

<b>MATERIAL SAFETY DATA SHEET</b> In compliance with OSHA 29 CFR 1910.1200 N.ap means Not Applicable NIA means No Information Available PREPARED BY : N.A.ROBINSON      DATE PREPARED : 06 JAN 2003      PAGE 1 OF 4		
BELZONA INC., 2000 N.W. 88 COURT, MIAMI, FL 33172	<b>EMERGENCY PHONE NUMBERS</b> (Spill, Leak, Fire, Exposure or Accident) 800 424 9300 - Toll free in United States 202 483 7616 - For calls from outside the United States <b>INFORMATION PHONE NUMBER</b> 305 594 4994 - Working hours only	

**SECTION I - PRODUCT IDENTIFICATION**

PRODUCT NUMBER : 1202/0988  
 PRODUCT NAME : Belzona® 9111 (Cleaner/Degreaser)  
 PRODUCT CLASS : Solvent

**SECTION II - HAZARDOUS INGREDIENTS/TOXICOLOGICAL DATA**

Hazardous Components	% by Weight	CAS Number	Exposure Limits			Toxicity	
			OSHA PEL mg/m <sup>3</sup>	ACGIH TLV ppm	LD <sub>50</sub> mg/Kg	Oral	Dermal

Proprietary blend of hydrocarbons      60-100      Trade secret      NIA      300\*      NIA      NIA      NIA      NIA

\* Supplier recommendation

**CARCINOGENICITY**

No data is available for the mixture, however none of the ingredients are listed as Carcinogens by OSHA, NTP, ACGIH or IARC. The benzene content of the hydrocarbon constituents contained within this product is significantly below the 0.1% w/w threshold and therefore, the product is not classified as a carcinogen.

**SECTION III - PHYSICAL DATA**

APPEARANCE AND ODOR : Colorless liquid with no odor.  
 BOILING POINT : 183-210°C      SPECIFIC GRAVITY : 0.77 @ 15°C  
 VAPOR PRESSURE : 0.004 kPa @ 20°C      VAPOR DENSITY : >1 (Air=1)  
 EVAPORATION RATE : 0.03      % VOLATILE BY VOLUME : 100%  
 SOLUBILITY IN WATER : Immiscible

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT : 63°C      EXPLOSION LIMITS      LOWER : 0.6%  
 TEST METHOD : Closed Cup      UPPER : 7.0%

OSHA FLAMMABILITY CLASS : Combustible liquid, Class II.  
 FLAMMABILITY INDEX (NFPA) : 2  
 REACTIVITY INDEX (NFPA) : 0  
 HEALTH HAZARD (NFPA) : 2 Moderate  
 EXTINGUISHING MEDIA : Use: sand, alcohol resistant foam, carbon dioxide, chemical powder, water fog for larger fires. Do NOT use water jet.

PRODUCT NAME : Belzona® 9111 (Cleaner/Degreaser)  
PRODUCT NUMBER : 1202/0988  
N.ap means Not Applicable

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DATE PREPARED : 06 January, 2003  
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SPECIAL FIRE FIGHTING 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.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Vapors can form explosive mix with air. Decomposition and combustion products may be hazardous.

**SECTION V - HEALTH HAZARDS**

ROUTE(S) OF ENTRY : Skin contact, skin absorption, eye contact, inhalation, ingestion.  
PRIME HAZARD(S) : Harmful if swallowed. Irritant.

EFFECTS OF EXPOSURE

Acute : Harmful: may cause lung damage if swallowed. Exposure to organic solvent vapors may result in adverse health effects such as irritation of the mucous membrane and the respiratory system and adverse effects on the renal and central nervous systems. Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases loss of consciousness. Repeated or prolonged contact with the product may lead to removal of natural fats from the skin resulting in non-allergic contact dermatitis and absorption through the skin. Splashes in the eyes may cause irritation and reversible local damage. Ingestion may result in the following effects: sore throat, abdominal pain, drowsiness, nausea, vomiting and diarrhoea.

Chronic : Chronic effects are unlikely.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation : If symptoms are experienced move victim to fresh air. If recovery is delayed or there are signs of distress obtain medical attention immediately.  
Eye contact : Flush eyes with water for 15 minutes. Seek medical advice if any irritation persists.  
Skin contact : Immediately remove excess with a clean cloth and wash skin thoroughly with soap and water. If irritation or inflammation persists, seek medical advice.  
Ingestion : If swallowed, do not induce vomiting. Rinse mouth with water and drink plenty of water. Call TAMPA BAY Regional Poison Center (Tel.No.1-800-282-3171) and/or seek medical advice.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Existing skin or respiratory conditions.

**SECTION VI - REACTIVITY DATA**

STABILITY : Stable

STABILITY CONDITIONS TO AVOID : N.ap

PRODUCT NAME : Belzona® 9111 (Cleaner/Degreaser)  
PRODUCT NUMBER : 1202/0988  
N.ap means Not Applicable

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INCOMPATIBILITY (MATERIALS TO AVOID CONTACT WITH)

Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Gaseous combinations of carbon, hydrogen and oxygen may occur at elevated temperatures.

HAZARDOUS POLYMERIZATION

Hazardous polymerization will not occur when stored and used as directed.

POLYMERIZATION CONDITIONS TO AVOID

N.ap

**SECTION VII - SPILL AND LEAK PROCEDURES**

SPILLAGE

Ventilate well, stop flow of liquid. Remove ignition sources. Do not allow to enter water courses. Absorb with an inert material (e.g. earth or sand). Sweep up, place into suitable labelled containers, seal and dispose of properly.

WASTE DISPOSAL METHODS

Dispose of in accordance with Local, State and Federal Regulations.

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

PERSONAL PROTECTIVE MEASURES

RESPIRATORY : In confined areas or where good natural/mechanical ventilation is not available, an appropriate NIOSH or MSHA approved respirator should be worn.

SKIN : Impermeable gloves, such as Nitrile, Neoprene or PVA. Wash hands with soap and water and use hand cream. Wear suitable protective clothing to minimize skin contact. Remove contaminated clothing and wash before reuse.

EYE : Safety glasses or goggles.  
Eyewash station.

MECHANICAL PROTECTIVE MEASURES

VENTILATION : Where adequate natural ventilation is not available provide suitable local exhaust ventilation.

OTHER PROTECTIVE EQUIPMENT

: Where there is a risk of contamination of footwear, safety boots should be worn and cleaned thoroughly before reuse. Cotton or cotton/synthetic overalls or coveralls are normally suitable. Grossly contaminated clothing should be removed and the skin washed with soap and water or a proprietary skin cleaner.

OTHER COMMENTS

: N.ap

PRODUCT NAME : Belzona® 9111 (Cleaner/Degreaser)  
PRODUCT NUMBER : 1202/0988  
N.ap means Not Applicable

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DATE PREPARED : 06 January, 2003  
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## SECTION IX - SAFE HANDLING AND STORAGE

### HANDLING AND STORAGE PRECAUTIONS

#### HANDLING

Avoid inhalation of vapour. Prevent air-borne concentrations higher than the occupational exposure limits (see Section II). Avoid skin and eye contact. This product is combustible. Exclude sources of heat, sparks and open flame. Keep the container tightly closed when not in use. Vapours are heavier than air and may spread along floors. They may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapour with air. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. Consideration should be given to the use of earthing leads when transferring from one container to another and anti-static footwear/clothing. Good housekeeping standards and regular safe removal of waste materials will minimise the risks of spontaneous combustion and other fire hazards. Ensure emergency equipment (for fires, spills, leaks, etc.) is readily available.

#### STORAGE

Overheating may cause containers to rupture. Containers should be stored under cool dry conditions. Empty containers will retain residue and may be dangerous. Check all containers for leaks at regular intervals and before use.

#### HYGIENE PRACTICES

When using, do not eat, drink or smoke. Remove contaminated clothing and launder before reuse. Wash hands with soap and water after handling this product.

## SECTION X - REGULATORY INFORMATION

### SARA TITLE III - NOTIFICATION OF TOXIC CHEMICALS

None of the constituents of this product is subject to reporting requirements under section 313 of the Superfund Amendment & Reauthorization Act of 1986 (40 CFR Part 372).

### DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, some of the information presented and conclusions drawn are derived from sources other than direct test data on the product itself and while Belzona Inc., believe such sources to be reliable, the information is provided without any warranty regarding its correctness. Since Belzona Inc., has no control over the conditions under which the product will be used, liability will not be assumed to exceed replacement or refund of the purchase price of this product. Except as stated herein, there are no express or implied warranties including implied warranties of merchantability or fitness for a particular purpose. Belzona Inc., assumes no liability for injury or incidental or consequential damage arising out of the storage, handling, use or disposal of this product.

<b>MATERIAL SAFETY DATA SHEET</b> In compliance with OSHA 29 CFR 1910.1200 N.ap means Not Applicable NIA means No Information Available PREPARED BY : N.A.ROBINSON      DATE PREPARED : 05 AUG 2002      PAGE 1 OF 4		
BELZONA INC., 2000 N.W. 88 COURT, MIAMI, FL 33172	<b>EMERGENCY PHONE NUMBERS</b> (Spill, Leak, Fire, Exposure or Accident) 800 424 9300 - Toll free in United States 202 483 7616 - For calls from outside the United States <b>INFORMATION PHONE NUMBER</b> 305 594 4994 - Working hours only	

**SECTION I - PRODUCT IDENTIFICATION**

PRODUCT NUMBER : 1201/1002  
 PRODUCT NAME : Belzona® 9411 (Release Agent) New Formulation  
 PRODUCT CLASS : Solvated hydrocarbon wax

**SECTION II - HAZARDOUS INGREDIENTS/TOXICOLOGICAL DATA**

Hazardous Components	% by Weight	CAS Number	Exposure Limits			Toxicity		LC <sub>50</sub> Inhal ppm
			OSHA PEL mg/m <sup>3</sup>	ACGIH TLV (TWA) ppm	mg/m <sup>3</sup>	LD <sub>50</sub> mg/Kg	Oral Dermal	

trans-Dichloro-ethylene	10-30	156-60-5	NIA	200	200ppm	7536	NIA	NIA
Naphtha (petroleum), hydrodesulfurized heavy	30-60	64742-82-1	NIA	NIA	600*	>5000	NIA	NIA

\* supplier's recommendation

**CARCINOGENICITY**

No data is available for the mixture, however none of the ingredients are listed as Carcinogens by OSHA, NTP, ACGIH or IARC. The benzene content of the hydrocarbon constituents contained within this product is significantly below the 0.1% w/w threshold and therefore, the product is not classified as a carcinogen.

**SECTION III - PHYSICAL DATA**

APPEARANCE AND ODOR : Milky white liquid with solvent odor.  
 BOILING POINT : >42°C      SPECIFIC GRAVITY : 1.00  
 VAPOR PRESSURE : ~450 mm Hg @ 20°C      VAPOR DENSITY : >1 (Air=1)  
 SOLUBILITY IN WATER : Slight  
 EVAPORATION RATE : >1 (Ether=1)      % VOLATILE BY VOLUME : 90.00

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT : Will not flash      EXPLOSION LIMITS LOWER : 0.6  
 TEST METHOD : N.ap      UPPER : NIA

PRODUCT NAME : Belzona® 9411 (Release Agent) New Formulation PAGE 2 OF 4  
PRODUCT NUMBER : 1201/1002 DATE PREPARED : 5 August, 2002  
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OSHA FLAMMABILITY CLASS : N.ap  
FLAMMABILITY INDEX (NFPA) : 2 Moderate  
REACTIVITY INDEX (NFPA) : 2 Moderate  
HEALTH HAZARD (NFPA) : 2 Moderate  
EXTINGUISHING MEDIA : Water fog (not a direct stream of water), foam, carbon dioxide,  
dry chemical.

