CHEMICAL RESISTANCE OF BELZONA® 1981, 1982, 1983 & 1984

FN10168, FN10169, FN10170 & FN10228

	Chemical name	Chemical formula (CAS number)	Concentration	20 ˚C 68 ˚F				90°C 194°F
				Belzona 1981	Belzona 1982	Belzona 1983	Belzona 1984	Belzona 1983
Inorganic Acids	Hydrochloric acid	HCl (7647-01-0)	37%	Ex	G*	Ex*	P	M*
			20%	Ex	Ex	Ex*	M	M*
			10%	Ex	Ex	Ex*	G	G*
	Nitric acid	HNO_3 (7697-37-2)	50%	P	P*	M*	P	P*
			20%	M	G*	Ex*	G	P*
			10%	Ex	Ex	Ex*	G	P*
	Phosphoric acid (orthophosphoric acid)	H_3PO_4 (7664-38-2)	30%	Ex	G*	Ex*	P	P*
			20%	Ex	Ex*	Ex*	P	P*
			10%	Ex	Ex*	M*	P	M*
			5%	Ex	Ex*	Ex*	M	M*
			2%	Ex	M	Ex*	M	M*
	Sulphuric acid	H_2SO_4 (7664-93-9)	90%	G	G*	Ex*	P	P*
			70%	Ex	Ex	Ex*	M	P*
			40%	Ex	Ex	Ex*	M	M*
			20%	Ex	Ex	Ex*	G	G*
			10%	Ex	Ex	Ex*	Ex	P*
Organic Acids	Acetic acid (ethanoic acid)	CH_3COOH (64-19-7)	50%	P	P*	M*	P	P*
			10%	P	M*	G*	P	P*
			5%	G	M	Ex*	P	M*
			2%	G	M	Ex*	M	G*
			1%	G	G	Ex*	M	G
			0.1%	Ex	Ex	Ex*	G	G

Excellent **Ex**	no significant deterioration / barrier properties retained for greater than 52 weeks *suitable for all applications including long term immersion*
Good **G**	no significant deterioration / barrier properties retained for 12 - 52 weeks *suitable for short-term immersion and general chemical contact*
Moderate **M**	no significant deterioration / barrier properties retained for 1 - 12 weeks *suitable for applications involving short term chemical contact e.g. spillage, splashing or secondary containment*
Poor **P**	significant deterioration / loss of barrier properties after 1 week or less *not suitable for any application*
*	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.

CHEMICAL RESISTANCE OF BELZONA® 1981, 1982, 1983 & 1984

FN10168, FN10169, FN10170 & FN10228

	Chemical name	Chemical formula (CAS number)	Concentration	20 ˚C 68 ˚F				90°C 194°F
				Belzona 1981	Belzona 1982	Belzona 1983	Belzona 1984	Belzona 1983
Alcohols, Aldehydes and Ketones	Acetone (propanone)	$(CH_3)_2CO$ (67-64-1)	-	**G**	**Ex**	**Ex***	**P**	-
	n-Butanol (butyl alcohol)	C_4H_9OH (71-36-3)	-	**Ex**	**Ex**	**Ex***	**M**	Ex*
	Ethanol (ethyl alcohol)	CH_3CH_2OH (64-17-5)	-	**Ex**	**Ex**	**Ex***	P	-
	Ethylene glycol (ethan-1,2-diol, monoethylene glycol, MEG)	$(CH_2OH)_2$ (107-21-1)	-	**Ex**	**Ex**	**Ex***	**Ex**	**Ex***
	Glycerol (glycerine, propane-1,2,3-triol)	$HOCH_2CH(OH)CH_2OH$ (56-81-5)	-	Ex	Ex	Ex*	Ex	Ex*
	n-Hexanol (hexyl alcohol)	$C_6H_{13}OH$ (111-27-3)	-	Ex	Ex	Ex*	G	Ex*
	Isopropyl alcohol (IPA) (isopropanol, propan-2-ol)	$CH_3CH(OH)CH_3$ (67-63-0)	-	**Ex**	**Ex**	**Ex***	**Ex**	-
	Isobutyl alcohol (IBA) (isobutanol, 2-methylpropan-1-ol)	$(CH_3)_2CHCH_2OH$ (78-83-1)	-	Ex	Ex	Ex*	Ex	Ex*
	Methanol (methyl alcohol)	CH_3OH (67-56-1)	-	**G**	**G**	**Ex***	**P**	-
	Methanol solution (aqueous)	$CH_3OH_{(aq)}$ (67-56-1)	55%	G	G	**Ex***	P	**Ex***
	Methyl ethyl ketone (MEK) (2-butanone, methyl acetone)	$CH_3C(O)CH_2CH_3$ (78-93-3)	-	**Ex**	**Ex**	**Ex***	**P**	-
	Propan-1-ol (Propyl alcohol)	$CH_3CH_2CH_2OH$ (71-23-8)	-	Ex	Ex	Ex*	**M**	Ex*
	Propylene glycol (1,2-Propanediol)	$CH_3CH(OH)CH_2OH$ (57-55-6)	-	**Ex**	**Ex**	**Ex***	**Ex**	Ex*
	Triethylene glycol (triglycol)	$HOCH_2CH_2OCH_2CH_2OCH_2CH_2OH$ (112-27-6)	-	Ex	Ex	Ex*	Ex	Ex*
	Tetraethylene glycol (tetraglycol)	$HOCH_2CH_2OCH_2CH_2OCH_2CH_2OCH_2CH_2OH$ (112-60-7)	-	Ex	Ex	Ex*	Ex	Ex*

