BELZONA® PRODUCT DATA Q502

CHEMICAL RESISTANCE OF BELZONA® 4311

(Magma CR1)

INORGANIC ACIDS	RATING		RATING
Carbonic acid	Ex	Nitrous acid (20%)	Ex
Chromic acid (10%)	Ex	Oleum (30% SO_3)	G*
Chromic acid (40%)	F	Perchloric acid (60%)	Ex
Fluorosilicic acid (10%)	Ex	Phosphoric acid (10%)	Ex
Fluorosilicic acid (30%)	Ex	Phosphoric acid (30%)	Ex
Hydrobromic acid (10%)	Ex	Phosphoric acid (85%)	G*
Hydrobromic acid (40%)	Ex	Sulfuric acid (10%)	Ex
Hydrochloric acid (10%)	Ex	Sulfuric acid (20%)	Ex
Hydrochloric acid (36%)	Ex	Sulfuric acid (50%)	Ex
Nitric acid (10%)	Ex	Sulfuric acid (98%)	Ex
Nitric acid (30%)	F	Sulfuric acid (100%)	P
Nitric acid (65%)	P	Sulfurous acid (6%)	Ex

ORGANIC ACIDS	RATING		RATING
Acetic acid (0-10%)	Ex	Lactic acid (0-10%)	Ex
Acetic acid (10-20%)	F	Lactic acid (10-85%)	G*
Acetic acid (20-50%)	P	Maleic acid	Ex
Acrylic acid	F	Phenol (80%)	F*
Chlorosulfonic acid	G	Salicylic acid	Ex
Citric acid	Ex	Stearic acid (solid)	Ex
Cresylic acid	G	Tannic acid	Ex
Folic acid	Ex	Tartaric acid	Ex
Formic acid (20%)	Ex		

ALCOHOLS	RATING		RATING
Butanol	Ex	Isobutanol	Ex
Cellosolve	Ex	Methanol	G
Ethanol	Ex	2-Methoxy ethanol	Ex
Ethylene glycol	Ex	Propylene glycol	Ex
Glycerol	Ex		
Hexanol	Ex		

*** Post curing essential**

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.

Copyright © 2012 Belzona International Limited. Belzona® is a registered trademark.

ALKALIS	RATING		RATING
Ammonia solution (0-10%)	Ex	Potassium hydroxide (10%)	Ex
Ammonia solution (10-30%)	Ex	Potassium hydroxide (20%)	Ex
Calcium hydroxide	Ex	Sodium hydroxide (10%)	Ex
Lime	Ex	Sodium hydroxide (40%)	Ex
		Sodium hydroxide (50%)	Ex

AMINES & AMIDES	RATING		RATING
Aniline	Ex*	Hydrazine	Ex*
Dibutylamine	G*	Methylamine (40% aqueous)	Ex*
Diethanolamine	Ex	Methylamine gas	Ex
Diethylenetriamine	F	Pyridine	F*
Dimethylamine	F	Triethanolamine	Ex*
Dimethylformamide	P	Triethylenetetramine	G*

BEVERAGES & FOODSTUFFS	RATING		RATING
Apple juice	Ex	Mayonnaise	Ex
Beer	Ex	Milk	Ex
Beet sugar	Ex	Molasses	Ex
Butter	Ex	Mustard	Ex
Buttermilk	Ex	Salad Oil	Ex
Cider	Ex	Sugar liquids	Ex
Citric juice	Ex	Tomato juice	Ex
Fermentation liquor	Ex	Vinegar	Ex
Glucose	Ex	Whiskey and Wine	Ex
Ketchup	Ex	Yeast	Ex
Margarine	Ex		

ESTERS & ETHERS	RATING		RATING
Amyl acetate	Ex	Dioctyl phthalate	Ex
Butyl acetate	Ex	Dioctyl sebacate	Ex
Butyl ether	Ex	Ethyl acetate	Ex
Dibutyl phthalate	Ex	Methyl acetate	Ex
Dibutyl sebacate	Ex	Propylene glycol monomethyl ether acetate	Ex
Diethyl ether	Ex	Tributyl phosphate	Ex
Dioctyl adipate	Ex		

GASES	RATING		RATING
Butane	Ex	Methane	Ex
Carbon dioxide	Ex	Natural gas	Ex
Carbon monoxide	Ex	Nitrous oxide	Ex
Chlorine gas	G	Ozone (aqueous solution)	G
Hydrogen gas	Ex	Sulfur dioxide	Ex
Hydrogen sulfide	Ex	Sulfur trioxide	Ex

*** Post curing essential**

© 2012 Belzona International Limited. All rights reserved.

HALOCARBONS	RATING		RATING
Carbon tetrachloride	Ex	Methylene chloride	F*
Chlorobenzene	Ex	Perchloroethylene	Ex
Chloroform	F*	1, 1, 1, - Trichloroethane	Ex
Ethylene dichloride	Ex*	Trichlorotrifluoroethane	Ex

HYDROCARBONS	RATING		RATING
Benzene	Ex	Naphtha	Ex
Cyclohexane	Ex	Paraffin	Ex
Ethane	Ex	Petroleum naphtha	Ex
Gasoline	Ex	Stoddard solvent	Ex
Heptane	Ex	Styrene	Ex
Hexane	Ex	Toluene	Ex
Iso-octane	Ex	Turpentine	Ex
Kerosene	Ex	White spirit	Ex
Mineral spirits	Ex	Xylene	Ex

KETONES	RATING		RATING
Acetone	F	Methyl amyl ketone	Ex
Formaldehyde (37%)	Ex	Methyl ethyl ketone	F

