WHMIS MATERIAL SAFETY DATA SHEET

SECTION 1 - Product Identification and Use			Date : **3 December 1998**
Product identifier : **BELZONA® 1591 BASE**			PIN/UN No : **Not applicable**
Product use : **Repair of Machinery and Equipment**			WHMIS classification : **D2B**
Manufacturer's name & address : **BELZONA POLYMERICS Ltd.,** Claro Road, Harrogate, Yorkshire, HG1 4AY, United Kingdom. Emergency telephone number : U.K. -44-1423-503218	Supplier's name & address : **BELZONA Inc.,** 2000 N.W. 88 Court, America's Gateway Park, Miami, Florida 33172, United States.	Supplier's emergency telephone numbers : (Spill, Leak, Fire, Exposure or Accident) 800 424 9300 - Toll free in Canada 202 483 7616 Information telephone number : 305 594 4994 - Working hours only	

SECTION 2 - Hazardous Ingredients

Hazardous Ingredients	Approximate Concentration	CAS Numbers	Exposure Limits	LD_{50}/LC_{50} Species and Route
Epoxy phenol novolac resin	**10-30%**	**55492-52-9**	**Not available**	**Oral LD_{50}=5g/kg (rat)**
Silicon carbide	**10-30%**	**409-21-2**	**Not available**	**Oral LD_{50}=10mg/m^3 (rat)**
Modified silica	**0-1%**	**67762-90-7**	**ACGIH TVL = 10mg/m^3**	**Oral LD_{50}=>5g/kg (rat)**

SECTION 3 - Physical Data

Physical state : **Paste**	Appearance/Odour : **Brown/epoxy**	Odour threshold(ppm) : **Not applicable**
Vapour pressure (mm Hg) : **Not available**	Vapour density (Air = 1) : **Not applicable**	Boiling point (°C) : **>250°C**
pH : **Not applicable**	Specific gravity : **1.85–1.95**	Coefficient water/oil : **Not applicable**
Freezing point (°C) : **Not available**	Solubility in water (20°C) : **Insoluble**	Evaporation rate (relative to n-Butyl Acetate) : **Not applicable**

SECTION 4 - Fire and Explosion Data

Flammability : If yes, under which conditions :	**Not flammable but combustible**	
Means of extinction :	**Foam, carbon dioxide, dry chemical.**	
Special procedures :	**Wear protective clothing and use self-contained breathing apparatus. Full bunker gear should be worn in extreme cases. Use sand to contain burning material.**	
Flash point and method : **> 110°C Closed Cup**	Explosion limits (% by volume) : Lower : **Not available** Upper : **Not available**	Autoignition temp (°C) : **Not available**
Hazardous combustion products : **Gaseous combinations of carbon, hydrogen and oxygen**		
Explosion data - Sensitivity to impact : **Not applicable**	Explosion data - Sensitivity to static discharge : **Not available**	

SECTION 5 - Reactivity Data

Chemical stability : If no, under which conditions :	**Yes**
Incompatibility to other substances : If yes, which ones :	**Yes** **Strong oxidizing agents, acids, bases. Amines under uncontrolled conditions.**
Reactivity and under what conditions :	**Not applicable**
Hazardous decomposition products :	**See hazardous combustion products above**

Product identifier : **BELZONA® 1591 BASE**

SECTION 6 - Toxicological Properties of Product

Route of entry :

Skin contact : √ Skin absorption : √ Eye contact : √ Inhalation acute : Inhalation chronic : Ingestion :

Effects of acute exposure to product : **Irritating to eyes and skin.**

Effects of chronic exposure to product : **May cause sensitization by skin contact.**

LD_{50} of product (species and route) :	Irritancy of product :	Exposure limits of product :
Not available	**Moderate to extreme on skin/eyes**	**Not available**
LC_{50} of product (species and route) :	Sensitization to product :	Synergistic materials :
Not available	**Skin, on repeated contact**	**Not available**

Carcinogenicity : **N.av*** Reproductive effects : **N.av*** Teratogenicity : **N.av*** Mutagenicity : **N.av***

*** Not available for the mixture, however available information on the individual components does not indicate any chronic exposure hazard other than that stated above.**

