

CHEMICAL RESISTANCE OF BELZONA® 4331

FN10085



	Chemical name	Chemical Formula (CAS number)	Concentration	Suitable for 72 hours chemical exposure at:			Service at:		
				20°C (68°F)	40°C (104°F)	90°C (194°F)	20°C (68°F)	40°C (104°F)	90°C (194°F)
Inorganic acids	Hydrochloric acid	HCl (7647-01-0)	37%	Yes	Yes	Yes*	Ex	Ex	M*
			25%	Yes	Yes	Yes*	Ex	Ex	M*
			15%	Yes	Yes	Yes*	Ex	Ex	M*
			5%	Yes	Yes	Yes*	Ex	Ex	M*
	Nitric Acid	HNO ₃ (7697-37-2)	70%	No	No	No	P	P	P
			50%	Yes*	No	No	M*	P	P
			40%	Yes*	Yes*	No	G*	M*	P
			30%	Yes*	Yes*	No	Ex*	M*	P
			15%	Yes*	Yes*	No	Ex*	Ex*	P
	5%	Yes*	Yes*	No	Ex*	Ex*	P		
	Phosphoric acid (Orthophosphoric acid)	H ₃ PO ₄ (7664-38-2)	85%	Yes	Yes	No	Ex	Ex	P
			50%	Yes	Yes	No	Ex	Ex	P
			25%	Yes	Yes	No	Ex	Ex	P
			15%	Yes	Yes	Yes*	Ex	Ex	M*
	Sulphuric acid	H ₂ SO ₄ (7664-93-9)	98%	Yes	Yes	No	Ex*	Ex*	P
			75%	Yes	Yes	Yes*	Ex	Ex	M*
50%			Yes	Yes	Yes*	Ex	Ex	M*	
25%			Yes	Yes	Yes*	Ex	Ex	M*	
10%			Yes	Yes	Yes*	Ex	Ex	M*	
5%	Yes	Yes	No	Ex	Ex	P			
Organic acids	Acetic Acid (Ethanoic acid)	CH ₃ COOH (64-19-7)	100%	Yes*	No	No	M*	P	P
			50%	Yes*	No	No	M*	P	P
			25%	Yes*	Yes*	No	Ex*	M*	P
			15%	Yes*	Yes*	Yes*	Ex*	Ex*	M*
			5%	Yes*	Yes*	Yes*	Ex*	Ex*	M*
			1%	Yes*	Yes*	Yes	Ex*	Ex*	M
	0.1%	Yes*	Yes*	Yes	Ex*	Ex*	M		
	Acrylic acid	C ₃ H ₄ O ₂ (79-10-7)	100%	Yes	Yes	No	M	M	P
	Citric acid	C ₆ H ₈ O ₇ (77-92-9)	50%	Yes	Yes	Yes	Ex	Ex	M
	Formic acid (Methanoic acid)	CHOOH (64-18-6)	90%	No	No	No	P	P	P
			20%	No	No	No	P	P	P
Lactic acid (2-hydroxypropanoic acid)	C ₃ H ₆ O ₃ (50-21-5/79-33-4/10326-41-7)	85%	Yes	No	No	M	P	P	
Methacrylic acid	C ₄ H ₆ O ₂ (79-41-4)	100%	Yes	Yes	-	Ex*	G*	-	

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 applications</i>
*		Product must be post cured to deliver quoted chemical resistance. As for general guidance, the coating should be subjected to the following conditions as a minimum; 1hr at 100 °C/2hrs at 90 °C/4hrs at 80 °C/8hrs at 70 °C/16hrs at 60 °C. For specific recommendations, please contact Belzona.
Ex		Bold text highlights real life data obtained via chemical resistance testing
Ex		Normal font indicates that the resistance has been predicted based upon partial test data and /or similar reagents
Note:		Chemical resistance ratings are assigned based on the ability of a Belzona product to resist chemical attack and/or protect the underlying substrate. Belzona cannot guarantee the purity of the chemical, appearance or colour stability following contact.

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Alkalis	Ammonia Solution	NH ₃ (7664-41-7)	25%	Yes	Yes	Yes	G	M	M
	Sodium Hydroxide	NaOH (1310-73-2)	40% 10%	Yes* Yes*	Yes* Yes*	Yes* Yes*	M* M*	M* M*	M* M*
	Sodium Hypochlorite solution	NaClO (7681-52-9)	12%	Yes*	Yes*	-	M*	M*	-
Hydrocarbons	Acetone	C ₃ H ₆ O (67-64-1)	100%	Yes*	Yes*	-	M*	M*	-
	Crude Oil	N/A (8002-05-9)	100%	Yes	Yes	Yes	Ex	Ex	Ex
	Dimethylformamide	C ₃ H ₇ NO (68-12-2)	100%	No	No	No	P	P	P
	Ethanol (Ethyl alcohol)	CH ₃ CH ₂ OH (64-17-5)	100%	Yes	Yes	-	Ex	G	-
	Kerosene	N/A (8008-20-6)	100%	Yes	Yes	-	Ex	Ex	-
	Methanol (Methyl alcohol)	CH ₃ OH (67-56-1)	100%	Yes	Yes	-	G	G	-
	Methylene Chloride (Dichloromethane)	CH ₂ Cl ₂ (75-09-2)	100%	Yes*	Yes*	-	M*	M*	-
	Methyl ethyl ketone (MEK, butanone)	C ₄ H ₈ O (78-93-3)	100%	Yes	Yes	-	Ex	G	-
	Trimethylbenzene	C ₉ H ₁₂ (108-67-8)	100%	Yes*	Yes*	Yes*	G*	G*	M*
Amines and Amides	2-(2-Aminoethoxy)ethanol (DGA)	H ₂ NCH ₂ CH ₂ OCH ₂ CH ₂ OH (929-06-6)	100%	Yes	Yes	Yes	G	M	M
	Diethylenetriamine (DETA)	HN(CH ₂ CH ₂ NH ₂) ₂ (111-40-0)	100%	Yes	No	No	M	P	P
	Ethanolamine (MEA)	H ₂ NCH ₂ CH ₂ OH (141-43-5)	100%	Yes	Yes	Yes	Ex	Ex	M

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Other	Aluminium Sulphate	Al ₂ (SO ₄) ₃ (10043-01-3)	36%	Yes	Yes	-	Ex	Ex	-
	Ferric Chloride	FeCl ₃ (7705-08-0)	91%	Yes	Yes	-	Ex	Ex	-
	Ferrous Sulphate	FeSO ₄ (7720-78-7)	29%	Yes	Yes	-	Ex	Ex	-
	Hydrogen peroxide	H ₂ O ₂ (7722-84-1)	6%	Yes*	Yes*	-	G*	M*	-
	Potassium permanganate	KMnO ₄ (7722-64-7)	10%	Yes*	No	-	M*	P	-
	Sodium Nitrate	NaNO ₃ (7631-99-4)	91%	Yes	Yes	-	Ex	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.