#### SPECIAL FIRE FIGHTING PROCEDURES

Wear protective clothing and use self-contained breathing apparatus. Use sand to contain burning material.

#### UNUSUAL FIRE AND EXPLOSION HAZARDS

Not classified as flammable but may become flammable during use - vapors can form explosive mixtures with air. Decomposition and combustion products will be hazardous.

### SECTION V - HEALTH HAZARDS

ROUTE(S) OF ENTRY : Skin and/or eye contact, ingestion and inhalation.  
PRIME HAZARD(S) : Harmful.

#### EFFECTS OF EXPOSURE

Acute : There is no data on the product itself. Harmful: may cause lung damage if swallowed. Exposure to organic solvent vapors may result in adverse health effects such as irritation of the mucous membrane and the respiratory system and adverse effects on the renal and central nervous systems. Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases loss of consciousness. Repeated or prolonged contact with the product may lead to removal of natural fats from the skin resulting in non-allergic contact dermatitis and absorption through the skin. Splashes in the eyes may cause irritation and reversible local damage. Ingestion may result in the following effects: sore throat, abdominal pain, drowsiness, nausea, vomiting and diarrhoea.

Chronic : There is no data on the product itself.

#### EMERGENCY AND FIRST AID PROCEDURES

Inhalation : If symptoms are experienced, move victim to fresh air. Keep affected person warm and at rest. If recovery is delayed or there are signs of distress, obtain medical attention immediately.

Eye contact : Flush eyes with water for 15 minutes. Seek medical advice if any irritation persists.

Skin contact : Immediately remove excess with a clean cloth and apply moisturising cream. If irritation or inflammation persists, seek medical advice.

Ingestion : If swallowed, do not induce vomiting. Rinse mouth with water and drink plenty of water. Call TAMPA BAY Regional Poison Center (Tel.No.1-800-282-3171) and/or seek medical advice immediately.

PRODUCT NAME : Belzona® 9411 (Release Agent) New Formulation PAGE 3 OF 4  
PRODUCT NUMBER : 1201/1002 DATE PREPARED : 5 August, 2002  
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MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE  
Skin, eye and respiratory tract conditions.

#### SECTION VI - REACTIVITY DATA

STABILITY : Stable but store below 30°C due to low boiling point.

STABILITY CONDITIONS TO AVOID :

Avoid sources of ignition such as sparks, hot spots, welding, flames and cigarettes. Explosions may result if in the flammable range.

INCOMPATIBILITY (MATERIALS TO AVOID CONTACT WITH)

Strong oxidizing agents, acids and bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Gaseous combinations of carbon, hydrogen, chlorine, fluorine and oxygen may occur at elevated temperatures.

HAZARDOUS POLYMERIZATION

Hazardous polymerization will not occur when stored and used as directed.

POLYMERIZATION CONDITIONS TO AVOID

N.ap

#### SECTION VII - SPILL AND LEAK PROCEDURES

SPILLAGE

Ventilate well. Stop flow of liquid if it is safe to do so. Exclude sources of ignition and non-essential personnel. Do not allow to enter water courses. Absorb with an inert material (e.g. earth or sand). Sweep up and place into suitable labelled containers, seal and dispose of properly.

WASTE DISPOSAL METHODS

Dispose of in accordance with Local, State and Federal Regulations.

#### SECTION VIII - SPECIAL PROTECTION INFORMATION

PERSONAL PROTECTIVE MEASURES

RESPIRATORY : In confined areas or where good natural/mechanical ventilation is not available, leading to a risk of exceeding the TLV's indicated, an appropriate NIOSH or MSHA approved respirator should be worn.

SKIN : Impermeable gloves, such as PVA, Neoprene or Nitrile. Suitable protective clothing to minimize skin contact. Remove contaminated clothing and wash before reuse.

EYE : Safety glasses or goggles. Eyewash station.

MECHANICAL PROTECTIVE MEASURES

VENTILATION : Where adequate natural ventilation is not available provide suitable local exhaust ventilation.

**PRODUCT NAME** : Belzona® 9411 (Release Agent) New Formulation **PAGE 4 OF 4**  
**PRODUCT NUMBER** : 1201/1002 **DATE PREPARED** : 5 August, 2002  
**N.ap means Not Applicable** **NIA means No Information Available**

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**OTHER PROTECTIVE EQUIPMENT**

: Where there is a risk of contamination of footwear, safety boots should be worn and cleaned thoroughly before reuse. Cotton or cotton/synthetic overalls or coveralls are normally suitable. Grossly contaminated clothing should be removed and the skin washed with soap and water or a proprietary skin cleaner.

**OTHER COMMENTS**

: N.ap

**SECTION IX - SAFE HANDLING AND STORAGE**

**HANDLING AND STORAGE PRECAUTIONS**

**HANDLING**

Avoid breathing vapors and contact with skin and eyes. Exercise caution when opening containers which, because of the low boiling point contents, may be under pressure. Keep away from heat, sparks and open flames. May become flammable during use. Vapors are heavier than air and may spread along floors. Prevent the creation of flammable or explosive concentrations of vapor with air.

**STORAGE**

If containers have been stored in direct sunlight or heated above the boiling point of the product, cool to below the boiling point before opening. Overheating may cause containers to rupture. Containers should be stored under cool, dry conditions. Empty containers will retain residue and may be dangerous. Check all containers for leaks at regular intervals and before use.

**HYGIENE PRACTICES**

When using, do not eat, drink or smoke. Remove contaminated clothing and launder before reuse. Wash hands with soap and water after handling this product.

**SECTION X - REGULATORY INFORMATION**

**SARA TITLE III - NOTIFICATION OF TOXIC CHEMICALS**

None of the constituents of this product is subject to reporting requirements under section 313 of the Superfund Amendment & Reauthorization Act of 1986 (40 CFR Part 372).

**DISCLAIMER**

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MATERIAL SAFETY DATA SHEET  
COATINGS, RESINS, AND RELATED MATERIALS

MANUFACTURED BY:  
SUNREZ CORPORATION                      EMERGENCY CONTACT: CHEMTREC 1-800-424-9300  
392 Coogan Way  
El Cajon, CA 92020  
INFORMATION CONTACT: 1-888-442-3353 (DURING NORMAL BUSINESS HOURS)  
DATE OF PREP: 2/02/03 SUPERSEDES DATE: 5/15/02. DATE OF PRINT: 3/20/02

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SECTION I.                      PRODUCT IDENTIFICATION

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PRODUCT CODE:    **FIBERGLASS PUTTY 7020 PUTTY**  
PRODUCT NAME:    SUNREZ VE RESIN    TYPE LIGHT CURE

SHIPPING DESCRIPTION:  
RESIN SOLUTION,    3,    **UN 1866,**    PG III  
MARINE POLLUTANT,    CONTAINS:    STYRENE

*CFR  
49  
101*

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SECTION II.                      HAZARDOUS INGREDIENTS

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HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

HEALTH:    2 \*    FLAMMABILITY: 3  
REACTIVITY: 1

INGREDIENT	WT.	TLV	SOURCE	IDLH	VAPOR	LEL	
CAS NO.	PERCENT	ppm	mg/m3	ppm	PRESSURE (mm Hg. @68F)		
STYRENE							
100-42-5	15-20%	50.000	215.00	TWA/ACGIH	700	4.30	1.10
		100.0000	425.00	FEDERAL PEL			
		100.0000	425.00	STEL/ACGTH			

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SECTION III.                      PHYSICAL DATA

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BOILING RANGE: 212-295 F    PERCENT VOLATILE BY VOL: 41.24  
SPECIFIC GRAVITY 1.068    EVAPORATION RATE (n-Bu Ac=1) : N/E  
VAPOR DENSITY (AIR=1) : N/E    VAPOR PRESSURE (mm Hg@68F) : N/B  
VOLATILE ORGANIC CONTENT (VOC) : N/A  
APPEARANCE AND ODOR: light straw colored solution - styrene odor  
SOLUBILITY IN WATER: negligible

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SECTION IV.                      FIRE AND EXPLOSION HAZARD DATA

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FLASH POINT: 94    DEG. F    SETAFLASH    OSHA CLASSIFICATION: IC  
FLAMMABLE LIMITS % BY VOLUME IN AIR AT 212 DEG. F:  
LOWER EXPLOSION LIMIT: 1.10  
UPPER EXPLOSION LIMIT: 6.10

EXTINGUISHING MEDIA:  
Use foam, carbon dioxide or chemical fire fighting apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat.

SPECIAL FIRE FIGHTING PROCEDURES

The use of self-contained breathing apparatus is recommended for fire fighters. Water spray may be used for cooling containers to prevent possible pressure build-up and auto-ignition or explosion when exposed to extreme heat. Avoid spreading burning liquid with water used for cooling.

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SECTION V. HEALTH HAZARD DATA

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THRESHOLD LIMIT VALUE:

See Section II

EFFECTS OF OVEREXPOSURE:

EYE CONTACT:

Can cause severe injury - damage reversible.

SKIN CONTACT:

Prolonged or repeated exposure can cause moderate irritation, defatting and dermatitis.

Note: The polymer present in this product contains acrylate or methacrylate functionality. Acrylates and methacrylates are known to cause sensitization and are slightly toxic to animals by absorption.

INHALATION:

Excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea and headache. High concentrations may result in narcosis. (Central Nervous system depression)

INGESTION:

Can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into lungs can cause chemical pneumonitis which can be fatal.

CARCINOGENICITY:

Based on a re-evaluation of the previous negative and equivocal data and an increased incidence of lung tumors after oral administration in young adult mice, the International Agency for Research on Cancer (IARC) has listed styrene among those materials for which there is limited carcinogenicity in animals (Group-2B)

Chronic exposure may cause damage to the Central Nervous System, Respiratory System, Lungs, Eyes, Skin, Gastrointestinal Tract, Liver, Spleen and Kidneys.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT:

Flush with clean, lukewarm water for at least 15 minutes, occasionally lifting the eyelids. Contact physician immediately.

SKIN CONTACT:

Remove contaminated clothing. Wash affected skin areas thoroughly with soap and water. If irritation persists, obtain medical attention. Wash contaminated clothing thoroughly before re-use. Discard contaminated shoes.

INHALATION:

Remove to fresh air. Apply artificial respiration or administer oxygen, if necessary. Call a physician immediately.

INGESTION:

Keep person warm and quiet. Get immediate medical attention.

Do not induce vomiting, because aspiration of material into the lungs from vomiting can cause chemical pneumonitis which can be fatal.