Excellent **Ex**	no significant deterioration / barrier properties retained for greater than 52 weeks *suitable for all applications including long term immersion*
Good **G**	no significant deterioration / barrier properties retained for 12 - 52 weeks *suitable for short-term immersion and general chemical contact*
Moderate **M**	no significant deterioration / barrier properties retained for 1 - 12 weeks *suitable for applications involving short term chemical contact e.g. spillage, splashing or secondary containment*
Poor **P**	significant deterioration / loss of barrier properties after 1 week or less *not suitable for any application*
*	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.

CHEMICAL RESISTANCE OF BELZONA® 1981, 1982, 1983 & 1984

FN10168, FN10169, FN10170 & FN10228

	Chemical name	Chemical formula (CAS number)	Concentration	20 °C 68 °F				90°C 194°F
				Belzona 1981	Belzona 1982	Belzona 1983	Belzona 1984	Belzona 1983
Alkalis / Bases	Barium hydroxide	$Ba(OH)_2$ (17194-00-2)	-	Ex	Ex	Ex*	Ex	Ex*
	Calcium hydroxide (lime water)	$Ca(OH)_2$ (1305-62-0)	-	Ex	Ex	Ex*	Ex	Ex*
	Magnesium hydroxide (milk of magnesia)	$Mg(OH)_2$ (1309-42-8)	-	Ex	Ex	Ex*	Ex	Ex*
	Potassium hydroxide (caustic potash)	KOH (1310-58-3)	40%	**Ex**	**Ex**	Ex*	Ex	Ex*
	Sodium hydroxide (caustic soda)	NaOH (1310-73-2)	50%	**Ex**	**Ex**	**Ex***	**Ex**	**Ex***
			40%	**Ex**	**Ex**	**Ex***	Ex	**Ex***
			20%	**Ex**	**Ex**	**Ex***	Ex	**Ex***
			10%	**Ex**	**Ex**	**Ex***	Ex	**Ex***
Amines & Amides	Diethanolamine (DEA) (2,2'-iminodiethanol)	$HN(CH_2CH_2OH)_2$ (111-42-2)	-	Ex	Ex	Ex*	G	Ex*
	Diethylamine (1-ethylaminoethane)	$CH_3CH_2NHCH_2CH_3$ (109-89-7)		**P**	**M***	M*	**P**	P*
	Diethylene glycolamine (DGA) (2-(2-aminoethoxy) ethanol)	$H_2NCH_2CH_2OCH_2CH_2OH$ (929-06-6)	-	**Ex**	**Ex**	**Ex***	**M**	**M***
	N-Methyl diethanolamine (MDEA)	$CH_3N(CH_2CH_2OH)_2$ (105-59-9)	-	**Ex**	**Ex**	**Ex***	G	**Ex***
	N-Methylethanolamine (2-methylaminoethanol)	$CH_3NHCH_2CH_2OH$ (109-83-1)	-	Ex	Ex	Ex*	M	Ex*
	Monoethanolamine (MEA) (2-aminoethanol)	$H_2NCH_2CH_2OH$ (141-43-5)	-	**Ex**	**Ex**	**Ex***	**M**	**M***
	Sulfinol solution (50% diisopropanolamine, 25% tetramethylene sulphone, 25% water)	N/A	-	**Ex**	**Ex**	**Ex***	G	Ex*
	Triethanolamine (TEA) (2,2',2"-nitrilotriethanol)	$N(CH_2CH_2OH)_3$ (102-71-6)	-	Ex	Ex	Ex*	G	Ex*

