	C	C	C	B
		5	rt	A	A	A	A	A	A	C	B	B	B	A
		5	60	A	A	A	A	A	A	C	B	B	B	A
		5	b	A	A	A	A	A	B	C	C	C	C	B
		10	rt	A	A	A	A	A	A	C	B	B	B	A
		10	50	A	A	A	A	A	A	C	B	B	B	A
		10	b	A	A	A	A	A	B	C	C	C	C	B
		15	rt	A	A	A	A	A	A	C	B	B	B	A
		15	b	A	A	A	A	A	B	C	C	C	C	B
	20	rt	A	A	A	A	A	A	C	B	B	B	A	

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon
				F99,7 AL23	FZM	FZT								
		20	b	A	A	A	A	A	B	C	C	C	C	B
		30	rt	A	A	A	A	A	A	C	B	B	B	A
		30	b	A	A	A	A	A	B	C	C	C	C	B
		37	rt	A	A	A	A	A	A	C	B	B	B	A
		37	b	A	A	A	A	A	B	C	C	C	C	B
Hydrochloric acid + Nitric acid	HCl:HNO ₃	3:1	rt	A	A	A	A	A	B	C	C	C	C	B
Hydrogen bromide	HBr		rt	A	A	A	A	A	A	C	B	C	A	A
Hydrogen bromide acid	HBr	0-50	b	A	A	A	A	A	A	C	B	C	A	A
Hydrogen cyanide	HCN		rt	A	A	A	A	A	A	B	B	B	B	A
Hydrogen flouride	HF	1	rt	A	C	A	A	A	A	C	B	B	B	A
		40	rt	A	C	A	A	A	A	C	B	B	B	A
		40	50	A	C	A	A	A	A	C	C	C	C	B
		50	rt	A	C	A	A	A	A	C	B	B	B	A
		100	rt	A	C	A	C	A	A	C	C	C	C	A
		100	b	B	C	B	C	A	A	C	C	C	C	B
Hydrogen sulfide	H ₂ S		rt	A	A	A	A	A	A	C	B	C	A	A
			100	A	A	A	A	A	A	C	C	C	A	A
Lactic acid	H ₆ C ₃ O ₃	1,5	rt	A	A	A	A	A	B	B	B	C	B	B
		1,5	b	A	A	A	A	A	B	B	B	C	B	B
		10	rt	A	A	A	A	A	B	B	B	C	B	B
		10	b	A	A	A	A	A	B	B	B	C	B	B
		conc.	b	A	A	A	A	A	B	B	B	C	B	B
Lead acetate	C ₄ H ₆ O ₄ Pb	all	rt	A	A	A	A	A	A	A	A	A	A	A
Magnesium chloride	MgCl ₂	10	rt	A	A	A	A	A	A	B	A	A	A	A
		20	b	A	A	A	A	A	A	B	A	A	A	A
		30	rt	A	A	A	A	A	A	B	A	A	A	A
		42	b	A	A	A	A	A	A	B	A	A	A	A
Magnesium sulfate	MgSO ₄	10	rt	A	A	A	A	A	A	B	A	A	A	A
		25		A	A	A	A	A	A	B	A	A	A	A
		50		A	A	A	A	A	A	B	A	A	A	A
		sat.		A	A	A	A	A	A	B	A	A	A	A
Maleic acid	C ₄ H ₄ O ₄	10	til 80	A	A	A	A	A	C	C	A	B	B	A
		10	b	A	A	A	A	A	C	C	A	B	B	A
		50	100	A	A	A	A	A	C	C	A	B	B	A
Malic acid	C ₄ H ₆ O ₅	til 50	rt	A	A	A	A	A	A	A	A	A	A	A
			b	A	A	A	A	A	A	A	A	A	A	A
Manganese chloride	MnCl ₂	5	100	A	A	A	A	A	A		A	A		
		20	100	A	A	A	A	A	A		A	A		
		50	100	A	A	A	A	A	A		A	A		
Manganese sulfate	MnSO ₄	all	rt	A	A	A	A	A	A		A	A		
Mercury	Hg		20	A	A	A	A	A	A	A	A	A	A	A
			50	A	A	A	A	A	A	A	A	A	A	A
			b	A	A	A	C							
Methanol	CH ₃ OH	all	rt	A	A	A	A	A	C	B	A	A	A	A

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon	