NOTE TO PHYSICIAN: Can cause pulmonary edema, signs and symptoms of pulmonary edema can be delayed for several hours.  
This product may contain trace amounts (<10 ppm) of epichlorohydrin.  
Epichlorohydrin has been reported to produce cancer in laboratory animals and to produce mutagenic changes in bacteria and cultured human cells. Evidence to date purports weak evidence that exposure to epichlorohydrin poses a cancer risk to humans. NIOSH recommended in late 1978 that epichlorohydrin be handled as a human carcinogen.

## SECTION VI.

## REACTIVITY DATA

## STABILITY:

Potentially unstable. Material has a recommended storage life of six months, stored at temperatures of 70-100 degree F.

## CONDITIONS TO AVOID:

Temperatures above 100 degree F, sunlight, x-ray or ultraviolet radiation, sparks and flame.

## MATERIALS TO AVOID:

Peroxides, other polymerization initiators and oxidizing agents.

## HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition may yield carbon dioxide and/or carbon monoxide, aldehydes and acids.

## HAZARDOUS POLYMERIZATION:

Can occur. Uncontrolled polymerization can cause rapid evolution of heat and increased pressure, which can result in violent rupture of storage vessels or containers.

## CALIFORNIA S C A Q M D RULE 443.1:

This product contains photochemically reactive volatile organic compound(s).  
Refer to Section II and III.

## SECTION VII.

## SPILL OR LEAK PROCEDURES

## STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Evacuate all non-essential personnel. Remove all sources of ignition. Ventilate the area. Equip employees with appropriate protection equipment (See Section VIII). Dike around spilled material. Cover spill with inert absorbent material and shovel with non-sparking tools into container. Remove containers to a safe area and seal.

## WASTE DISPOSAL METHOD:

Waste material must be disposed of in accordance with federal, state, and local environmental regulatory controls.

## SECTION VIII.

## SPECIAL PROTECTION INFORMATION

## RESPIRATORY PROTECTION:

Use self-contained breathing apparatus where vapor concentration may be above TLV limits or an air line respirator with escape bottle provisions.

## VENTILATION:

Local exhaust must be sufficient to keep airborne vapor concentrations below the TLV limit. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination.

**PROTECTIVE GLOVES:**

Chemical resistant and impervious gloves. Polyvinyl alcohol type recommended.

**EYE PROTECTION:**

Safety glasses with side shields.

**OTHER PROTECTIVE EQUIPMENT:**

Chemical resistant apron polyvinyl alcohol type recommended. Eye bath and safety shower. To prevent repeated or prolonged skin contact wear impervious clothing and boots.

**HAZARDOUS MATERIALS IDENTIFICATION SYSTEM:** See first page of MSDS

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:**

**Drums:** Protect against physical damage. Outside or detached storage preferred.

**Bulk:** Storage should be in standard flammable liquid storage tanks.

**OTHER PRECAUTIONS:**

All equipment should be grounded and bonded to reduce static electricity hazard. Use non-sparking tools.

Overexposure to this material has apparently been found to cause the following effects in laboratory animals: liver abnormalities, kidney damage, lung damage.

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**ADDITIONAL COMMENTS**

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We recommend that containers be either professionally reconditioned for reuse by certified firms or properly disposed of by certified firms to help reduce the possibility of an accident. Disposal of containers should be in accordance with applicable federal, state and local laws and regulations. "Empty" drums should not be given to individuals.

The information in this MSDS was obtained from sources which we believe are reliable, However, the information is provided without any representation or warranty, expressed or implied, regarding its accuracy or completeness.

The conditions of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

ENVIRONMENTAL DATA SHEET

\*\*\*\*\* MUST NOT BE DETACHED FROM MATERIAL SAFETY DATA SHEET \*\*\*\*\*

\*\*\*\*\* IF THIS MSDS IS COPIED AND REDISTRIBUTED, THIS NOTICE MUST BE ATTACHED \*\*\*\*\*

MANUFACTURED BY: Sunrez Corporation      DATE OF LAST CHANGE: 2/02/2003  
 392 Coogan Way  
 El Cajon, CA 92020

PRODUCT NAME: **7020 PUTTY LIGHT CURE RESIN PUTTY**  
 PRODUCT CLASS: VE RESIN TYPE LIGHT CURE

SECTION I. PRODUCT IDENTIFICATION/COMPOSITION

PROD	COMPONENT	CAS NUMBER	PERCENT
P	VE RESIN TYPE LIGHT CURE		
		<u>MIXTURE</u>	<u>100</u>
---TYPICAL DISTRIBUTION OF HAZARDOUS COMPONENTS-- --			
1	STYRENE	100-42-5	39.1

SECTION II. SARA TITLE III INFORMATION

PROD	EHS RQ (LBS) (*1)	EHS TPQ (LBS) (*2)	SEC 313 (*3)	311/312 CATEGORIES (*4)			
P	724,638			1	3	4	5
1			YES	1	3	4	5

FOOTNOTES

- \*1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SARA SEC.302/304
- \*2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SARA SEC.302
- \*3 = TOXIC CHEMICAL; SARA SEC 313
- \*4 = HAZARD CATEGORY FOR SARA SEC. 311/312 REPORTING
  - 1 = FIRE HAZARD                                      2 = SUDDEN RELEASE OF PRESSURE HAZARD
  - 3 = REACTIVE HAZARD                                4 = IMMEDIATE (ACUTE) HEALTH HAZARD
  - 5 = DELAYED (CHRONIC) HEALTH HAZARD

SECTION III. DOT/CERCLA INFORMATION

THE CERCLA REPORTABLE QUANTITY (RQ) FOR THIS MIXTURE IS 2,848 LBS.  
 WHICH IS BASED ON THE RQ OF EACH INGREDIENT AND ITS PERCENT IN MIXTURE.

SECTION IV. ADDITIONAL REGULATORY INFORMATION

THE POLYMER AND ALL COMPONENTS OF THIS PRODUCT ARE PRESENT ON THE UNITED STATES TOXIC SUBSTANCES CONTROL ACT (TSCA) CHEMICAL SUBSTANCES INVENTORY.

SECTION V. DISCLAIMER

THE INFORMATION IN THIS MSDS AND ENVIRONMENTAL DATA SHEET WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, REGARDING ITS ACCURACY OR COMPLETENESS.

Material Safety Data Sheet (MSDS)  
 Vulcanizing Cement, Rubber 710-1079

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MATERIAL SAFETY DATA SHEET

Effective Date: 1-14-97 Revision Date: none

Vulcanizing Cement, Rubber 710-1079

Code: TOI Page: 1

=====

Section 1 - Product and Company Identification

PRODUCT NAME: Vulcanizing Cement, Rubber 710-1079

MANUFACTURER'S NAME:

'31 Incorporated  
 P. O. Box 278  
 Newcomerstown, OH 43832  
 (614) 498-8324

EMERGENCY TELEPHONE NUMBER  
 (800) 255-3924

MISCELLANEOUS INFORMATION

=====

Section 2 - Hazardous Ingredients

INGREDIENT	%	TLV UNITS	HAZARD	CAS NUMBER
Heptane	80 - 90	400PPM	Not Hazardous	142-82-5
Methylcyclohexane	5	400PPM		108-87-2
Uncured Natural Rubber	10 - 15			N/A

=====

Section 3 - Hazards Identification

INGREDIENT - HEALTH HAZARD, SIGNS & SYMPTOMS OF EXPOSURE

EXPOSURE LIMITS TLV, PEL, AND SOURCE: See Section 2.

EYE: May cause eye irritation, flush eyes with clean water.

SKIN CONTACT: May cause irritation upon prolonged or repeated contact.

SKIN ABSORPTION: May cause irritation.

SWALLOWING: May cause irritation of gastrointestinal tract, seek medical attention immediately. DO NOT give anything by mouth or induce vomiting.

INHALATION: May cause dizziness, move victim to fresh air, seek medical attention immediately.

CHRONIC EFFECTS OF OVEREXPOSURE: N/A

OTHER HEALTH HAZARDS: N/A

=====

MATERIAL SAFETY DATA SHEET

Effective Date: 1-14-97 Revision Date: none

Vulcanizing Cement, Rubber 710-1079

Code: TOI Page: 2

=====

Section 4 - First Aid Measures

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Flush with large amounts of water for at least 15 minutes. Seek medical attention.

SKIN: Wash with soap and large quantities of water. Seek medical attention if irritation persists.

SWALLOWING: DO NOT induce vomiting. Seek immediate medical advice and / or medical attention.

INHALATION: Give oxygen.

PRIMARY ROUTE OF ENTRY: Contact - Inhalation

NOTE TO PHYSICIAN: Inhalation- If breathing is difficult, dizziness or light headedness occur in areas with high vapor concentrations, victim should seek air free of vapors. If continued breathing difficulties occur, administer oxygen until medical assistance can be rendered.

=====  
Section 5 - Firefighting Measures

FLASH POINT (METHOD USED): 14 degrees F (TCC)

FLAMMABLE LIMITS: LEL: 1.0  
UEL: 7.0

EXTINGUISHING MEDIA: Foam, CO2, Dry Chemical, Fire Fighting Apparatus.

SPECIAL FIRE FIGHTING PROCEDURES: Use of self contained breathing apparatus is recommended for fire fighters.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Extremely flammable and may be ignited by heat, sparks, flame or other source of ignition.

=====  
Section 6 - Environmental Release Measures

ACTION TO TAKE FOR SPILL/LEAKS: Stop flow. Recover what is possible. Small amounts of spilled material may be taken up with inert material.

=====  
MATERIAL SAFETY DATA SHEET  
Effective Date: 1-14-97 Revision Date: none  
Vulcanizing Cement, Rubber 710-1079  
Code: TOI Page: 3  
=====

Section 7 - Handling and Storage

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep product containers cool. Use and store this product with adequate ventilation.

OTHER PRECAUTIONS: Personnel should avoid inhalation of vapors. Personal contact with the product should be avoided. If contact is made, remove saturated clothing and flush affected areas with water.

=====  
Section 8 - Exposure Controls/Personal Protection

RESPIRATORY PROTECTION(SPECIFY TYPE): Use NIOSH approved cartridge or gas mask.

VENTILATION: Mechanical ventilation to keep product within specified TLV ranges.

EYE PROTECTION: Safety glasses

PROTECTIVE GLOVES: Imperable gloves advised.

OTHER PROTECTIVE EQUIPMENT: Work clothes.

=====  
Section 9 - Physical and Chemical Properties

BOILING POINT(760 MM HG) : 200 - 209 deg  
 FREEZING POINT : N/A  
 SPECIFIC GRAVITY(H2O=1) : N/A  
 EVAPORATION RATE (BuAc=1) : 4.50  
 VAPOR DENSITY(air=1) : N/A  
 VAPOR PRESSURE AT 20 deg C : N/A  
 PERCENT VOLATILE BY VOLUME(%): 75 - 85  
 SOLUBILITY IN WATER : N/A  
 APPEARANCE & ODOR : Cloudy liquid with solvent odor.

=====  
Section 10 - Stability and Reactivity

STABILITY: Stable

CONDITIONS TO AVOID: N/A

INCOMPATIBILITY(MATERIALS TO AVOID): Strong acids or bases and selected amines.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition in the presence of air may yield carbon monoxide and/or carbon dioxide.

HAZARDOUS POLYMERIZATION: Will not occur.