Excellent	**Ex**	no significant deterioration / barrier properties retained for greater than 52 weeks *suitable for all applications including long term immersion*
Good	**G**	no significant deterioration / barrier properties retained for 12 - 52 weeks *suitable for short-term immersion and general chemical contact*
Moderate	**M**	no significant deterioration / barrier properties retained for 1 - 12 weeks *suitable for applications involving short term chemical contact e.g. spillage, splashing or secondary containment*
Poor	**P**	significant deterioration / loss of barrier properties after 1 week or less *not suitable for any application*
*		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.

CHEMICAL RESISTANCE OF BELZONA® 1981, 1982, 1983 & 1984

FN10168, FN10169, FN10170 & FN10228

	Chemical name	Chemical formula (CAS number)	Concentration	20 ˚C 68 ˚F				90°C 194°F
				Belzona 1981	Belzona 1982	Belzona 1983	Belzona 1984	Belzona 1983
Esters and Ethers	Butyl acetate (butyl ethanoate)	$CH_3C(O)OCH_2CH_2CH_2CH_3$ (123-86-4)	-	**Ex**	**Ex**	Ex*	M	Ex*
	Diethyl ether (ether, ethoxyethane)	$CH_3CH_2OCH_2CH_3$ (60-29-7)	-	**Ex**	**Ex**	**Ex***	**Ex**	-
	Ethyl acetate (ethyl ethanoate, acetic ester)	$CH_3C(O)OCH_2CH_3$ (141-78-6)	-	**Ex**	**Ex**	**Ex***	**M**	-
Gases	Butane	$CH_3CH_2CH_2CH_3$ (106-97-8)	-	Ex	Ex	Ex*	Ex	-
	Carbon dioxide	CO_2 (124-38-9)	-	Ex	Ex	Ex*	Ex	Ex*
	Ethane	C_2H_6 (74-84-0)	-	Ex	Ex	Ex*	Ex	-
	Hydrogen sulphide	H_2S (7783-06-4)	-	Ex	Ex	Ex*	Ex	Ex*
	Methane (natural gas)	CH_4 (74-82-8)	-	Ex	Ex	Ex*	Ex	-
	Nitrogen	N_2 (7727-37-9)	-	Ex	Ex	Ex*	Ex	Ex*
Halocarbons	Chlorobenzene (benzene chloride, phenyl chloride)	C_6H_5Cl (108-90-7)	-	Ex	Ex	Ex*	M	P*
	Dichloromethane (DCM) (methylene chloride)	CH_2Cl_2 (75-09-2)	-	**P**	**M***	**P***	P	-

Excellent	**Ex**	no significant deterioration / barrier properties retained for greater than 52 weeks *suitable for all applications including long term immersion*
Good	**G**	no significant deterioration / barrier properties retained for 12 - 52 weeks *suitable for short-term immersion and general chemical contact*
Moderate	**M**	no significant deterioration / barrier properties retained for 1 - 12 weeks *suitable for applications involving short term chemical contact e.g. spillage, splashing or secondary containment*
Poor	**P**	significant deterioration / loss of barrier properties after 1 week or less *not suitable for any application*
*		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.

