# BELZONA® PRODUCT DATA Q503

## CHEMICAL RESISTANCE OF BELZONA® 4111

## (Magma-Quartz)

| INORGANIC ACIDS | RATING | | RATING |
|---|---|---|---|
| Carbonic acid | Ex | Nitrous acid (20%) | Ex |
| Chromic acid (10%) | F | Oleum (20-65% $SO_3$) | P |
| Chromic acid (40%) | P | Perchloric acid (60%) | P |
| Fluorosilicic acid (10%) | G | Phosphoric acid (10%) | G |
| Fluorosilicic acid (30%) | F | Phosphoric acid (30%) | G |
| Hydrobromic acid (10%) | Ex | Phosphoric acid (85%) | P |
| Hydrobromic acid (40%) | G | Sulfuric acid (10%) | Ex |
| Hydrochloric acid (10%) | Ex | Sulfuric acid (20%) | Ex |
| Hydrochloric acid (36%) | Ex | Sulfuric acid (50%) | G |
| Hydrofluoric acid (52%) | F | Sulfuric acid (98%) | P |
| Nitric acid (10%) | G | Sulfuric acid (100%) | P |
| Nitric acid (30%) | P | Sulfurous acid (6%) | Ex |
| Nitric acid (65%) | P | | |

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

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



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%) | G | Potassium hydroxide (20%) | Ex |
| Calcium hydroxide | Ex | Sodium hydroxide (10%) | Ex |
| Lime | Ex | Sodium hydroxide (40%) | Ex |

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

| 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 | G | Vinegar | G |
| Glucose | Ex | Whiskey and Wine | Ex |
| Ketchup | Ex | Yeast | Ex |
| Margarine | Ex | | |

| ESTERS & ETHERS | RATING | | RATING |
|---|---|---|---|
| Amyl acetate | F | Dioctyl phthalate | Ex |
| Butyl acetate | F | Dioctyl sebacate | Ex |
| Butyl ether | Ex | Ethyl acetate | F |
| Dibutyl phthalate | Ex | Methyl acetate | F |
| Dibutyl sebacate | Ex | Propylene glycol monomethyl ether acetate | G |
| 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) | P |
| Hydrogen gas | Ex | Sulfur dioxide | Ex |
| Hydrogen sulfide | Ex | Sulfur trioxide | Ex |


**© 2012 Belzona International Limited. All rights reserved.**

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

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

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

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

| 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 | | |


**© 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%) | F |
| 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 |


**© 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. |


**© 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