=====  
MATERIAL SAFETY DATA SHEET

Effective Date: 1-14-97

Revision Date: none

Vulcanizing Cement, Rubber 710-1079

Code: TOI

Page: 4

=====  
Section 11 - Toxicological Information

None of the raw components of this product are known or suspected to be CARCINOGENS.

=====  
Section 12 - Ecological Information

No information.

=====  
Section 13 - Disposal Considerations

WASTE DISPOSAL METHOD: Dispose of in accordance with local, state and federal regulations.

=====  
Section 14 - Transport Information

Not regulated

=====  
Section 15 - Regulatory Information

=====  
Section 16 - Other Information

HEALTH:	FLAMMABILITY:	REACTIVITY:	PPE:
1	3	0	A

THIS MSDS WAS PREPARED BY:

Charles Muhs  
Technical Advisor  
31 Incorporated  
100 Enterprise Dr.  
Newcomerstown, OH 43832

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding accuracy of this data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the materials if reasonable safety procedures are not adhered to as stipulated in the DATA sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Futhermore, vendee assumes the risk in his use of the material.

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Supplier:  
 Permatex, Inc.  
 10 Columbus Blvd.  
 Hartford, CT 06106  
 Telephone: 1-87-Permatex  
 (877) 376-2839

## Material Safety Data Sheet

### 1. PRODUCT IDENTIFICATION

Product Name: 6BR SENSOR SAFE BLUE RTV SILICONE 3 OZ TB/CG  
 Item No: 80022  
 Product Type: Silicone

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percent	ACGIH 8 Hr. TWA:	OSHA 8 Hr. TWA:
POLY (DIMETHYLSILOXANE), HYDROXY TERMINATED 70131-67-8	65-75		
POLYDIMETHYLSILOXANE 63148-62-9	5-25		
SILOXANE TREATED FUMED SILICA 68583-49-3	5-25		
AMORPHOUS SILICA 7631-86-9	5-25	10 mg/m3 TWA	6 mg/m3 TWA
ETHYLTRIACETOXSILANE 17689-77-9	1-10		
METHYLTRIACETOXSILANE 4253-34-3	1-10		
ACETIC ACID ... % 64-19-7	****	10 ppm TWA; 25 mg/m3 TWA	10 ppm TWA; 25 mg/m3 TWA

### 3. HAZARDS IDENTIFICATION

**Toxicity:** \*\*\*\*When this product is exposed to moisture, 1-3% acetic acid may be formed. May cause eye and skin irritation. May irritate lips, gums, tongue, mouth, nose and throat. May be harmful if swallowed. When heated to temperatures above 300 degrees F. in the presence of air, this product can form formaldehyde vapors. Formaldehyde is a potential cancer hazard and a known skin and respiratory sensitizer. Safe handling conditions may be maintained by keeping vapor concentrations below the OSHA permissible limit for formaldehyde. Hydroxy terminated silicone: Oral LD50 greater than 40,000 mg/kg (rat), Inhalation LC50 greater than 535 mg/l (rat); Methyltriacetoxysilane: Oral LD50 = 2060 mg/kg; Siloxane treated fumed silica: Oral LD50 greater than 40,000 mg/kg (rat), Inhalation LC50 greater than 535 mg/l (rat).  
 Eye and skin contact, ingestion, inhalation.

**Primary Routes of Entry:** Eye and skin contact, ingestion, inhalation.

**Signs and Symptoms of Exposure:** Acetic acid produced during curing irritates eyes, nose and throat. Repeated skin contact may cause allergic skin reactions.

**Medical Conditions Recognized as Being Aggravated by Exposure:** Methyltriacetoxysilane: Eye, skin and pulmonary disorders.

### 4. FIRST AID MEASURES

**Ingestion:** Rinse mouth with water several times. If swallowed, DO NOT induce vomiting. Keep individual calm. Obtain medical attention.

**Inhalation:** If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

**Skin Contact:** Wipe off paste with paper towel or cloth. Wash exposed area with soap and water. Seek medical attention if irritation persists.

**Eye Contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

**Product Name:** 6BR SENSOR SAFE BLUE RTV SILICONE 3 OZ TB/CG  
**Item No:** 80022

## **5. FIRE FIGHTING MEASURES**

**Flash Point (°F/C):** More than 200 degrees F. Method: Tag Closed Cup  
**Recommended Extinguishing Media:** Carbon Dioxide, Dry Chemicals, Foam.  
**Special Fire-Fighting Procedures:** Water spray may be ineffective on flames but should be used to keep fire-exposed containers cool.  
**Hazardous Products Formed by Fire or Thermal Decomposition:** Acetic acid, Formaldehyde, Silica fume, Oxides of carbon. Oxides of nitrogen, Metal oxide fumes, Incomplete combustion may emit component hydrocarbons.  
**Unusual Fire/Explosion Hazards:** None  
**Lower Explosive Limit:** Acetic acid: 4%  
**Upper Explosive Limit:** Acetic acid: 19.9% @ 200 degrees F.

## **6. ACCIDENTAL RELEASE MEASURES**

**Spill Procedures:** Wipe or scrape up spill material. Maintain good ventilation for large spills. Place scrap material in a well-ventilated area and allow to cure to rubber. Clean up spills thoroughly as residue is slippery.

## **7. HANDLING AND STORAGE**

**Storage:** Store in a dry area below 90 degrees F. Keep container closed when not in use.  
**Handling:** Avoid contact with skin and eyes. Do not inhale vapors.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Eyes:** Not normally required, but wearing safety glasses will minimize exposure.  
**Skin:** Rubber or plastic gloves  
**Ventilation:** General ventilation is usually adequate.  
**Respiratory Protection:** Not normally necessary.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** Blue paste  
**Odor:** ACETIC ACID ODOR  
**Boiling Point (°F):** Not applicable, polymeric material  
**pH:** Does not apply  
**Solubility in Water:** Polymerized  
**Specific Gravity:** 1.04  
**VOC Content(Wt.%):** 4.6% by weight; 47.8 g/l  
**Vapor Pressure:** Less than 5 mm Hg @ 80 degrees F.  
**Vapor Density (Air=1):** Not Determined  
**Evaporation Rate:** Not Determined

## **10. STABILITY AND REACTIVITY**

**Chemical Stability:** Stable at normal conditions  
**Hazardous Polymerization:** WILL NOT OCCUR  
**Incompatibilities:** Polymerized by contact with moisture. Acetic acid liberated.  
**Conditions to Avoid:** Moisture while storing.  
**Hazardous Products Formed by Fire or Thermal Decomposition:** Acetic acid, Formaldehyde, Silica fume, Oxides of carbon. Oxides of nitrogen, Metal oxide fumes, Incomplete combustion may emit component hydrocarbons.

## **11. TOXICOLOGICAL INFORMATION**

See Section 3

## **12. ECOLOGICAL INFORMATION**

No data available

## **13. DISPOSAL CONSIDERATIONS**

**Recommended Method of Disposal:** Disposal should be made in accordance with federal, state and local regulations.  
**US EPA Waste Number:** NH - Not a RCRA Hazardous Waste Material

## **14. TRANSPORT INFORMATION**

**Product Name:** 6BR SENSOR SAFE BLUE RTV SILICONE 3 OZ TB/CG  
**Item No:** 80022

DOT (49CFR 172)

**Domestic Ground Transport**

DOT Shipping Name: Unrestricted  
Hazard Class: NONE  
UN/ID Number: None  
Marine Pollutant: None

**IATA**

Proper Shipping Name: Unrestricted  
Class or Division: None  
UN/NA Number: NONE

**IMDG**

Proper Shipping: Unrestricted  
Hazard Class: None  
UN Number: None

**15. REGULATORY INFORMATION**

SARA 313 Chemicals: The following component(s) is listed as a SARA Section 313 Toxic Chemical.  
NONE

**CALIFORNIA PROP 65:**

No California Prop 65 chemicals are known to be present.

**TSCA Inventory Status:**

All components of this product are listed (or exempt) on the EPA TSCA inventory.

**16. OTHER INFORMATION**

Estimated NFPA Rating: HEALTH 2, FLAMMABILITY 1, REACTIVITY 1  
Estimated HMIS Classification: HEALTH 2, FLAMMABILTY 1, PHYSICAL HAZARD 0

NFPA is a registered trademark of the National Fire Protection Assn.

HMIS is a registered trademark of the National Paint and Coatings Assn.

Prepared By: Denise Boyd Health and Safety Manager  
Company: Permatex. Inc. 10 Columbus Blvd. Hartford, CT 06106  
Telephone Number: 1-87-Permatex (877) 376-2839  
Revision Date: 03/01/2001  
Revision Number: 2

Supplier:  
 Permatex, Inc.  
 10 Columbus Blvd.  
 Hartford, CT 06106  
 Telephone: 1-87-Permatex  
 (877) 376-2839

## Material Safety Data Sheet

### 1. PRODUCT IDENTIFICATION

Product Name: 26BR HI TEMP RTV RED SILICONE 3 OZ TB/CG  
 Item No: 81160  
 Product Type: Silicone

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percent	ACGIH 8 Hr. TWA:	OSHA 8 Hr. TWA:
POLYDIMETHYLSILOXANE 63148-62-9	80-90		
AMORPHOUS SILICA 7631-86-9	5-15	10 mg/m3 TWA	6 mg/m3 TWA
IRON OXIDE 1309-37-1	1-10	5 mg/m3 (Fe)	10 mg/m3 (Fe) particulate
METHYLTRIACTOXYSILOXANE 4253-34-3	1-10		
ACETIC ACID ... % 64-19-7	****	10 ppm TWA; 25 mg/m3 TWA	10 ppm TWA; 25 mg/m3 TWA

### 3. HAZARDS IDENTIFICATION

**Toxicity:** \*\*\*\*When this product is exposed to moisture, 1-3% acetic acid may be formed. May cause eye and skin irritation. May irritate lips, gums, tongue, mouth, nose and throat. May be harmful if swallowed. When heated to temperatures above 300 degrees F. in the presence of air, this product can form formaldehyde vapors. Formaldehyde is a potential cancer hazard and a known skin and respiratory sensitizer. Safe handling conditions may be maintained by keeping vapor concentrations below the OSHA permissible limit for formaldehyde. Oral LD50 = 2060 mg/kg.

**Primary Routes of Entry:**

Eye and skin contact, ingestion, inhalation.

**Signs and Symptoms of Exposure:**

Acetic acid produced during curing irritates eyes, nose and throat. Repeated skin contact may cause allergic skin reactions.

Ingredients	Percent	NTP:	ACGIH Carcinogens	IARC:
IRON OXIDE 1309-37-1	1-10		A4 - Not Classifiable	Group 3

**Medical Conditions Recognized as Being Aggravated by Exposure:** Methyltriacetoxysilane: Eye, skin and pulmonary disorders.

### 4. FIRST AID MEASURES

**Ingestion:**

Rinse mouth with water several times. If swallowed, DO NOT induce vomiting. Keep individual calm. Obtain medical attention.

**Inhalation:**

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

**Skin Contact:**

Wipe off paste with paper towel or cloth. Wash exposed area with soap and water. Seek medical attention if irritation persists.