				F99,7 AL23	FZM	FZT									
		all	b	A	A	A	A	A	C	B	A	A	A	A	
Methylene chloride	CH ₂ Cl ₂		rt - b	A	A	A	A	A	B	C	C	C	C	C	
Monochloro acetic acid	CH ₂ ClCO ₂ H	50	rt	A	A	A	A	A	C	C	C	C	B	B	
		70	b	A	A	A	A	A	C	C	C	C	B	B	
		100	rt	A	A	A	A	A	C	C	C	C	B	B	
Naphta	C ₁₀ H ₈	100	b	A	A	A	A	A	C	C	C	C	B	B	
			rt	A	A	A	A	A	B	C	C	C	C	C	
Nickel chloride	NiCl ₂ ·6H ₂ O	10	60	A	A	A	A	A	A	A	A	A	A	A	
			b	A	A	A	A	A	A	A	A	A	A	A	
			20	rt	A	A	A	A	A	A	A	A	A	A	A
			30	b	A	A	A	A	A	A	A	A	A	A	A
			80	95	A	A	A	A	A	A	A	A	A	A	A
Nickel nitrate	Ni(NO ₃) ₂ ·6H ₂ O		rt	A	A	A	A	A	A	A	A	A	A	A	
Nickel sulfate	NiSO ₄ ·7H ₂ O		80	A	A	A	A	A	A	A	A	A	A	A	
Nitric acid	HNO ₃	7	rt	A	A	A	A	A	B	C	C	C	C	B	
			b	A	A	A	B	A	B	C	C	C	C	B	
			10	rt	A	A	A	A	A	B	C	C	C	C	B
			10	b	A	A	A	C	A	B	C	C	C	C	B
			25	rt	A	A	A	B	A	B	C	C	C	C	B
			25	b	A	A	A	C	A	B	C	C	C	C	B
			37	rt	A	A	A	C	A	B	C	C	C	C	B
			37	b	A	A	A	C	A	B	C	C	C	C	B
			50	rt	A	A	A	C	A	B	C	C	C	C	B
			50	b	A	A	A	C	A	B	C	C	C	C	B
			65	rt	A	A	A	C	A	B	C	C	C	C	B
			65	b	A	A	A	C	A	B	C	C	C	C	B
			70	100	A	A	A	C	A	B	C	C	C	C	B
			Fuming	100	rt				C	A	B	C	C	C	B
				100	50 - 70				C	A	B	C	C	C	B
		100	b				C	A	B	C	C	C	B		
Nitrobenzene				A	A	A	A	A	A	A	A	A	A	A	
Oxalic acid	H ₂ C ₂ O ₄	5	rt	A	A	A	A	A	A	A	A	B	A	A	
			b	A	A	A	A	A	A	A	A	A	B	A	A
			10	rt	A	A	A	A	A	A	A	A	B	A	A
			10	b	A	A	A	A	A	A	A	A	B	A	A
			25	rt	A	A	A	A	A	A	A	A	B	A	A
			25	b	A	A	A	A	A	A	A	A	B	A	A
			50	rt	A	A	A	A	A	A	A	A	B	A	A
			50	b	A	A	A	A	A	A	A	A	B	A	A
			sat.	rt	A	A	A	A	A	A	A	A	B	A	A
			sat.	b	A	A	A	A	A	A	A	A	B	A	A
Ozone	O ₃	liquid		A	A	A	C	A	A	C	B	C	A	A	
Perchloro ethylene	C ₂ Cl ₄		rt	A	A	A	A	A	B	C	C	C	C	C	
			b	A	A	A	A	A	B	C	C	C	C	C	
Phenol	C ₆ H ₅ OH	pure	rt	A	A	A	A	A	B	C	C	C	C	C	

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon
				F99,7 AL23	FZM	FZT								
Phosphorous acid	H ₃ PO ₄	1	b	A	A	A	A	A	B	C	C	C	C	C
		1	rt	A	A	A	A	A	A	B	A	A	A	A
		1	140	A	A	A	A	A	A	C	A	A	A	A
		10	rt	A	A	A	A	A	A	B	A	A	A	
		10	b	A	A	A	A	A	A	C	A	A	A	A
		30	rt	A	A	A	A	A	A	B	A	A	A	A
		30	b	A	A	A	A	A	A	C	A	A	A	A
		45	rt	A	A	A	A	A	A	B	A	A	A	A
		45	b	A	A	A	A	A	A	C	A	A	A	A
		80	rt	A	A	A	A	A	A	B	A	A	A	A