CHEMICAL RESISTANCE OF BELZONA® 1981, 1982, 1983 & 1984

FN10168, FN10169, FN10170 & FN10228

	Chemical name	Chemical formula (CAS number)	Concentration	20 ˚C 68 ˚F				90°C 194°F
				Belzona 1981	Belzona 1982	Belzona 1983	Belzona 1984	Belzona 1983
Hydrocarbons	Aviation fuel (AVCAT, AVGAS, AVTAG, AVTUR)	N/A	-	Ex	Ex	Ex*	Ex	Ex*
	Benzene (benzol)	C_6H_6 (71-43-2)	-	Ex	Ex	Ex*	Ex	-
	Crude Oil	N/A	-	**Ex**	**Ex**	**Ex***	**Ex**	**Ex***
	Cyclohexane	C_6H_{12} (110-82-7)	-	Ex	Ex	Ex*	Ex	-
	Gasoline (without Ethanol) (petrol)	N/A (8032-32-4)	-	**Ex**	**Ex**	**Ex***	Ex	Ex*
	Gasoline (10% Ethanol petrol, E10)	N/A	-				**M**	
	Heptane	$CH_3CH_2CH_2CH_2CH_2CH_2CH_3$ (142-82-5)	-	**Ex**	**Ex**	Ex*	Ex	Ex*
	Hexane	$CH_3CH_2CH_2CH_2CH_2CH_3$ (110-54-3)	-	**Ex**	**Ex**	**Ex***	**Ex**	-
	Iso-octane (2,2,4-trimethylpentane)	$(CH_3)_3CCH_2CH(CH_3)_2$ (540-84-1)	-	Ex	Ex	Ex*	Ex	Ex*
	Kerosene	N/A (8008-20-6)	-	**Ex**	**Ex**	**Ex***	**Ex**	Ex*
	Mesitylene (1,3,5-Trimethylbenzene)	$C_6H_3(CH_3)_3$ (108-67-8)	-	Ex	Ex	Ex*	Ex	Ex*
	Mineral spirits / White spirits (Stoddard solvent)	N/A (8052-41-3)	-	**Ex**	**Ex**	**Ex***	**Ex**	Ex*

Excellent	**Ex**	no significant deterioration / barrier properties retained for greater than 52 weeks *suitable for all applications including long term immersion*
Good	**G**	no significant deterioration / barrier properties retained for 12 - 52 weeks *suitable for short-term immersion and general chemical contact*
Moderate	**M**	no significant deterioration / barrier properties retained for 1 - 12 weeks *suitable for applications involving short term chemical contact e.g. spillage, splashing or secondary containment*
Poor	**P**	significant deterioration / loss of barrier properties after 1 week or less *not suitable for any application*
*		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.

CHEMICAL RESISTANCE OF BELZONA® 1981, 1982, 1983 & 1984

FN10168, FN10169, FN10170 & FN10228

	Chemical name	Chemical formula (CAS number)	Concentration	20 ˚C 68 ˚F				90°C 194°F
				Belzona 1981	Belzona 1982	Belzona 1983	Belzona 1984	Belzona 1983
Hydrocarbons continued	Naphtha	N/A (8030-30-6)	-	Ex	Ex	Ex*	Ex	Ex*
	Naphthalene (naphthalin, white tar)	$C_{10}H_8$ (91-20-3)	-	Ex	Ex	Ex*	Ex	Ex*
	Paraffin	N/A (8002-74-2)	-	Ex	Ex	Ex*	Ex	Ex*
	Pentane	$CH_3CH_2CH_2CH_2CH_3$ (109-66-0)	-	Ex	Ex	Ex*	Ex	-
	Toluene (methylbenzene, phenylmethane, toluol)	$C_6H_5CH_3$ (108-88-3)	-	**Ex**	**Ex**	**Ex***	**Ex**	**Ex***
	Xylene (dimethyl benzene, xylol)	$C_6H_4(CH_3)_2$ (95-47-6/108-38-3/106-42-3/1330-20-7)	-	**Ex**	**Ex**	**Ex***	**Ex**	Ex*

Excellent	**Ex**	no significant deterioration / barrier properties retained for greater than 52 weeks *suitable for all applications including long term immersion*
Good	**G**	no significant deterioration / barrier properties retained for 12 - 52 weeks *suitable for short-term immersion and general chemical contact*
Moderate	**M**	no significant deterioration / barrier properties retained for 1 - 12 weeks *suitable for applications involving short term chemical contact e.g. spillage, splashing or secondary containment*
Poor	**P**	significant deterioration / loss of barrier properties after 1 week or less *not suitable for any application*
*		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.