

# CHEMICAL RESISTANCE OF BELZONA® 2211

(FN 10143)



	Chemical name (Synonym)	Chemical formula (CAS number)	Concentration	20 °C 68 °F	Other
Inorganic Acids	Fluorosilicic acid (Dihydrogen hexafluorosilicate)	H <sub>2</sub> SiF <sub>6</sub> (16961-83-4)	-	P	-
	Hydrochloric acid	HCl (7647-01-0)	20%	P	-
			10%	Ex	-
	Nitric acid	HNO <sub>3</sub> (7697-37-2)	20%	P	-
10%			M	-	
Sulfuric acid	H <sub>2</sub> SO <sub>4</sub> (7664-93-9)	30%	G	-	
		20%	Ex	-	
		10%	Ex	-	
Organic Acids	Acetic acid (ethanoic acid)	CH <sub>3</sub> COOH (64-19-7)	10%	M	-
	Phenol (hydroxybenzene)	C <sub>6</sub> H <sub>5</sub> OH (108-95-2)	-	P	-
	Stearic acid	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>16</sub> CO <sub>2</sub> H (57-11-4)	-	Ex	-
	Tartaric acid	C <sub>4</sub> H <sub>6</sub> O <sub>6</sub> (526-83-0)	-	Ex	-
Alcohols, Aldehydes and Ketones	Acetone	(CH <sub>3</sub> ) <sub>2</sub> CO (67-64-1)	-	P	-
	Amyl alcohol (1-Pentanol)	C <sub>5</sub> H <sub>11</sub> OH (71-41-0)	-	P	-
	n-Butanol (butyl alcohol)	C <sub>4</sub> H <sub>9</sub> OH (71-36-3)	-	P	-
	Ethanol (ethyl alcohol)	CH <sub>3</sub> CH <sub>2</sub> OH (64-17-5)	-	P	-
	Ethylene glycol (ethan-1,2-diol, monoethylene glycol, MEG)	(CH <sub>2</sub> OH) <sub>2</sub> (107-21-1)	-	M	-
	Glycerol (glycerine, propane-1,2,3-triol)	HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH (56-81-5)	-	M	-
	Isopropyl alcohol (IPA) (isopropanol, propan-2-ol)	CH <sub>3</sub> CH(OH)CH <sub>3</sub> (67-63-0)	-	P	-
	Methanol (methyl alcohol)	CH <sub>3</sub> OH (67-56-1)	-	P	-
	Methyl ethyl ketone (MEK, butanone)	CH <sub>3</sub> C(O)CH <sub>2</sub> CH <sub>3</sub> (78-93-3)	-	P	-
	Propan-1-ol (Propyl alcohol)	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> OH (71-23-8)	-	P	-
Amines and Amides	(Diethanolamine (DEA) 2,2'-iminodiethanol)	HN(CH <sub>2</sub> CH <sub>2</sub> OH) <sub>2</sub> (111-42-2)	-	Ex	-
	N-Methyl diethanolamine (MDEA)	CH <sub>3</sub> N(CH <sub>2</sub> CH <sub>2</sub> OH) <sub>2</sub> (105-59-9)	-	Ex	-
	Monoethanolamine (MEA) (2-aminoethanol)	H <sub>2</sub> NCH <sub>2</sub> CH <sub>2</sub> OH (141-43-5)	-	Ex	-

