

# Material Safety Data Sheet for Keligrout

## 1. Chemical Product and Company Information

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Trade Name: **KELIGROUT**  
Chemical Name: Filled Unsaturated Polyester Resin  
Synonyms: Anchoring Product  
Product Code:  
Manufacturer: KELKEN CONSTRUCTION SYSTEMS  
Emergency Telephone: (732) 721-0249

## 2. Composition / Information on Ingredients

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Component	CAS#	Exposure Limits	% by weight
Polyester Resin	Proprietary	None assigned	28±2%
Styrene Monomer	100-42-5	50.0 ppm ACGIH TWA 100.0 ppm ACGIH STEL	18±2%
Pigments	Proprietary	None assigned	54±2%

## 3. Hazard Identification

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**Emergency Overview: WARNING! Adhesive containing a flammable liquid. Causes eye irritation. May cause skin and upper respiratory tract irritation. May cause central nervous system depression. Do not take internally.**

Relevant Routes of Exposure: Inhalation, eye and skin.

### Signs and Symptoms of Acute Overexposure:

Exposure to styrene vapors from this product, above 50ppm, may cause irritation of the eyes, nose, and throat, and headache, nausea or vomiting. Liquid resin is irritating to eyes and skin. Protective gloves and goggles are recommended when contact with liquid resin by splash is possible. Use with adequate exhaust ventilation.

### Potential Health Effects / Health Hazard Identification Signs and Symptoms of Chronic Overexposure:

No known chronic health effects have been observed with normal use of this product.

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#### Acute Exposure

Eye: Causes Irritation

Skin: Causes Irritation

Ingestion: May cause irritation to the gastrointestinal track

Inhalation: Mucous membrane irritant

Chronic Exposure: Long-term exposure to excess styrene vapor may cause nausea, loss of appetite, CNS depression and general weakness.

**Other Hazards:** Known Synergist: None Known

Explosion Hazard: Empty containers are dangerous. They still may contain flammable vapors. Keep away from heat, sparks, or flames.

Fire Hazard: Classified as Flammable Liquid.

Corrosion Hazard: Not Corrosive

#### **4. First Aid Measures**

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Eye Contact: Immediately flush with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact: Immediately flush with plenty of water for a least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse.

Ingestion: Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

Inhalation: If symptomatic, move to fresh air. Get medical attention if symptoms persist.

##### Additional Protective Measures

First Aid Facilities: Eye bath, safety shower, washing facilitation.

Advice to Physicians: None Known

#### **5. Fire Fighting Measures**

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Flammable Liquid: FLammability Class: 1C

Extinguishing Media: Water spray, dry chemical, Carbon Dioxide, Foam

Protective Equipment: Wear self-contained breathing apparatus and protective clothing.

Special Exposure Hazard: Containers can build pressure if exposed to heat or fire. The heat from a fire may cause polymerization which could cause violent rupture of closed containers. Vapors from the product may form explosive mixtures with air.

Special Fire Fighting Procedures: Use water spray to keep fire-exposed containers cool.

#### **6. Accidental Release Measurers**

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##### Leaks and Spills:

Eliminate all ignition sources. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. For large spills; flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams.

Personal Protection: Wear protective clothing.

#### **7. Handling and Storage**

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Handling: Material is a combustible liquid; keep away from heat, open flame, oxidizers, and other ignition sources. Avoid breathing vapors. Use protective equipment when handling.

Storage: Store indoors with adequate ventilation and out of direct sunlight. Store away from oxidizing agents. Always use oldest lots first. Material should last 6 months at not over 75°F.

#### **8. Exposure Controls / Personal Protection**

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Engineering Control: Local exhaust ventilation should be used to control the emissions of air contaminants. General dilution ventilation may assist with the reduction of air contaminant concentrations.

Respiratory Protection: If engineering controls do not maintain airborne concentrations to an acceptable level, an approved respirator must be worn. Respirator type: Organic vapor. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134.

Ventilation Required: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory protection may be needed in special circumstances such as poorly ventilated space, evaporation from large surfaces, spraying, heating, etc.

Skin Protection: Wear impervious gloves, boots, and protective clothing appropriate for the risk of exposure.

Eye Protection: Wear safety glasses with side shields (or goggles).