		80	60	A	A	A	A	A	A	C	A	A	A	A
		80	b	B	B	B	A	A	A	C	A	A	A	A
		90	rt	A	A	A	A	A	A	B	A	A	A	A
		90	b	B	B	B	C	A	A	C	A	A	A	A
		Potassium chloride	KCl	conc.	rt	A	A	A	A	A	A	B	A	A
conc.	b			C	C	C	C	A	A	C	A	A	A	A
10	rt			A	A	A	A	A	A	A	A	A	A	A
10	b			A	A	A	A	A	A	A	A	A	A	A
20	b			A	A	A	A	A	A	A	A	A	A	A
30	b			A	A	A	A	A	A	A	A	A	A	A
Potassium cyanide	KCN	sat.	100	A	A	A	A	A	A	A	A	A	A	A
		10	rt	A	A	A	A	A	B	C	A	B	A	A
Potassium hydroxide	KOH	10	rt	A	A	A	A	A	C	B	A	A	A	A
		10	b	A	A	A	A	A	C	B	A	A	A	A
		20	rt	A	A	A	A	A	C	B	A	A	A	A
		20	b	A	A	A	A	A	C	B	A	A	A	A
		28	rt	A	A	A	A	A	C	B	A	A	A	A
		28	b	A	A	A	A	A	C	B	A	A	A	A
		40	til b	A	A	A	B	A	C	B	A	A	A	A
		50	rt	A	A	A	A	A	C	B	A	A	A	A
Potassium hypochlorite	KOCl	20g Cl/l	til 40	A	A	A	A	A	A	C	C	C		
		130g Cl/l	rt	A	A	A	A	A	A	C	C	C		
		130g Cl/l	150	A	A	A	C	A	A	C	C	C		
Potassium nitrate	KNO ₃	25	rt	A	A	A	A	A	A	A	A	A	A	A
		25	b	A	A	A	A	A	A	A	A	A	A	A
		40	rt	A	A	A	A	A	A	A	A	A	A	A
		40	b	A	A	A	A	A	A	A	A	A	A	A
		50	rt	A	A	A	A	A	A	A	A	A	A	A
		50	b	A	A	A	A	A	A	A	A	A	A	A
		sat.	rt	A	A	A	A	A	A	A	A	A	A	A
		sat.	b	A	A	A	A	A	A	A	A	A	A	A
Potassium perchlorate	KClO ₄	25	25	A	A	A	A	A			A	A		
		50	25	A	A	A	A	A			A	A		

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon
				F99,7 AL23	FZM	FZT								
Potassium permanganate	KMnO ₄	75	25	A	A	A	A	A			A	A		
		all	rt	A	A	A	A	A			A	A		
Potassium sulfate	K ₂ SO ₄	all	b	A	A	A	A	A			A	A		
		10	rt	A	A	A	A	A	A	A	A	A	A	A
		20	til 50	A	A	A	A	A	A	A	A	A	A	A
Prussiate of potash	KCN	10	rt	A	A	A	A	A	B	C	A	B	A	A
Pyridine	C ₅ H ₅ N	50	rt - 60	A	A	A	A	A	C	C	C	C	C	B
		100	rt - 60	A	A	A	A	A	C	C	C	C	C	B
Salt water			rt	A	A	A	A	A	A	A	A	A	A	A
Sodium bicarbonate	NaHCO ₃	10	til b	A	A	A	A	A	B	B	A	A	A	A
		20	40 - b	A	A	A	A	A	B	B	A	A	A	A
Sodium bisulfate	NaHSO ₄	all	all	A	A	A	A	A	B	B	A	A	A	A
		10	rt	A	A	A	A	A			A	A		
		10	b	A	A	A	A	A			A	A		
		sat.	rt	A	A	A	A	A			A	A		
Sodium bisulfite	NaHSO ₃	sat.	b	A	A	A	A	A			A	A		
		50	rt	A	A	A	A	A			A	A		
				A	A	A	A	A			A	A		
				A	A	A	A	A			A	A		
Sodium carbonate	Na ₂ CO ₃	10	b	A	A	A	C	A	C	B	A	A	A	A
		20	rt	A	A	A	A	A	C	B	A	A	A	A