MISCELLANEOUS	RATING		RATING
Bleach	G	Naphthalene	Ex
Brake Fluid	Ex	Pyrrole	F
Bromine water (saturated)	G	Resins & rosins (natural)	Ex
Carbon disulfide	G	Roof pitch	Ex
Chlorine water (saturated)	G	Rubber latex emulsions	Ex
Dimethyl sulfoxide	NT	Sewage	Ex
Emulsion paint	Ex	Skydrol	Ex
Ethylethoxypropionate	Ex	Starch	Ex
Fertilizer solutions	Ex	Tar	Ex
Grease	Ex	Tetraethyl lead	Ex
Hydrogen peroxide (35%)	G*	Tetrahydrofuran	G*
Hydrogen peroxide (60%)	P	Urea	Ex
Ink (water based)	Ex	Water, fresh	Ex
Isothiazolinone	Ex	Water, sea	Ex
Mesitylene	Ex	Water, distilled	Ex
N-Methylpyrrolidone	F		

OILS - MINERAL	RATING		RATING
Castor oil	Ex	Oil, petroleum	Ex
Coconut oil	Ex	Oil/water mixtures	Ex
Cod liver oil	Ex	Silicone oil	Ex
Corn oil	Ex	Soybean oil	Ex
Diesel oil	Ex	Transfer oil	Ex
Hydraulic oil	Ex	Tung oil	Ex
Lubricating oil	Ex		

*** Post curing essential**

© 2012 Belzona International Limited. All rights reserved.

SALTS	RATING		RATING
Alum	Ex	Potassium chlorate	Ex
Aluminium chloride	Ex	Potassium chloride	Ex
Aluminium sulfate	Ex	Potassium cyanide	Ex
Ammonium bicarbonate	Ex	Potassium dichromate	Ex
Ammonium fluorosilicate	Ex	Potassium diphosphate	Ex
Ammonium nitrate	Ex	Potassium ferricyanide	Ex
Ammonium phosphate	Ex	Potassium ferrocyanide	Ex
Ammonium sulfate	Ex	Potassium iodide	Ex
Barium carbonate	Ex	Potassium nitrate	Ex
Barium chloride	Ex	Potassium permanganate	Ex
Barium sulfate	Ex	Potassium sulfate	Ex
Barium sulfide	Ex	Potassium sulfide	Ex
Brines	Ex	Potassium sulfite	Ex
Bromine chloride	Ex	Quaternary ammonium salts	Ex
Calcium carbonate	Ex	Silver nitrate	Ex
Calcium chloride	Ex	Sodium acetate	Ex
Calcium fluoride	Ex	Sodium aluminate	Ex
Calcium hypochlorite	Ex	Sodium bicarbonate	Ex
Calcium sulfate	Ex	Sodium bisulfate	Ex
Chromium potassium sulfate	Ex	Sodium bisulfite	Ex
Copper acetate	Ex	Sodium borate	Ex
Copper chloride	Ex	Sodium bromide	Ex
Copper nitrate	Ex	Sodium carbonate	Ex
Copper sulfate	Ex	Sodium chlorate	Ex
Epsom salts	Ex	Sodium chloride	Ex
Ferric chloride	Ex	Sodium chromate	Ex
Ferric nitrate	Ex	Sodium cyanide	Ex
Ferric sulfate	Ex	Sodium fluoride	Ex
Ferrous chloride	Ex	Sodium fluorosilicate	Ex
Ferrous sulfate	Ex	Sodium hypochlorite (15%)	G
Magnesium bisulfate	Ex	Sodium metaphosphate	Ex
Magnesium carbonate	Ex	Sodium metasilicate	Ex
Magnesium chloride	Ex	Sodium nitrate	Ex
Magnesium sulfate	Ex	Sodium phosphate (dibasic)	Ex
Mercuric chloride	Ex	Sodium phosphate (tribasic)	Ex
Mercuric cyanide	Ex	Sodium silicate	Ex
Nickel ammonium sulfate	Ex	Sodium sulfate	Ex
Nickel chloride	Ex	Sodium sulfide	Ex
Nickel nitrate	Ex	Stannic chloride	Ex
Nickel sulfate	Ex	Stannous chloride	Ex
Potassium bisulfite	Ex	Zinc chloride	Ex
Potassium bromide	Ex	Zinc hydrosulfite	Ex
Potassium carbonate	Ex	Zinc sulfate	Ex

*** Post curing essential**

© 2012 Belzona International Limited. All rights reserved.

These tables are based upon immersion tests carried out under static conditions at 68°F (20°C).

They should only be considered as a guide to the performance which might be expected under practical conditions.

In these tables, the following nomenclature has been used:-

(Ex)	Excellent	-	Suitable for all reasonable applications including immersion
(G)	Good	-	Suitable for applications involving immersion for short periods, splashing and contact with fumes.
(F)	Fair	-	Suitable for use in environments contaminated by the chemical or in situations where accidental splashing can be removed either by cleaning or, in the case of volatile solvents, by evaporation.
(P)	Poor	-	Not suitable for any applications involving contact with the chemical itself or fumes evolved from it.

Post Curing** - ***Allow Belzona® 4311 to solidify for 12 hours at 68°F (20°C) then force cure at 180°F (80°C) for 4 hours.

© 2012 Belzona International Limited. All rights reserved.

ISO 9001:2008
Q 09335
ISO 14001:2004
EMS 509612

Belzona Polymerics Ltd.,
Claro Road, Harrogate,
HG1 4DS, England.
Tel: +44 (0) 1423 567641
Fax: +44 (0) 1423 505967
E-mail: belzona@belzona.co.uk

Belzona Inc.,
2000 N.W. 88 Court, Miami,
Florida 33172, U.S.A.
Tel: +1 (305) 594 4994
Fax: +1 (305) 599 1140
E-mail: belzona@belzona.com

BELZONA®
Repair • Protect • Improve