## 9. Physical and Chemical Properties

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Appearance:	Viscous liquid
Odor:	Styrene odor
Physical State:	Liquid
pH:	Not determined
Boiling Point:	295°F
Freezing Point:	Not determined
Flash Point:	89°F TCC
Vapor Pressure:	4.50 mm Hg @ 68°F
Oxidizing Properties:	Reacts with strong oxidizing agents
Solubility in Water:	Negligible
Density:	15.4 lb./gal
Specific Gravity:	1.77 ± 0.02
Volatile by Weight:	18%
Viscosity:	15,000 cps @ 72°F
Explosion Limits:	LEL 1.1% by volume UEL 6.1% by volume
Partition Coefficient:	Not determined
Evaporation Rate:	(Butyl Acetate = 1) : Slower than Butyl Acetate

## 10. Stability and Reactivity

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Chemical Stability:	Unstable in extreme heat such as in a fire.
Conditions To Avoid:	Heat and open flame.
Incompatibility with Other Materials:	Avoid oxidizing agents
Hazardous Decomposition Products:	Carbon Dioxide, Carbon Monoxide and Organic Acids
Hazardous Polymerization:	May occur.

## 11. Toxicological Information

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<u>Material</u> Styrene	<u>LD50.RAT.Oral</u> > 5g/kg
Eye Effects:	Mildly irritating
Skin Effects:	Mildly irritating
Inhalation Effects:	Prolonged breathing of vapors can cause headache.
Ingestion Effects:	May cause nausea

## 12. Ecological Information

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Ecotoxicity:	The styrene in this product is expected to be toxic to aquatic organisms
Persistence:	The organic portion of this product is expected to biodegrade.

## 13. Disposal Considerations

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United Nations Number: UN1993

Packing Group: PG III

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#### 14. Transport Information

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U.S. Federal Regulations: Toxic substances control act (TSCA) Inventory - Yes

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#### 15. Regulatory Information

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Hazard Class: Adhesive containing a flammable liquid.

ID Number: UN1133

Packing Group: III Flammable Liquid

NFPA Codes:

Health: 2

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#### 16. Other Information

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Reactivity: 2

Flammability: 3

HMIS Codes:

Health: 2

Reactivity: 2

Flammability: 3

Workers using Keligrout should read and understand this MSDS and be trained in the proper use of this material.

MSDS Prepared By: Robert F. Korb  
Technical Director

Revision Date: March 9, 2000

Reviewed Date: March 8, 2007

This MSDS has been prepared with data from laboratories, raw material supplier data and government publications.

This MSDS contains all the information items specified in Schedule 1, Column 3 of the Controlled Products Regulations in a 16 heading format.

Information herein is accurate to the best of our knowledge. Suggestions are made without warranty or guarantee of results. Before using, the user should determine the suitability of the products for his intended use, and the user assumes the risk and liability in connection therewith. We do not suggest violation of any existing patents or give permission to practice any patented invention without license.

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## SAFETY DATA SHEET

**PERKADOX CH-50**

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

<b>Product label name</b> Dibenzoyl peroxide, powder, 50% with dicyclohexyl phthalate	
<b>Supplier</b> Akzo Nobel Polymer Chemicals LLC 525 West Van Buren Street Chicago, IL 60607-3823  www.akzonobel-polymerchemicals.com	
<b>Emergency telephone</b> + 1-914-693-6946 Dobbs Ferry, NY USA	<b>transportation emergency</b> CHEMTREC - USA: 1-800-424-9300 CANUTEC - CANADA: 1-613-996-6666
<b>Intended use</b> Curing agent	
<b>Date of last issue / Revision #</b> 2005/12/08 / 0.04	
<b>Chemical family</b> peroxides	

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Information on hazardous ingredients			
<b>Chemical description</b> Dibenzoyl peroxide, powder, 50% with dicyclohexyl phthalate			
<b>Composition / information on ingredients</b>			
Number	% w/w	CAS-number	Chemical name
1	49 - 51	000094-36-0	Dibenzoyl peroxide
2	40 - 55	000084-61-7	Dicyclohexyl phthalate

## 3. HAZARDS IDENTIFICATION

<b>Emergency overview</b> DANGER! ORGANIC PEROXIDE. HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION. CAUSES EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. May cause fire.	
<b>Appearance</b> white powder with faint odor.	
<b>Health effects</b> Skin and eye contact are the primary routes of exposure to this product. Dust may be irritating to the respiratory tract and cause symptoms of bronchitis. May cause sensitization by skin contact. Irritating to eyes. This product has a low order of toxicity. No significant toxic effects are expected.	
<b>Carcinogenicity</b>	
Description	Applicable
IARC	no



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**PERKADOX CH-50**

NTP	no
OSHA	no
ACGIH	no

4. FIRST AID MEASURES

<b>Symptoms and effects</b> Irritating to eyes. May cause sensitization by skin contact. Dust may be irritating to the respiratory tract and cause symptoms of bronchitis.	
<b>First aid</b>	
<b>General</b>	In all cases of doubt, or when symptoms persist, seek medical attention.
<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. Oxygen may additionally be given, by trained personnel, if it is available. Get medical attention if symptoms occur.
<b>Skin</b>	Immediately wash skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.
<b>Eye</b>	Immediately flush eyes with plenty of water. If easy to do, contact lenses should be removed during the flushing, by trained personnel. Hold the eyelids apart during the flushing to ensure rinsing the entire surface of the eye and lids with water. Get medical attention if irritation persists.
<b>Ingestion</b>	Call a physician or a poison control center immediately. Induce vomiting only if directed by medical personnel. The patient should lie on their left side while vomiting to reduce the risk of aspiration. Never give anything by mouth to an unconscious or convulsing person.
<b>Advice to physician</b> Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material.  Attending physician should treat exposed patients symptomatically.	