**Eye Contact:**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

### 5. FIRE FIGHTING MEASURES

**Flash Point (°F/C):** More than 200 degrees F. Method: Tag Closed Cup

**Product Name:** 26BR HI TEMP RTV RED SILICONE 3 OZ TB/CG  
**Item No:** 81160

**Recommended Extinguishing Media:** Carbon Dioxide, Dry Chemicals, Foam.  
**Special Fire-Fighting Procedures:** Water spray may be ineffective on flames but should be used to keep fire-exposed containers cool.  
**Hazardous Products Formed by Fire or Thermal Decomposition:** Acetic acid, Formaldehyde, Silica fume,  
**Unusual Fire/Explosion Hazards:** None  
**Lower Explosive Limit:** Acetic acid: 4%  
**Upper Explosive Limit:** Acetic acid: 19.9% @ 200 degrees F.

## **6. ACCIDENTAL RELEASE MEASURES**

**Spill Procedures:** Wipe or scrape up spill material. Maintain good ventilation for large spills. Place scrap material in a well-ventilated area and allow to cure to rubber. Clean up spills thoroughly as residue is slippery.

## **7. HANDLING AND STORAGE**

**Storage:** Store in a dry area below 90 degrees F. Keep container closed when not in use.  
**Handling:** Avoid contact with skin and eyes. Do not inhale vapors.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Eyes:** Not normally required, but wearing safety glasses will minimize exposure.  
**Skin:** Rubber or plastic gloves  
**Ventilation:** General ventilation is usually adequate.  
**Respiratory Protection:** Not normally necessary.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** Red paste  
**Odor:** ACETIC ACID ODOR  
**Boiling Point (°F):** Not applicable, polymeric material  
**pH:** Does not apply  
**Solubility in Water:** Polymerized  
**Specific Gravity:** 1.05  
**VOC Content(Wt.%):** 4.8% by weight; 0.42 lb/gal; 50.48 g/l  
**Vapor Pressure:** 10 mm Hg @ 80 degrees F.  
**Vapor Density (Air=1):** Not Determined  
**Evaporation Rate:** Not Determined

## **10. STABILITY AND REACTIVITY**

**Chemical Stability:** Stable at normal conditions  
**Hazardous Polymerization:** WILL NOT OCCUR  
**Incompatibilities:** Polymerized by contact with moisture. Acetic acid liberated.  
**Conditions to Avoid:** Moisture while storing.  
**Hazardous Products Formed by Fire or Thermal Decomposition:** Acetic acid, Formaldehyde, Silica fume,

## **11. TOXICOLOGICAL INFORMATION**

See Section 3

## **12. ECOLOGICAL INFORMATION**

No data available

## **13. DISPOSAL CONSIDERATIONS**

**Recommended Method of Disposal:** Disposal should be made in accordance with federal, state and local regulations.  
**US EPA Waste Number:** NH - Not a RCRA Hazardous Waste Material

## **14. TRANSPORT INFORMATION**

**DOT (49CFR 172)**

**Domestic Ground Transport**

**DOT Shipping Name:** Unrestricted

**Product Name:** 26BR HI TEMP RTV RED SILICONE 3 OZ TB/CG  
**Item No:** 81160

**Hazard Class:** NONE  
**UN/ID Number:** None  
**Marine Pollutant:** None  
**IATA**  
**Proper Shipping Name:** Unrestricted  
**Class or Division:** None  
**UN/NA Number:** NONE  
**IMDG**  
**Proper Shipping:** Unrestricted  
**Hazard Class:** None  
**UN Number:** None

**15. REGULATORY INFORMATION**

**SARA 313 Chemicals:** The following component(s) is listed as a SARA Section 313 Toxic Chemical.  
NONE

**CALIFORNIA PROP 65:**

No California Prop 65 chemicals are known to be present at or above the No Significant Risk Level.

**TSCA Inventory Status:**

All components of this product are listed (or exempt) on the EPA TSCA inventory.

**16. OTHER INFORMATION**

**Estimated NFPA Rating:** HEALTH 1, FLAMMABILITY 1, REACTIVITY 0  
**Estimated HMIS Classification:** HEALTH 1, FLAMMABILITY 1, PHYSICAL HAZARD 0

NFPA is a registered trademark of the National Fire Protection Assn.  
HMIS is a registered trademark of the National Paint and Coatings Assn.

**Prepared By:** Denise Boyd Health and Safety Manager  
**Company:** Permatex, Inc. 10 Columbus Blvd. Hartford, CT 06106  
**Telephone Number:** 1-87-Permatex (877) 376-2839  
**Revision Date:** 03/01/2001  
**Revision Number:** 3

M A T E R I A L   S A F E T Y   D A T A   S H E E T

ASBP24/12 - AlumaSeal Leak Stopper  
Part #ASBP24/12

Gold Eagle Company  
4400 S. Kildare Blvd.  
Chicago, IL 60632-0432  
(773) 376-4400

\*\*\*\*\* HMIS RATINGS \*\*\*\*\*  
Health: 1   Flammability: 1   Reactivity: 0   Pers. Prot. Index: B

\*\*\*\*\* NFPA RATINGS \*\*\*\*\*  
Health: 1   Fire: 1   Reactivity: 0   Specific Hazard: Dust

SECTION I   PRODUCT IDENTITY

Product/Trade Name(s): ASBP24/12 - AlumaSeal Leak Stopper  
Part Number: ASBP24/12  
MSDS Date: 08/07/01  
CAS #: N/A  
Category: N/A  
Distributor: N/A  
Chemical Name: N/A  
Formula: N/A  
Brief Description: Organic based automotive radiator sealer.

SECTION II   HAZARDOUS INGREDIENTS & EXPOSURE LIMITS

CHEMICAL NAME	CAS #	%	LIMIT VALUES		
CONTAINS 0 - 5 % ALUMINUM POWDER	7429-90-5	0.00	PEL	15 mg/m3	total dust (metal)
			PEL	5 mg/m3	resp. frac. (metal)
CONTAINS 95 - 100 % ORGANIC VEGETABLE MEALY		0.00		N/A	

SECTION III   PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A  
Vapor Pressure (mm Hg.): N/A  
Vapor Density (AIR = 1): N/A  
Solubility in Water: N/A  
% Volatile / Volume: 0-5%  
Appearance and Odor: Silver colored powder  
pH: N/A  
Specific Gravity (H2O = 1): N/A

Miscellaneous Information

Product may produce dust, wear a dust mask as required. Wash hands and skin as needed, do not let product remain in contact with these areas.

**ASBP24/12 - AlumaSeal Leak Stopper  
Part #ASBP24/12**

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**SECTION IV FIRE AND EXPLOSION HAZARD DATA**

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Flash Point: N/A

Flammable Limits: N/A

Lower Explosive Limit (LEL): N/A

Upper Explosive Limit (UEL): N/A

**Extinguishing Media**

Carbon dioxide, dry chemical, foam and water fog.

**Special Fire Fighting Procedures**

Use SCBA apparatus operated in pressure demand or other positive pressure mode. Use non sparking tools for cleanup.

**Unusual Fire and Explosion Hazards**

Do not store product near halogenated hydrocarbons, alkalis, or oxidizers. Aluminum is a nuisance dust.

---

**SECTION V REACTIVITY DATA**

---

Stable: Yes

Hazardous Polymerization May Occur: No

**Conditions to Avoid**

Do not store near halogenated hydrocarbons, alkalis, and oxidizers.

Aluminum is a nuisance dust. If product is suspended in a dust laden cloud, it is readily ignited and could be explosive.

**Incompatibility (Material to Avoid)**

If product is suspended in a dust laden cloud and a static charge occurs explosion could result. Use only non-sparking tools and cleaning equipment when working with powder.

**Hazardous Decomposition or Byproducts**

None.

---

**SECTION VI HEALTH HAZARD DATA**

---

**Effects on Eyes**

Slight Irritant

**Effects on Skin**

Irritant.

**Effects Due to Ingestion**

Harmful when swallowed. If ingested, aluminum powder may produce irritation of digestive tract.

**Effects Due to Inhalation**

Potential irritant. Over exposure to iron dust or fume may result in siderosis.

**First Aid Procedures for Eyes**

If the product contacts the eyes, immediately wash the eyes with large quantities of room temperature water for at least 15 minutes, occasionally lifting the lower and upper lids. Get medical attention immediately. A follow up visit to an ophthalmologist should be made. Contact lenses should not be worn when working with this chemical.

**First Aid Procedures for Skin**

If the product contacts the skin, promptly wash the contaminated skin with soap and water for at least 15 minutes. Get medical attention as required.

**First Aid Procedures for Ingestion**

DO NOT INDUCE VOMITING. Get medical attention immediately. Aspiration of material into lungs due to vomiting can cause chemical pneumonitis which

**ASBP24/12 - AlumaSeal Leak Stopper  
Part #ASBP24/12**

---

**SECTION VI HEALTH HAZARD DATA (cont.)**

---

**First Aid Procedures for Ingestion (cont.)**  
can be fatal.

**First Aid Procedures for Inhalation**

Move the exposed person to fresh air at once and call emergency medical care. If breathing has stopped, give artificial respiration. If breathing is difficult, give humidified oxygen.

---

**SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE**

---

**Steps to Be Taken in Case Material is Released or Spilled**

**SMALL SPILLS:** Remove sources of heat or ignition, provide adequate ventilation, contain leak using absorbent, inert, non-combustible material.

**LARGE SPILLS:** Contain spill, transfer to secure containers. In the event of an uncontrolled material release, the user should determine if release is reportable under applicable laws and regulations.

**Waste Disposal Method**

Dispose of product in accordance with local, state, and federal regulations. Before attempting clean up, refer to other sections of MSDS for hazard warning information.

**Precautions to Be Taken in Handling and Storing**

See other sections of MSDS.

**Other Precautions**

Warning: large volumes of powder and creation of dust in the presence of a static charge could cause an explosion. Always use non-sparking equipment for cleaning areas containing powder and/or dust.

---

**SECTION VIII CONTROL MEASURES**

---

**Local Exhaust:** Provide local ventilation to maintain exposure levels below any recommended limits.

**Mechanical (General):** In confined spaces, mechanical ventilation may be required.

**Special Ventilation:** N/A

**Other Ventilation:** N/A

**Protective Gloves:** Use natural rubber or neoprene gloves as required.

**Eye Protection:** Use splash proof chemical, safety goggles or appropriate full-face shield.

**Other Protective Clothing or Equipment**

If there is a possibility of exposure of an individual's body to the product, wear body covering clothes to avoid prolonged or repeated exposure.

**Work/Hygienic Practices**

Use normal hygiene practices. Do not allow powder to remain on hands, skin or other clothes or body extremities. Do not wear work shoes home.

**Respiratory Protection (Specify Type)**

Use a approved dust/carbon dust filter or a NIOSH approved dust respirator with appropriate dust filters.

ASBP24/12 - AlumaSeal Leak Stopper  
Part #ASBP24/12

**SECTION IX ADDITIONAL INFORMATION**

**Additional Information**

SHIPPING INFORMATION (CFR 49 AND IMDG):

PROPER SHIPPING NAME: Cement, radiator  
DOT HAZARD CLASS : None required.  
DOT UN NUMBER : None required.  
IMDG SHIPPING NAME : Non Hazardous Consumer Product

SARA TITLE III:

Section 302: None  
Section 304: None  
Section 311: None  
Section 313: None

CERCLA:

Section 311 (b) (4): Requires discharges of crude oil and petroleum products in any kind of form to waters must be reported to the National Response Center at (800) 424-8802.