SECTION 7 - Preventative Measures

Personal protective equipment :	Gloves :	Eye :
	Use neoprene or nitrile	**Goggles/faceshield**
Footwear :	Respiratory (protection required if exposure > TLV) :	Clothing :
Industrial boots	**NIOSH organic vapour**	**Overalls**

Other :

Engineering controls :	**Provide adequate cross air circulation.**
Leak and spill procedures :	**Contain with an inert material (e.g. earth or sand). Sweep up and place into suitable covered, labelled containers. Flush area with detergent and water.**
Waste disposal :	**In accordance with Federal, Provincial and Local Regulations.**
Handling procedures :	**Avoid contact with skin and eyes.**
Storage requirements :	**Keep in a cool, well ventilated place, in the original containers. Store in tightly lidded containers in dry conditions between 5°C and 30°C.**

SECTION 8 - First Aid Measures

Skin :	**After contact with skin, wash immediately with plenty of soap and water. If irritation persists seek medical attention.**
Eye :	**In case of contact with eyes, rinse immediately with plenty of water for at least 15 minutes, and seek medical advice if any irritation persists.**
Inhalation :	**If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical attention immediately if recovery is delayed.**
Ingestion :	**Do not induce vomiting. Immediately rinse the mouth with water. Drink plenty of water (1 pint/600 mls). Seek medical attention promptly.**
General advice :	**When using do not eat, drink or smoke. Take off immediately all contaminated clothing and launder before reuse. Wash hands thoroughly after handling this product.**

SECTION 9 - Preparation Date of MSDS

Additional information :

Prepared by :	Phone number :	Date :
Dr.W.R.Ashcroft	**U.K. -44-1423-567641**	**3 December 1998**

WHMIS MATERIAL SAFETY DATA SHEET

SECTION 1 - Product Identification and Use		Date : **14 December, 2000**
Product identifier : **BELZONA® 1591 SOLIDIFIER**		PIN/UN No : **1760**
Product use : **Repair of Machinery and Equipment**		WHMIS classification : **D2A,D2B,E**
Manufacturer's name & address : **BELZONA POLYMERICS Ltd.,** Claro Road, Harrogate, Yorkshire, HG1 4AY, United Kingdom. Emergency telephone number : U.K. -44-1423-503218	Supplier's name & address : **BELZONA Inc.,** 2000 N.W. 88 Court, America's Gateway Park, Miami, Florida 33172, United States.	Supplier's emergency telephone numbers : (Spill, Leak, Fire, Exposure or Accident) 800 424 9300 - Toll free in Canada 202 483 7616 Information telephone number : 305 594 4994 - Working hours only

SECTION 2 - Hazardous Ingredients

Hazardous Ingredients	Approximate Concentration	CAS Numbers	Exposure Limits	LD_{50}/LC_{50} Species and Route
Diethylenetriamine (DETA)[1]	**10-30%**	**111-40-0**	**ACGIH TLV (TWA) 1 ppm (sk)**	**Oral LD_{50} = 1080 mg/kg**
Cycloaliphatic amine preparation - trade secret	**15-40%**	**HMIRC Registry number 4312-001 (other supplier)**	**Not available**	**Oral LD_{50} = 1200 mg/kg Estimate**
4,4'Methylenebis(cyclohexanamine)[2]	**15-40%**	**1761-71-3**	**Not available**	**Oral LD_{50} = 1200 mg/kg Estimate**
Bisphenol A	**7-13%**	**80-05-7**	**Not available**	**Oral LD_{50} = 3250 mg/kg (rat)**

SECTION 3 - Physical Data

Physical state : **Liquid**	Appearance/Odour : **Clear/amine**	Odour threshold(ppm) : **Not applicable**
Vapour pressure (mm Hg) : **Not available**	Vapour density (Air = 1) : **Not applicable**	Boiling point (°C) : **>100**
pH : **Not applicable**	Specific gravity : **1.01**	Coefficient water/oil : **Not applicable**
Freezing point (°C) : **Not available**	Solubility in water (20°C) : **Slight**	Evaporation rate (relative to n-Butyl Acetate) : **Not applicable**