		20	50 - b	A	A	A	A	A	C	B	A	A	A	A
		50	rt	A	A	A	A	A	C	B	A	A	A	A
		50	b	A	A	A	A	A	C	B	A	A	A	A
		sat.	rt	A	A	A	A	A	C	B	A	A	A	A
		sat.	b	A	A	A	C	A	C	B	A	A	A	A
Sodium chlorate	NaClO ₃	5	rt	A	A	A	A	A	A	A	A	A	A	A
		5	b	A	A	A	A	A	A	A	A	A	A	A
Sodium chloride	NaCl	3,5	rt	A	A	A	A	A	A	A	A	A	A	A
		3,5	b	A	A	A	A	A	A	A	A	A	A	A
Sodium chloride solution		techn.	rt	A	A	A	A	A	A	A	A	A	A	A
			b	A	A	A	A	A	A	A	A	A	A	A
Sodium chlorite	NaClO ₂	5	rt	A	A	A	C	A			C	C		
		5	b	A	A	A	C	A			C	C		
Sodium hydroxide (Caustic soda)	NaOH	10	rt	A	A	A	C	A			C	C		
		10	b	A	A	A	A	A	C	B	A	A	A	A
		20	rt	A	A	A	A	A	C	B	A	A	A	A
		20	b	A	A	A	C	A	C	B	A	A	A	A
		34	rt	A	A	A	C	A	C	B	A	A	A	A
		34	b	A	A	A	C	A	C	B	A	A	A	A
		50	rt	A	A	A	C	A	C	B	A	A	A	A
		50	b	B	A	B	C	A	C	B	A	A	A	A
		60	b	B	A	B	C	A	C	B	A	A	A	A
	70	b	C	B	C	C	A	C	B	A	A	A	A	

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon	
				F99,7 AL23	FZM	FZT									
Sodium hypochlorite (Bleaching soda)	NaOCl	10g Cl/l	rt	A	A	A	A	A	A	C	C	C	C	A	
		10g Cl/l	50	A	A	A	A	A	A	C	C	C	C	A	
		20g Cl/l	rt	A	A	A	A	A	A	C	C	C	C	A	
		20g Cl/l	40	A	A	A	A	A	A	C	C	C	C	A	
		120g Cl/l	rt	A	A	A	A	A	A	C	C	C	C	A	
Sodium nitrate	NaNO ₃	120g Cl/l	b	A	A	A	A	A	A	C	C	C	C	A	
			rt	A	A	A	A	A	A	A	A	A	A	A	
Sodium nitrite	NaNO ₂		100	A	A	A	A	A	A	A	A	A	A	A	
			70	A	A	A	A	A	A	A	A	A	A	A	
Sodium peroxide	Na ₂ O ₂		100	A	A	A	A	A	A	A	A	A	A	A	
			70	A	A	A	A	A	A	A	A	A	A	A	
Sodium sulfate	Na ₂ SO ₄ · 10H ₂ O	10	rt	A	A	A	A	A			A	A			
		10	b	A	A	A	C	A			A	A			
Sodium sulfide	Na ₂ S · 9H ₂ O	sat.	rt	A	A	A	A	A	A	C	B	C	A	A	
		sat.	b	A	A	A	A	A	A	C	B	C	A	A	
Sodium sulfite	Na ₂ SO ₃ · 7H ₂ O	25	rt	A	A	A	A	A	A	C	B	C	A	A	
		25	b	A	A	A	A	A	A	C	B	C	A	A	
		50	rt	A	A	A	A	A	A	C	B	C	A	A	
		50	b	A	A	A	A	A	A	C	B	C	A	A	
		sat.	rt	A	A	A	A	A	A	C	B	C	A	A	
Sodium thiol	Na ₂ S ₂ O ₃ · 5H ₂ O	25	rt	A	A	A	A	A	A	C	B	C	A	A	
		25	b	A	A	A	A	A	A	C	B	C	A	A	
Spinning bath	til 10% H ₂ SO ₄ over 10% H ₂ SO ₄		70	A	A	A	A	A	A	C	A	B	A	A	
			70	A	A	A	A	A	A	C	A	B	A	A	
Stearic acid	C ₁₇ H ₃₅ COOH	techn.	100	A	A	A	A	A	A	A	B	C	C	C	
		techn.	150	A	A	A	A	A	A	A	B	C	C	C	
			100	rt	A	A	A	A	A	A	A	B	C	C	C
			100	b	A	A	A	A	A	A	A	B	C	C	C