Excellent	Ex	no significant deterioration / barrier properties retained for greater than 52 weeks <i>suitable for all applications including long term immersion</i>
Good	G	no significant deterioration / barrier properties retained for 12 - 52 weeks <i>suitable for short-term immersion and general chemical contact</i>
Moderate	M	no significant deterioration / barrier properties retained for 1 - 12 weeks <i>suitable for applications involving short term chemical contact e.g. spillage, splashing or secondary containment</i>
Poor	P	significant deterioration / loss of barrier properties after 1 week or less <i>not suitable for any application</i>
Ex		<b>Bold text</b> highlights real life data obtained via chemical resistance testing
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Alkalies	Ammonia	NH <sub>3</sub> (7664-41-7)	25%	G	-
	Barium hydroxide	Ba(OH) <sub>2</sub> (17194-00-2)	-	Ex	
	Calcium hydroxide (lime water)	Ca(OH) <sub>2</sub> (1305-62-0)	-	Ex	
	Magnesium hydroxide (milk of magnesia)	Mg(OH) <sub>2</sub> (1309-42-8)	-	Ex	
	Potassium hydroxide (caustic potash)	KOH (1310-58-3)	20%	Ex	-
	Sodium hydroxide (caustic soda)	NaOH (1310-73-2)	50% 20%	Ex Ex	- -
Gases	Carbon dioxide (dry)	CO <sub>2</sub> (124-38-9)	-	Ex	-
	Carbon monoxide	CO (630-08-0)	-	Ex	-
	Hydrogen	H <sub>2</sub> (1333-74-0)	-	Ex	-
	Nitrogen	N <sub>2</sub> (7727-37-9)	-	Ex	-
Hydrocarbons	Aviation fuel (AVCAT, AVGAS, AVTAG, AVTUR)	N/A	-	G	-
	Benzene (benzol)	C <sub>6</sub> H <sub>6</sub> (71-43-2)	-	P	-
	Crude oil	N/A	-	G	-
	Gasoline (petrol)	N/A (8032-32-4)	-	P	-
	Heptane	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> (142-82-5)	-	M	-
	Hexane	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> (110-54-3)	-	M	-
	Kerosene	N/A (8008-20-6)	-	G	-
	Mineral Spirits / White Spirits (Turpentine, Stoddards Solvent)	N/A (8052-41-3)	-	G	-
	Paraffin wax	N/A (8002-74-2)	-	G	-
	Petrolatum (Petroleum jelly)	N/A (8009-03-8)	-	G	-
	Toluene (methylbenzene, phenylmethane, toluol)	C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub> (108-88-3)	-	P	-
	Xylene (dimethyl benzene, xylol)	C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub> (95-47-6/108-38-3/106-42-3/1330-20-7)	-	P	-

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Miscellaneous	Brake fluid	N/A		M	-
	Emulsion paint	N/A		Ex	-
	Fertilizer solutions	N/A		Ex	-
	Grease	N/A		Ex	-
	Ink (water based)	N/A		Ex	-
	Mercury	Hg (7439-97-6)		Ex	-
	Rubber latex emulsions	N/A		Ex	-
	Silicone oil	N/A		Ex	-
	Starch	N/A		Ex	-
	Water <i>Deionised, Fresh, Mineral, Sea</i>	H <sub>2</sub> O (7732-18-5)	-	Ex	-
	Water/Oil Mixtures	N/A	-	Ex	-
	Wax emulsions	N/A	-	Ex	-
Oils - Mineral	Bunker oil	N/A	-	G	-
	Diesel oil	N/A	-	G	-
	Fuel oil	N/A	-	G	-
	Hydraulic oil	N/A	-	G	-
	Lube oil	N/A	-	G	-
	Petroleum oil	N/A	-	G	-
	Transformer oil	N/A	-	G	-

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Oils – Vegetable/Animal	Castor oil	N/A	-	G	-
	Coconut oil	N/A	-	G	-
	Cod liver oil	N/A	-	G	-
	Corn oil	N/A	-	G	-
	Cottonseed oil	N/A	-	G	-
	Lard oil	N/A	-	G	-
	Linseed oil	N/A	-	G	-
	Olive oil	N/A	-	G	-
	Palm oil	N/A	-	G	-
	Pine oil	N/A	-	G	-
	Soybean oil	N/A	-	G	-
	Tall oil	N/A	-	G	-
	Tung oil	N/A	-	G	-
Salts	Aluminium chloride	AlCl <sub>3</sub> (7446-70-0)	-	Ex	-
	Aluminium sulphate	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> (10043-01-3)	-	Ex	-
	Ammonium bicarbonate	(NH <sub>4</sub> )HCO <sub>3</sub> (1066-33-7)	-	Ex	-
	Ammonium carbonate	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> (506-87-6)	-	Ex	-
	Ammonium chloride	NH <sub>4</sub> Cl (12125-02-9)	-	Ex	-
	Ammonium phosphate	(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> (10361-65-6)	-	Ex	-
	Ammonium nitrate	NH <sub>4</sub> NO <sub>3</sub> (6484-52-2)	-	Ex	-
	Ammonium sulfate	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> (7783-20-2)	-	G	-