SECTION 4 - Fire and Explosion Data

Flammability : If yes, under which conditions :	**Not flammable but combustible**	
Means of extinction :	**Foam, carbon dioxide, dry chemical.**	
Special procedures :	**Wear protective clothing and use self-contained breathing apparatus. Full bunker gear should be worn in extreme cases. Use sand to contain burning material.**	
Flash point and method : **>100°C Closed cup**	Explosion limits (% by volume) : Lower : **Not available** Upper : **Not available**	Autoignition temp (°C) : **Not available**
Hazardous combustion products : **Gaseous combinations of carbon, hydrogen, nitrogen and oxygen**		
Explosion data - Sensitivity to impact : **Not applicable**	Explosion data - Sensitivity to static discharge : **Not available**	

SECTION 5 - Reactivity Data

Chemical stability : If no, under which conditions :	**Yes**
Incompatibility to other substances : If yes, which ones :	**Yes** **Strong oxidizing agents, strong acids, epoxy resins. Isocyanates under uncontrolled conditions.**
Reactivity and under what conditions :	**Not applicable**
Hazardous decomposition products :	**See hazardous combustion products above**

Product identifier : **BELZONA® 1591 SOLIDIFIER**

SECTION 6 - Toxicological Properties of Product

Route of entry :

Skin contact : √ Skin absorption : √ Eye contact : √ Inhalation acute : √ Inhalation chronic : Ingestion : √

Effects of acute exposure to product : **Very Toxic; respiratory exposure may cause acute irritation and/or sensitization of the respiratory system, resulting in asthmatic symptoms, wheezing and a tightness of the chest. Repeated exposure may lead to permanent respiratory disability. Toxic; Causes of allergic skin reaction have been observed. Corrosive; Contact with skin or any living tissue may cause burns, in severe cases complete tissue destruction may occur. Contact with eyes may cause severe irritation with corneal injury, which may result in permanent impairment of vision. Exposure to vapours may result in irritation of the mucous membrane and the respiratory system, in severe cases burns may occur.**

Effects of chronic exposure to product : **None known.**

LD_{50} of product (species and route) :	Irritancy of product :	Exposure limits of product :
Not available	**Extreme on skin/eyes**	**TLV for DETA**
LC_{50} of product (species and route) :	Sensitization to product :	Synergistic materials :
Not available	**Respiratory[1] and skin[1,2]**	**Not available**

Carcinogenicity : **N.av*** Reproductive effects : **N.av*** Teratogenicity : **N.av*** Mutagenicity : **N.av***

*** Not available for the mixture, however available information on the individual components does not indicate any chronic exposure hazard other than that stated above.**

SECTION 7 - Preventative Measures

Personal protective equipment :	Gloves :	Eye :
	Use neoprene or nitrile	**Goggles/faceshield**
Footwear :	Respiratory (protection required if exposure > TLV) :	Clothing :
Industrial boots	**NIOSH organic vapour**	**Overalls**

Other :

Engineering controls :	**Where adequate natural ventilation is not available provide suitable local exhaust ventilation.**
Leak and spill procedures :	**Contain with an inert material (e.g. earth or sand). Sweep up and place into suitable covered, labelled containers. Flush area with detergent and water.**
Waste disposal :	**In accordance with Federal, Provincial and Local Regulations.**
Handling procedures :	**Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not risk exposure to respiratory sensitisers. Avoid contact with skin and eyes. Do not breathe fumes/vapours.**
Storage requirements :	**Keep in a cool, well ventilated place, in the original containers. Store in tightly lidded containers in dry conditions between 5°C and 30°C.**

SECTION 8 - First Aid Measures

Skin :	**After contact with skin, wash immediately with plenty of soap and water. If irritation persists seek medical attention.**
Eye :	**In case of contact with eyes, rinse immediately with plenty of water for at least 15 minutes, and seek medical advice if any irritation persists.**
Inhalation :	**If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical attention immediately if recovery is delayed.**
Ingestion :	**Do not induce vomiting. Immediately rinse the mouth with water. Drink one third of a pint/200 mls. of water every ten minutes. Seek medical attention promptly.**
General advice :	**When using do not eat, drink or smoke. Take off immediately all contaminated clothing and launder before reuse. Wash hands thoroughly after handling this product.**

SECTION 9 - Preparation Date of MSDS

Additional information : **Replaces previous issue dated 3 December 1998**

Prepared by :	Phone number :	Date :
Dr.W.R.Ashcroft	**U.K. -44-1423-567641**	**14 December, 2000**