DISCLAIMER: Information presented herein is believed to be factual, as it has been derived from the works and opinions of persons believed to be qualified experts. However, nothing contained in this information is to be taken as warranty or representation for which the Gold Eagle Co. bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.

Prepared by: Mike Profetto  
Date : 8/7/01

While the information and recommendations set forth herein are believed to be accurate as of the MSDS date, Corbus, a division of Compliance Management Systems, Inc., makes no warranties expressed or implied of fitness for a particular purpose with respect hereto and disclaims all liability from reliance thereon.

(000000-000000- -22142425)

DATE OF ISSUE  
9/11/1995

SUPERSEDES  
8/30/1995

SECTION I - GENERAL INFORMATION

Chemical Name & Synonyms  
N/A

Trade Name & Synonyms  
HERCU-FLEX TAPE

Chemical Family:  
TALC/POLYMER MIXTURE

Formula Mixture --> X

Manufacturer's Name:  
DYNA SYSTEMS A PARTSMASTER CO DIV OF NCH

Address:  
P.O. BOX 655326  
DALLAS, TEXAS 75265-5326

Prepared By:  
M PERKINS/CHEMIST

Product Code Number  
22142425

Emergency Phone Number  
800-424-9300

SECTION II - HAZARDOUS INGREDIENTS  
THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS

Chemical Name (Ingredients)	Hazard	TLV	PEL	STEL	CAS #
TALC	IRRITANT	2 MG/M3\$ 1	2 MG/M3\$ 2	>1	14807-96-6
ASPHALT	IRRITANT	5 MG/M3! 1	5 MG/M3! 2	NOT EST.	8052-42-4
CARBON BLACK	IRRITANT	3.5MG/M3 1	3.5MG/M3 2	NOT EST.	1333-86-4
POLYBUTYLENE	IRRITANT	N/E 1	N/E 2	N/E	9003-29-6
ALIPHATIC HYDROCARBON RESIN	IRRITANT	N/E 1	N/E 2	N/E	68003-51-0
ETHYLENE-PROPYLENE TERPOLYMER	IRRITANT	N/E 1	N/E 2	N/E	61789-00-2
ISOBUTYLENE-ISOPRENE POLYMER	IRRITANT	N/E 1	N/E 2	N/E	9010-85-9
\$ RESPIRABLE DUST VALUES.					
! FUME VALUES.					
ANTIMONY TRIOXIDE	CARC.	0.5MG/M3@1	N/E 2	N/E	1309-64-4
LEAD PHOSPHITE	CARC.	.15MG/M3*1	.05MG/M3*2	N/E	1344-40-7
* AS LEAD VALUES.					
@ AS ANTIMONY.					

SECTION III - PHYSICAL DATA

Boiling Point (F):	N/A	Specific Gravity (H2O=1):	N/A
Vapor Pressure (MM HG):	N/A	Color:	BLACK
Vapor Density (Air=1):	N/A	Odor:	NONE
PH @ 100% :	N/A	Clarity:	OPAQUE
% Volatile by Volume:	0	Evaporation Rate (BU A/C=1):	0
H2O Solubility:	NIL	Viscosity:	SOLID

SECTION IV - FIRE AND EXPLOSION HAZARD

Flash Point NON-FLAM / N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media X <--Foam	<--Alcohol Foam	X <--CO2	X <--Dry Chemical
			<--Water Spray
			<--Other
Special Fire Fighting Procedures: FIREFIGHTERS SHOULD WEAR A SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE GEAR. EXTINGUISHING MEDIA SHOULD BE CHOSEN BASED ON THE NATURE OF THE SURROUNDING FIRE.			
Unusual Fire and Explosion Hazards: NONE KNOWN.			
Aerosol Level (NFPA 30B): N/A			
NFPA 704 Hazard Rating (0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme) 1 <--Health 1 <--Flammability 0 <--Instability <--Special			

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value:  
NOT ESTABLISHED FOR PRODUCT MIXTURE. SEE SECTION II.

Effects of Overexposure:  
-Acute (Short Term Exposure)  
INHALATION: INHALATION OF FUMES FROM HEATED PRODUCT MAY CAUSE RESPIRATORY IRRITATION.

-Chronic (Long Term Exposure)  
NO CHRONIC DATA AVAILABLE. MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN. TARGET ORGANS: NONE KNOWN. ALTHOUGH THERE IS NO PRIMARY ROUTE OF ENTRY INTO THE BODY WITH THE NORMAL USE OF THE PRODUCT, INHALATION OF VAPORS FROM HEATED PRODUCT WOULD BE CONSIDERED THE MOST LIKELY ROUTE OF EXPOSURE.

Primary Routes of Entry: <--Inhalation <--Ingestion <--Absorption

## MATERIAL SAFETY DATA SHEET: HERCU-FLEX TAPE

Page: 2

## SECTION V - HEALTH HAZARD DATA (Continued)

## Emergency and First Aid Procedures:

## -Inhalation:

REMOVE FROM THE AREA TO FRESH AIR. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION DEVELOPS OR IF BREATHING BECOMES DIFFICULT.

## -Eye Contact:

RINSE THE EYES WITH WATER. REMOVE ANY CONTACT LENSES AND CONTINUE FLUSHING WITH PLENTY OF WATER FOR SEVERAL MINUTES. SEEK MEDICAL ATTENTION IF IRRITATION DEVELOPS.

## -Skin Contact:

WASH AFFECTED AREAS WITH PLENTY OF SOAP AND WATER FOR SEVERAL MINUTES. SEEK MEDICAL ATTENTION IF IRRITATION DEVELOPS.

## -Ingestion:

GIVE 3 TO 4 GLASSES OF WATER. BUT DO NOT INDUCE VOMITING. IF VOMITING OCCURS, GIVE FLUIDS AGAIN. GET IMMEDIATE MEDICAL ATTENTION IF DISCOMFORT OCCURS.

## -Notes to Physician:

NONE KNOWN.

## SECTION VI - TOXICITY INFORMATION

## Product Contains Chemicals Listed as Carcinogen or Potential Carcinogen By:

IARC--> No      NTP--> No      OSHA--> No      ACGIH--> No      OTHER--> No

POLYBUTYLENE  
NO TOXICITY DATA AVAILABLE.

TALC  
SKIN-NEW 300 UG/3D-I MLD 3. ALIPHATIC HYDROCARBON RESIN  
NO TOXICITY DATA AVAILABLE.

INL-RAT TCLO: 11 MG/MS/1Y-I: ETA 3. ETHYLENE-PROPYLENE TERPOLYMER  
NO TOXICITY DATA AVAILABLE.

ASPHALT  
NO TOXICITY DATA AVAILABLE.

SKN-MS TDLO: 130 G/KG/91W-I: CAR 3. ISOBUTYLENE-ISOPRENE POLYMER  
NO TOXICITY DATA AVAILABLE.

SKN-MS TD: 69 G/KG/91W-I: ETA 3. NO TOXICITY DATA AVAILABLE.

CARBON BLACK  
NO TOXICITY DATA AVAILABLE.

SCU-RAT TDLO: 167 MG/KG 9D PREG REP 3.  
CYT-RAT IDL: 1950 MG/KG 3.

ANTIMONY TRIOXIDE  
INL-RAT TCLO: 4200 UG/MS/52W-I: CAR 3.  
IPR-RAT LD50: 3250 MG/KG 3.  
INL-RAT TC: 50 MG/MS/7R/52W-I: NEO 3.

LEAD PBOXPHITE  
LEAD IS A REPRODUCTIVE HAZARD CAUSING BEHAVIORAL DEFECTS, TERATOGENICITY, FETOTOXICITY, AND MALE REVERSIBLE FERTILITY EFFECTS BASED ON HUMAN EXPERIENCE. 4.

## SECTION VII - REACTIVITY DATA

Stability:            X <--Stable            <--Unstable

Conditions to Avoid:  
NONE KNOWN.

Incompatibility (Materials to Avoid):

NONE KNOWN.

Hazardous Decomposition Products:

OXIDES OF CARBON, HYDROGEN CHLORIDE AND PHOSGENE.

Hazardous Polymerization:

<--May Occur            X <--Will Not Occur

Conditions to Avoid:

N/A

## SECTION VIII - SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Released or Spilled:

PICK UP PRODUCT.

Waste Disposal Method(s):

DISPOSE OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.

Neutralizing Agent:

NONE KNOWN.

## SECTION IX - SPECIAL PROTECTION INFORMATION

Required Ventilation:

GENERAL MECHANICAL VENTILATION IS NORMALLY ADEQUATE.

Respiratory Protection:

NONE REQUIRED UNDER NORMAL CONDITIONS OF USE.

Glove Protection:

NONE REQUIRED WITH NORMAL USE OF PRODUCT.

Eye Protection:

NONE REQUIRED WITH NORMAL USE OF PRODUCT.

Other Protection:

WEAR GENERAL DUTY WORK CLOTHING AND SHOES.

## SECTION X - STORAGE AND HANDLING INFORMATION

## SECTION X - STORAGE AND HANDLING INFORMATION (Continued)

Storage Temperature:   Indoors--> X                   Outdoors-->  
Minimum Temperature: 0 F   Maximum Temperature: 120 F.                   Heated-->                   Refrigerated-->

Precautions to be Taken in Handling and Storing:  
ALWAYS STORE MATERIAL IN ITS ORIGINAL CONTAINER.

Other Precautions:  
KEEP OUT OF REACH OF CHILDREN. READ THE ENTIRE LABEL BEFORE USING THE PRODUCT. FOLLOW THE LABEL DIRECTIONS.

## SECTION XI - REGULATORY INFORMATION

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Upper &amp; Limit</u>
ANTIMONY TRIOXIDE	1309-64-4	1
LEAD PHOSPHITE	1344-40-7	1

These ingredients listed above are subject to the reporting requirements of 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

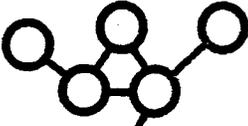
Please call 1-800-527-9919 for additional information if you are a California customer.  
This MSDS is not intended for users in the state of California.

## SECTION XII - REFERENCES

1. THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS AND BIOLOGICAL EXPOSURE INDICES, ACGIH, 1994-1995.
2. OSHA PEL.
3. SAX'S DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, EIGHTH EDITION, RICHARD J. LEWIS, SR.
4. VENDOR'S MSDS.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE IN LIGHT OF CURRENT FORMULATION. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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# BELZONA® 1111 (SUPER METAL)

## INSTRUCTIONS FOR USE

### 1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

APPLY ONLY TO CLEAN, FIRM, DRY AND WELL ROUGHENED SURFACES

- Brush away loose contamination and degrease with a rag soaked in **Belzona® 9111** (Cleaner/degreaser) or any other effective cleaner which does not leave a residue e.g. methyl ethyl ketone (MEK). Use a flame to sweat out oil from deeply impregnated surfaces.
- Roughen surfaces by blast cleaning, deeply scoring or grinding.
- Stabilise cracks by drilling the extremities. Long cracks should be drilled, tapped and bolted every 3-4 inches (77-103 mm).
- Vee-out all cracks using a rotary file.
- Finally degrease again. Use clean rags to avoid spreading contamination.