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Salts	Barium carbonate	BaCO <sub>3</sub> (513-77-9)	-	Ex	-
	Barium chloride	BaCl <sub>2</sub> (10361-37-2)	-	Ex	-
	Barium sulfate	BaSO <sub>4</sub> (7727-43-7)	-	Ex	-
	Calcium carbonate	CaCO <sub>3</sub> (471-34-1)	-	Ex	-
	Calcium chloride	CaCl <sub>2</sub> (10043-52-4)	-	Ex	-
	Calcium hypochlorite	Ca(ClO) <sub>2</sub> (7778-54-3)	10%	M	-
	Calcium sulphate	CaSO <sub>4</sub> (7778-18-9)	-	Ex	-
	Copper acetate	Cu(CH <sub>3</sub> COO) <sub>2</sub> (142-71-2)	-	Ex	-
	Copper chloride	CuCl <sub>2</sub> (7447-39-4)	-	Ex	-
	Copper nitrate	Cu(NO <sub>3</sub> ) <sub>2</sub> (3251-23-8)	-	Ex	-
	Copper sulphate	CuSO <sub>4</sub> (7758-98-7)	-	Ex	-
	Ferric chloride	FeCl <sub>3</sub> (7705-08-0)	-	M	-
	Ferrous chloride	FeCl <sub>2</sub> (7758-94-3)	-	M	-
	Ferric sulphate	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> (10028-22-5)	-	M	-
	Ferrous sulfate	FeSO <sub>4</sub> (7720-78-7)	-	M	-
	Lead acetate	Pb(CH <sub>3</sub> COO) <sub>2</sub> (301-04-2)	-	Ex	-
	Magnesium chloride	MgCl <sub>2</sub> (7786-30-3)	-	Ex	-
	Magnesium sulphate (Epsom salt)	MgSO <sub>4</sub> (7487-88-9)	-	Ex	-
	Nickel chloride	NiCl <sub>2</sub> (7718-54-9)	-	Ex	-
	Potassium bromide	KBr (7758-02-3)	-	Ex	-
Potassium chlorate	KClO <sub>3</sub> (3811-04-9)	-	Ex	-	

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<b>Salts</b>	Potassium chloride	KCl (7447-40-7)	-	Ex	-
	Potassium cyanide	KCN (151-50-8)	-	Ex	-
	Potassium ferrocyanide	K <sub>4</sub> [Fe(CN) <sub>6</sub> ] (13943-58-3)	-	Ex	-
	Potassium iodide	KI (7681-11-0)	-	Ex	-
	Potassium nitrate	KNO <sub>3</sub> (7757-79-1)	-	Ex	-
	Potassium permanganate	KMnO <sub>4</sub> (7722-64-7)	-	Ex	-
	Potassium sulfate	K <sub>2</sub> SO <sub>4</sub> (7778-80-5)	-	Ex	-
	Silver nitrate	AgNO <sub>3</sub> (7761-88-8)	-	Ex	-
	Sodium acetate	CH <sub>3</sub> COONa (127-09-3)	-	Ex	-
	Sodium borate (borax)	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> (1303-96-4)	-	Ex	-
	Sodium bromide	NaBr (7647-15-6)	-	Ex	-
	Sodium chlorate	NaClO <sub>3</sub> (7775-09-9)	-	Ex	-
	Sodium chloride	NaCl (7647-14-5)	-	Ex	-
	Sodium chromate	Na <sub>2</sub> CrO <sub>4</sub> (7775-11-3)	-	Ex	-
	Sodium cyanide	NaCN (143-33-9)	-	Ex	-
	Sodium fluoride	NaF (7681-49-4)	-	Ex	-
	Sodium hypochlorite (bleach)	NaClO (7681-52-9)	12%	M	-
	Sodium nitrate	NaNO <sub>3</sub> (7631-99-4)	-	Ex	-
	Sodium phosphate (dibasic)	Na <sub>2</sub> HPO <sub>4</sub> (7558-79-4)	-	Ex	-
Sodium phosphate (tribasic)	Na <sub>3</sub> PO <sub>4</sub> (7601-54-9)	-	Ex	-	
Sodium silicate	Na <sub>2</sub> SiO <sub>3</sub> (6834-92-0)	-	Ex	-	

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Salts	Sodium sulphate	Na <sub>2</sub> SO <sub>4</sub> (7757-82-6)	-	Ex	-
	Sodium sulphide	Na <sub>2</sub> S (1313-82-2)	-	Ex	-
	Stannous chloride (tin chloride)	SnCl <sub>2</sub> (7772-99-8)	-	Ex	-
	Zinc chloride	ZnCl <sub>2</sub> (7646-85-7)	-	Ex	-
	Zinc sulfate	ZnSO <sub>4</sub> (7733-02-0)	-	Ex	-

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The technical data contained herein is based on the results of long term tests carried out in our laboratories and to the best of our knowledge is true and accurate on the date of publication. It is however, subject to change without prior notice and the user should contact Belzona to verify the technical data is correct before specifying or ordering. No guarantee of accuracy is given or implied. We assume no responsibility for rates of coverage, performance or injury resulting from use. Liability, if any, is limited to the replacement of products. No other warranty or guarantee of any kind is made by Belzona, express or implied, whether statutory, by operation of law or otherwise, including merchantability or fitness for a particular purpose. Nothing in the foregoing statement shall exclude or limit any liability of Belzona to the extent such liability cannot by law be excluded or limited.