			100	135	A	A	A	A	A	A	A	B	C	C	C
Sulfur chloride	S ₂ Cl ₂		315	A	A	A	C								
			rt	A	A	A	A	A	C	C	C	C	C	C	
Sulfuric acid	H ₂ SO ₄		b	A	A	A		A	C	C	C	C	C	C	
		2	rt	A	A	A	A	A	A	A	A	A	A	A	
		2	b	A	A	A	A	A	A	C	A	B	A	A	
		5	rt	A	A	A	A	A	A	A	A	A	A	A	
		5	b	A	A	A	A	A	A	C	A	B	A	A	
		10	rt	A	A	A	A	A	A	C	C	C	B	A	
		10	b	A	A	A	A	A	A	C	C	C	C	B	
		25	rt	A	A	A	A	A	A	C	C	C	B	A	
		25	b	A	A	A	A	A	A	C	C	C	C	B	
		50	rt	A	A	A	A	A	A	C	C	C	B	A	
		50	b	A	A	A	A	A	A	C	C	C	C	B	

Agent	Chemical Formula	Conc. (%)	Temp. (°C)	Oxide Ceramics			Graphite impregnated	PTFE	Viton	Perbunan	Neopren	Natural rubber	Butyl rubber	Hypalon
				F99,7 AL23	FZM	FZT								
		60	rt	A	A	A	A	A	A	C	C	C	B	A
		60	b	A	B	A	A	A	A	C	C	C	C	B
		77	rt	A	A	A	A	A	A	C	C	C	B	B
		77	b	B	C	B	C	A	A	C	C	C	C	C
		80	rt	A	A	A	A	A	A	C	C	C	B	B
		80	b	B	C	B	C	A	A	C	C	C	C	C
		85	rt	A	A	A	A	A	A	C	C	C	B	B
		85	b	B	C	B	C	A	A	C	C	C	C	C
		90	rt	A	A	A	B	A	A	C	C	C	B	B
		90	b	B	C	B	C	A	A	C	C	C	C	C
		96	rt	A	A	A	B	A	A	C	C	C	B	B
		96	b	B	C	B	C	A	A	C	C	C	C	C
Sulfuric acid	H ₂ SO ₃	sat.	rt	A	A	A	A	A	A	B	B	B	B	A
Sulfuric acid + nitric acid	H ₂ SO ₄ :HNO ₃	10:90	35	A	A	A	C	A	B	C	C	C	C	B
		30:70	35	A	A	A	C	A	B	C	C	C	C	B
		50:50	35	A	A	A	C	A	B	C	C	C	C	B
		60:40	35	A	A	A	C	A	B	C	C	C	C	B
		70:30	35	A	A	A	C	A	B	C	C	C	C	B
		80:20	35	A	A	A	A	A	A	C	C	C	C	B
		90:10	35	A	A	A	A	A	A	C	C	C	C	B
		99:1	35	A	A	A	A	A	A	C	C	C	C	B
Tannic acid	C ₇₆ H ₅₂ O ₄₄	10	rt	A	A	A		A	A	C	B	B	B	A
		10	b	A	A	A		A	A	C	B	B	B	A
		50	50	A	A	A		A	A	C	B	B	B	A
		50	b	A	A	A		A	A	C	B	B	B	A
Tartaric acid	C ₄ H ₆ O ₆	all	rt	A	A	A	A	A	A	A	A	A	A	A
		all	b	A	A	A	A	A	A	A	A	A	A	A
Tin chloride	SnCl ₂ , SnCl ₄	all	rt	A	A	A	A	A	A	A	A	A	A	A
		all	150	A	A	A	A	A	A	A	A	A	A	A
Trichloro ethylene	CHCl=CCl ₂		rt	A	A	A	A	A	B	C	C	C	C	C
Uric acid	C ₅ H ₄ N ₄ O ₃		rt	A	A	A	A	A	A	A	A	A	A	A
Zinc chloride	ZnCl ₂	10	rt	A	A	A	A	A	A	B	A	B	A	A
		10	b	A	A	A	A	A	A	B	A	B	A	A
		20	rt	A	A	A	A	A	A	B	A	B	A	A
		20	b	A	A	A	A	A	A	B	A	B	A	A
		60	rt	A	A	A	A	A	A	B	A	B	A	A
		60	b	A	A	A	A	A	A	B	A	B	A	A
		100	b	A	A	A	C	A	A	B	A	B	A	A

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