#### WHERE BELZONA® 1111 SHOULD NOT ADHERE

Brush on a thin layer of **Belzona® 9411** (Release Agent) and allow to dry for 15-20 minutes before proceeding to step 2.

### 2. COMBINING THE REACTIVE COMPONENTS

Transfer the entire contents of the Base and Solidifier modules on to the **Belzona® Working Surface**. Mix thoroughly together to achieve a uniform material free of any streakiness.

#### 1. MIXING AT LOW TEMPERATURES

To ease mixing when the material temperature is below 41°F (5°C), warm the Base and Solidifier modules until the contents attain a temperature of 68-77°F (20-25°C).

#### 2. WORKING LIFE

From the commencement of mixing, **Belzona® 1111** must be used within the times shown below.

Temperature	41°F (5°C)	59°F (15°C)	77°F (25°C)
Use all material within	35 min.	25 min.	15 min.

#### 3. MIXING SMALL QUANTITIES

For mixing small quantities of **Belzona® 1111** use:  
3 parts Base to 1 part Solidifier by volume  
5 parts Base to 1 part Solidifier by weight

#### 4. VOLUME CAPACITY OF MIXED BELZONA® 1111

24.3 cu.in. (398 cm<sup>3</sup>) per kg.

### 3. APPLYING BELZONA® 1111

#### FOR BEST RESULTS

Do not apply when:

- The temperature is below 41°F (5°C) or the relative humidity is above 90%.
- Rain, snow, fog or mist is present.
- There is moisture on the metal surface or is likely to be deposited by subsequent condensation.
- The working environment is likely to be contaminated by oil/grease from adjacent equipment or smoke from kerosene heaters or tobacco smoking.

- Apply the **Belzona® 1111** directly on to the prepared surface with the plastic applicator or spatula provided.
- Press down firmly to fill all cracks, remove entrapped air, and ensure maximum contact with the surface.
- Over cracks, gaps and holes, stipple in **Belzona® 9341** (Reinforcement Tape).
- Contour the **Belzona® 1111** to the correct profile with the plastic applicator or alternatively allow to cure and then machine down.

#### CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. Methyl ethyl ketone (MEK). Brushes, injection guns, spray equipment and any other application tools should be cleaned using a suitable solvent such as **Belzona® 9121**, MEK, acetone or cellulose thinners.

## 4. COMPLETION OF THE MOLECULAR REACTION

Allow **Belzona® 1111** to solidify as below subjecting it to the conditions indicated.

Temperature	Movement or use involving no loading or immersion	Machining and/or light loading	Full mechanical or thermal loading	Immersion in chemicals
41°F/ 5°C	4 hours	6 hours	4 days	5 days
50°F/10°C	3 hours	4 hours	2 days	4 days
59°F/15°C	2¼ hours	3 hours	1½ days	3 days
68°F/20°C	1¾ hours	2 hours	1 day	2 days
77°F/25°C	1 hour	1½ hours	20 hours	1½ days
86°F/30°C	¾ hour	1 hour	16 hours	1 day

These times are for a thickness of approximately 0.25 inch (6 mm); they will be reduced for thicker sections and extended for thinner sections.

## 5. EFFECTING THE SECONDARY MOLECULAR REACTION

The mechanical properties, heat resistance and chemical resistance of **Belzona® 1111** will be improved by post curing.

After 2 - 4 hours of applying **Belzona® 1111**, post cure the material using forced air heaters, heat lamps, etc. for a minimum of 4 hours at 140-212°F (60-100°C).

Generally, the higher the post cure temperature adopted, the higher the properties attained.

## 6. APPLICATION OF A FURTHER LAYER OF BELZONA® 1111

When a further layer of **Belzona® 1111** is required, this should be applied as soon as possible after the first layer. Once **Belzona® 1111** has become dimensionally stable then the surface must be roughened otherwise intercoat adhesion will be impaired.

### HEALTH & SAFETY INFORMATION

Please read and make sure you understand the relevant Material Safety Data Sheets.

All descriptions are based on the results of long term tests carried out in our laboratories and are believed to be true and accurate. No condition or warranty is given covering the results from the use of our products in any particular case, whether the purpose is disclosed or not, and we cannot accept liability if the desired results are not obtained.

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**Belzona® 1111 - Instructions For Use - (Page 2)**

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BS EN ISO 9002 : 1994  
Certificate No. Q09335



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## Accessories

# INSTRUCTIONS FOR USE

### **BELZONA® 9111** (Cleaner/Degreaser)

#### Degreasing Non-porous Surfaces

##### a) Smooth Surfaces

Wipe thoroughly with a clean rag moistened with **Belzona® 9111**. Change the rag and repeat the process until the rag appears perfectly clean after wiping the surface. Avoid spreading the contamination by cleaning only small areas at a time.

##### b) Rough Surfaces

Brush the **Belzona® 9111** copiously over the surface, using a stiff bristled brush. Continue until the **Belzona® 9111** runs off uncontaminated.

#### Degreasing Porous Surfaces

Note: When oil and grease are deeply impregnated into the substrate, there is no successful method of removing this. The technique below will, however, remove surface oil and grease.

- Mix **Belzona® 9111** with talcum powder or sawdust to form a "sloppy" paste.
- Spread the paste over area to be degreased.
- Leave for 30 minutes and then sweep away.
- Check the surface for cleanliness and if necessary, repeat steps (b) and (c).

#### Cleaning Equipment

- Mixing tools, plastic spatulas, applicators and working surfaces should be cleaned immediately after use using a rag soaked in **Belzona® 9111** and then left to dry before re-use (see Drying Times).
- Application tools such as brushes, injection guns, spray units and other application equipment should be cleaned using a suitable solvent such as **Belzona® 9121**, methyl ethyl ketone (MEK), acetone or cellulose thinners.

#### Drying Times

Drying time will vary with the porosity of the substrate and the ambient temperature. The table below gives a guide to the drying time of a thin film of **Belzona® 9111** on a smooth non-porous surface.

Temperature of Substrate	Drying Time
86°F (30°C)	25 minutes
68°F (20°C)	30 minutes
50°F (10°C)	45 minutes
41°F ( 5°C)	60 minutes

To accelerate drying, the following actions are recommended:-

- Cold surfaces should be warmed before using **Belzona® 9111**.
- Excess **Belzona® 9111** should be removed with a clean cloth or paper towel where possible. This should be carried out by dabbing rather than rubbing the surface, to avoid contamination of the surface by fibres.
- Compressed air should be blown over the treated surface, taking care to ensure that there is an oil filter in the line.

#### Suitability

There is a possibility of **Belzona® 9111** attacking certain types of plastic, and painted surfaces. In cases of doubt, it is strongly recommended that a small portion be tested for solvent attack. If any stickiness is evident after wiping with **Belzona® 9111**, an alternative cleaning agent such as methyl ethyl ketone or white spirit must be used, having once again checked for compatibility.

## **BELZONA® 9411** (Release Agent)

### **Application to Non-porous Surfaces**

- a) Shake the unit before use.
- b) Apply a thin even coat using a soft bristled brush.
- c) Allow to dry before allowing contact with any Belzona® Product (see "Drying Times").

### **Application to Porous Surfaces**

- a) Seal the porous surface with a suitable lacquer and allow to dry.
- b) Shake the unit of **Belzona® 9411**.
- c) Apply a thin even coat to the lacquered surface and allow to dry.

### **Typical Drying Times**

Drying times are dependent on the thickness of **Belzona® 9411** applied and air movement, as well as the temperature of the substrate. They may be significantly extended where a thick layer is applied to a cold substrate in still conditions.

Typically at 68°F (20°C) **Belzona® 9411** will be dry for overcoating in 15 - 20 minutes.

Surfaces less than 41°F (5°C) should always be warmed before using **Belzona® 9411**.

### **Coverage Rate**

As a practical guideline, a coverage rate of 40 sq. ft. (3.7 m<sup>2</sup>) per unit should be aimed for on smooth steel substrates. On rough or irregular surfaces, this coverage rate could be reduced by as much as 50%.

### **Suitability**

**Belzona® 9411** may attack certain types of plastic. In cases of doubt, test a small area for solvent attack.

### **Removal of Belzona® 9411**

Where it is necessary to remove the dried film of **Belzona® 9411**, wipe over the surface with a rag soaked in **Belzona® 9111**.

## **Belzona® 9341** (Reinforcement Tape)

### **When using with Belzona® 1000 Series products**

- a) Spread the **Belzona® 1000 Series** product onto a piece of **Belzona® 9341**, previously cut to size.
- b) Press the coated **Belzona® 9341** over the damaged surface or, in the case of pipework, wrap around and pull tight.

In either instance the coated face of the **Belzona® 9341** should be pressed onto the substrate.

- c) Work the **Belzona® 9341** into the **Belzona® 1000 Series** product to ensure complete wetting.
- d) Overcoat with further **Belzona® 1000 Series** product.
- e) Apply subsequent layers of **Belzona® 9341** and **Belzona® 1000 Series** product as required.

### **When using with Belzona® 2000 Series products**

- a) Apply a layer of **Belzona® 2000 Series** product over the damaged area.
- b) Bed in as many widths of **Belzona® 9341** as necessary, and ensure complete wetting out.
- c) Overcoat with a further layer of **Belzona® 2000 Series** product.
- d) Apply subsequent layers of **Belzona® 9341** and **Belzona® 2000 Series** product as required.

## **HEALTH & SAFETY INFORMATION**

Please read and make sure you understand the enclosed Material Safety Data Sheets.

All descriptions are based on the results of long term tests carried on in our laboratories and are believed to be true and accurate. No condition or warranty is given covering the results from the use of our products in any particular case, whether the purpose is disclosed or not, and we cannot accept liability if the desired results are not obtained.

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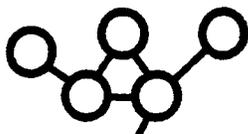
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BS EN ISO 9002 : 1994  
Certificate No. Q/09335



Printed in England Publication No. 64-10-96



# BELZONA® 1221 (SUPER E-METAL)

## INSTRUCTIONS FOR USE

### 1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

#### APPLY ONLY TO CLEAN, FIRM, DRY AND WELL ROUGHENED SURFACES

- Brush away loose contamination and degrease with a rag soaked in **Belzona® 9111** (cleaner/degreaser) or any other effective cleaner which does not leave a residue e.g. methyl ethyl ketone (MEK). Use a flame to sweat out oil from deeply impregnated surfaces.
- Roughen surfaces by blast cleaning, deeply scoring, or grinding.
- Finally degrease again. Use clean rags to avoid spreading contamination.

#### PLUGGING ALL LEAKS

Leakages may be temporarily plugged with lead wool, cork or wooden plugs during surface preparation and application of **Belzona® 1221**.

#### WHERE BELZONA® 1221 SHOULD NOT ADHERE

Brush on a thin layer of **Belzona® 9411** (Release Agent) and allow to dry for 15-20 minutes before proceeding to step 2.

### 2. COMBINING THE REACTIVE COMPONENTS

- Cut off one end of both the Base and Solidifier sachets as close as possible to the seal.
- Using the straight edge of a mixing spatula or other suitable mixing tool squeeze out the entire contents of the sachets onto the **Belzona®** Working Surface provided.
- Mix the two components thoroughly to achieve a uniform material free of any streakiness.

### 1. WORKING LIFE

From the commencement of mixing, **Belzona® 1221** must be used within the times shown below.

Temperature	41°F (5°C)	59°F (15°C)	77°F (25°C)
Use all material within	5 min.	4 min.	3 min.

### 2. MIXING SMALL QUANTITIES

For mixing small quantities of **Belzona® 1221** use:

- 1 part Base to 1 part Solidifier by volume
- 2 parts Base to 1 part Solidifier by weight

### 3. VOLUME CAPACITY OF MIXED BELZONA® 1221

33.5 cu.in. (550 cm<sup>3</sup>) per kg.

4.2 cu.in. ( 67 cm<sup>3</sup>) per 125gm. unit

### 3. APPLYING BELZONA® 1221

#### FOR BEST RESULTS

Do not apply when:

- The temperature is below 41°F (5°C) or the relative humidity is above 90%.
- Rain, snow, fog or mist is present.
- There is moisture on the metal surface or is likely to be deposited by subsequent condensation.
- The working environment is likely to be contaminated by oil/grease from adjacent equipment or smoke from kerosene heaters or tobacco smoking.

#### FOR REPAIRING

- Spread the **Belzona® 1221** on to the **Belzona® 9341** (Reinforcement Tape).

- Apply the bandage to the area to be repaired with the coated side adjacent to the substrate.

In the case of pipes, wrap tightly round several times so that the **Belzona® 1221** is forced through to the outside of the **Belzona® 9341**.

- Apply a final coat of **Belzona® 1221** on top of the **Belzona® 9341**.

## FOR REBUILDING

- a) Apply the **Belzona® 1221** directly on to the prepared surface with the plastic applicator or spatula provided.

Press down firmly to fill all cracks, remove entrapped air, and ensure maximum contact with the surface.

- b) Contour the **Belzona® 1221** to the correct profile or alternatively allow to cure and then machine down.

## CLEANING

Mixing tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. Methyl ethyl ketone (MEK). Brushes, injection guns, spray equipment and any other application tools should be cleaned using a suitable solvent such as **Belzona® 9121**, MEK, acetone or cellulose thinners.

## 4. COMPLETION OF THE MOLECULAR REACTION

Allow **Belzona® 1221** to solidify as below subjecting it to the conditions indicated.

Temperature	Movement or use involving no loading or immersion	Machining and/or light loading	Full mechanical or thermal loading	Immersion in chemicals
41°F/ 5°C	17 mins.	60 mins.	120 mins.	48 hours
50°F/10°C	16 mins.	50 mins.	100 mins.	36 hours
59°F/15°C	15 mins.	45 mins.	90 mins.	30 hours
68°F/20°C	14 mins.	40 mins.	75 mins.	24 hours
77°F/25°C	13 mins.	35 mins.	60 mins.	20 hours
86°F/30°C	12 mins	30 mins.	45 mins.	16 hours

These times are for a thickness of approximately 0.25 inch (6 mm); they will be reduced for thicker sections and extended for thinner sections.

## 5. APPLICATION OF A FURTHER LAYER OF BELZONA® 1221

Where this is required, it should be applied no longer than 4 hours after application of the first layer when the ambient temperature is 41 - 86°F (5 - 30°C).

After the maximum overcoating time has elapsed, the solidified **Belzona® 1221** must be roughened before applying further **Belzona® 1000 Series** products, or application of **Belzona® 2000 Series** products.

## 6. APPLICATION OF BELZONA® 1000 SERIES PRODUCTS TO BELZONA® 1221

If a repair involves overcoating of **Belzona® 1221** by other **Belzona® 1000 Series** products, the surface of the **Belzona® 1221** must be allowed to cure to a stage where its surface can be suitably roughened prior to application of other **Belzona® 1000 Series** products.

Do not attempt to apply other **Belzona® 1000 Series** products to **Belzona® 1221** using a "wet on wet" method.



**BELZONA® 1221 IS APPROVED FOR CONTACT WITH POTABLE WATER SUBJECT TO THE FOLLOWING RESTRICTIONS:**

**For tank and distribution line use - no greater than 10% of surface area.**

Certified to  
ANSI/NSF 61

**For residential use - no greater than 150 sq. in. per residence.**

## HEALTH & SAFETY INFORMATION

Please read and make sure you understand the relevant Material Safety Data Sheets.

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**Belzona® 1221 - Instructions For Use - (Page 2)**

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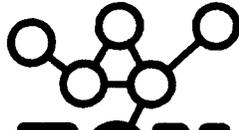
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# BELZONA® 2311 (SR ELASTOMER)

## INSTRUCTIONS FOR USE

### 1. TO ENSURE AN EFFECTIVE MOLECULAR WELD

#### a) Surface Preparation (i) Metallic Surfaces

Remove all loose surface contamination and degrease with **Belzona® 9111** (Cleaner/Degreaser) or any other effective cleaner which does not leave a residue eg. methyl ethyl ketone (MEK).

Grit blast to a minimum 3 mil (75 microns) profile. Where blasting is not practical, thorough mechanical grinding may be considered, except for applications involving tensile loads, such as expansion joints, and all applications involving immersion and/or fluid flow.

#### (ii) Flexible Surfaces (e.g. rubbers)

**NOTE:** **Belzona® 9111** can draw processing oils and waxes to the surface of some rubbers, particularly when new, which then impairs adhesion of **Belzona® 2311**. Test for this on a small area. If, on rubbing with a rag moistened with **Belzona® 9111**, a greasy film appears, the surface should not be degreased, but simply abraded.

Undercut fine edges with a sharp knife and scuff the surface with a rotary wire brush or suitable roughing tool.

- b) Brush away loose contamination and degrease again with **Belzona® 9111**.
- c) Immediately, apply a thin, even coat of **Belzona® 2911** or **Belzona® 2921** (Elastomer QD Conditioner or Elastomer GP Conditioner) onto the surface. A brush should be used as a stipple to ensure a practical coverage rate of 13 sq.ft (1.25 m<sup>2</sup>) per unit, on steel and most metallic substrates. On well roughened rubber substrates this could be reduced by as much as 50%

The **Belzona®** Conditioner must be touch dry before overcoating with **Belzona® 2311**. This will depend on the **Belzona®** Conditioner selected, prevailing temperature, relative humidity and substrate.

At 68°F (20°C) and 50% relative humidity, the touch dry state will be achieved after the times given below when applied to a steel surface. These times may be extended when applied to rubber substrates.

Conditioner	Touch Dry	Max. Overcoating
<b>Belzona® 2911</b>	20 min.	4 hours

Under no circumstances should application of **Belzona® 2311** take place after the maximum overcoating time.

When using **Belzona® 2311** to overcoat a surface which has been treated with a **Belzona® 1000** Series product (except **Belzona® 1221** (Super E-Metal), the **Belzona® 1000** Series product must first be allowed to fully cure, the surface prepared as outlined in section 1 (a) (i), and **Belzona® 2911** applied as outlined in section 1 (c).

Application of **Belzona® 2311** over **Belzona® 1221** can be carried out up to 4 hours after the application of **Belzona® 1221** without the need for abrading and reconditioning.

#### WHERE BELZONA® 2311 SHOULD NOT ADHERE

Brush on a thin layer of **Belzona® 9411** (Release Agent) and allow to dry for 15 - 20 minutes before proceeding to step 2.

### 2. COMBINING THE REACTIVE COMPONENTS

**N.B.** All application tools and equipment should be readily to hand as, from the commencement of mixing, the material will solidify within minutes.

- a) Cut off one end of both the Base and Solidifier sachets as close as possible to the seal.
- b) Using the straight edge of a mixing spatula or another suitable mixing tool squeeze out the contents onto a suitable working surface.
- c) Mix the two components thoroughly to achieve a uniform material free of streakiness.

#### NOTES:

##### 1. WORKING LIFE

From the commencement of mixing, **Belzona® 2311** must be used within the times shown below:

Temperature	41°F (5°C)	59°F (15°C)	77°F (25°C)
Use all material within	6 min.	4 min.	2 min.

#### VOLUME CAPACITY OF MIXED BELZONA® 2311

4.1 cu.in. (66.5 cm<sup>3</sup>) per 75 g unit.

### 3. APPLYING THE BELZONA® 2311

#### FOR BEST RESULTS

Do not apply when:-

- (i) The temperature is below 41°F(5°C) or the relative humidity is above 90%.
- (ii) Rain, snow, fog or mist is present.
- (iii) There is moisture on the surface or is likely to be deposited by subsequent condensation.
- (iv) The working environment is likely to be contaminated by oil/grease from adjacent equipment or smoke from kerosene heaters or tobacco smoking.

- a) Apply the **Belzona® 2311** to the prepared surface with the plastic applicator or spatula provided. Press down firmly to remove entrapped air and to ensure maximum contact with the surface.
- b) Immediately contour the **Belzona® 2311** to the correct profile with the plastic applicator. Alternatively, press a sheet of polyethylene on to the **Belzona® 2311** and remove it once the **Belzona® 2311** has cured.

#### NOTE: CLEANING

Mixing and application tools should be cleaned immediately after use with **Belzona® 9111** or any other effective solvent e.g. MEK. Brushes, injection guns, spray equipment and other application tools should be cleaned using a suitable solvent such as **Belzona® 9121**, MEK, acetone or cellulose thinners.

### 4. REINFORCING THE BELZONA® 2311

Stipple **Belzona® 9341** (Reinforcing Tape) into the uncured **Belzona® 2311**. Overcoat with further **Belzona® 2311**.

### 5. COMPLETION OF THE MOLECULAR REACTION

Allow **Belzona® 2311** to solidify as below before subjecting it to the conditions indicated:

	Movement or use involving no loading or immersion	Full mechanical or thermal loading	Immersion in chemicals
41°F/5°C	60 minutes	4 hours	2 days
50°F/10°C	40 minutes	2 hours	1½ days
59°F/15°C	30 minutes	1½ hours	1 day
68°F/20°C	25 minutes	1 hour	18 hours
77°F/25°C	20 minutes	50 minutes	15 hours
86°F/30°C	15 minutes	40 minutes	12 hours

### 6. STORAGE

Store in a dry environment at a temperature between 41°F (5°C) and 77°F (25°C).

After prolonged storage, or inadvertent storage below 41°F (5°C), the components may feel stiffer than normal. They can be restored to normal by warming to 104°F (40°C) and kneading between the fingers.

**NOTE: Belzona® 2911** has an 18 month shelf life from date of manufacture when stored at 41 - 77°F (5 - 25°C) and must be used before the stated "use by" date.

### 7. OVERCOATING

Application of subsequent layers of **Belzona® 2311** can be carried out up to 24 hours after the previous application without need of any surface treatment other than removal of contamination.

When overcoating aged or weathered **Belzona® 2311** the surface preparation techniques for flexible surfaces described in Section 1 must be followed.

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