5. FIRE-FIGHTING MEASURES

<b>Extinguishing media</b> waterspray, foam, sand, dry chemical powder, CO2.
<b>Unsuitable extinguishing media</b> halones.
<b>Hazardous decomposition/ combustion products</b> CO2, Carbon monoxide. Benzoic acid, Benzene.
<b>Protective equipment</b> Firefighters must wear fire resistant protective equipment. Wear approved respirator and protective gloves.
<b>Other information</b> Evacuate all non-essential personnel. Extinguish a small fire with powder or carbon dioxide then apply water to prevent re-ignition. Cool closed containers with water. Water used to extinguish a fire should not be allowed to enter the drainage system or water courses. After a fire, ventilate thoroughly the area and soak with water, clean the walls and metallic surfaces.
<b>Fire and explosion hazard</b> CAUTION: reignition may occur. Decomposition under effect of heating (See also Section Hazardous decomposition products). If involved in a fire, it will support combustion. dust explosion hazard. Vapours may form explosive mixtures with air. In case of fire and/or explosion do not breathe fumes.

## PERKADOX CH-50

NFPA ratings	
Hazard classes	Rating
Health	2
Flammability	3
Reactivity	3
Other information	-OX

### 6. ACCIDENTAL RELEASE MEASURES

<p><b>Personal precautions</b> Do not breathe dust. Avoid contact with skin and eyes. For personal protection see Section 8.</p>
<p><b>Environmental precautions</b> Do not allow to enter drains or water courses.</p>
<p><b>Methods for cleaning up</b> Stop leakage if possible. Eliminate all sources of ignition, and do not generate flames or sparks. Sweep up and put it into a container for disposal. Avoid dust generation. Keep contents moist. The waste should NOT be confined. Flush surroundings with large amounts of water and soap.</p>
<p><b>Other information</b> CAUTION: reignition may occur. Evacuate personnel to safe area.</p>

### 7. HANDLING AND STORAGE

<p><b>Handling</b> Never weigh out in the storage room. When using do not eat, drink or smoke. Do not breathe dust. Handle in well ventilated areas. Eliminate all sources of ignition, and do not generate flames or sparks. Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps). Keep product and emptied container away from heat and sources of ignition. Confinement must be avoided. Do not allow to dry out. Avoid shock and friction. Avoid contact with skin and eyes. Avoid Incompatible materials (See Section 10).</p>
<p><b>Fire and explosion prevention</b> Use explosion protected equipment. Keep away from sources of ignition - No smoking. Avoid dust generation. Dust explosion possible in the presence of air. Use non-sparking tools in area's where explosive dust air mixtures may occur. Do not cut or weld on or near this container even when empty. Blanketing the product with nitrogen reduces the flammability, but is not fully effective above 55°C (131°F).</p>
<p><b>Storage requirements</b> Store in accordance with local/national regulations. Keep away from food, drink and animal feedingstuffs. Store in a dry well ventilated place away from sources of heat and direct sunlight. Store separate from other chemicals. Keep only in the original container.</p>
<p><b>Storage</b> For maximum quality store below: 25 °C.</p>
<p><b>Other information</b> It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded. Wash hands thoroughly after handling or contact. Keep working clothing separately and do not take them home.</p>

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<p><b>Engineering controls</b> Ensure good ventilation and local exhaustion of the working area. Explosion proof ventilation recommended.</p>
<p><b>Personal protection</b></p>
<p><b>Respiratory</b> Provide adequate ventilation. In case of insufficient ventilation wear suitable respiratory equipment (respirator with Filter P1).</p>

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<b>Hand</b> Wear suitable protective gloves of neoprene or synthetic rubber.
<b>Eye</b> Wear eye/face protection.
<b>Skin and body</b> Wear suitable protective clothing.
<b>Other information</b> Emergency-shower and facilities for rinsing eyes must be accessible. Launder clothes before reuse.

<b>Dibenzoyl peroxide</b>		
OSHA TLV/TWA		5 mg/m <sup>3</sup>
ACGIH TLV/TWA		5 mg/m <sup>3</sup>
NIOSH REL/TWA		5 mg/m <sup>3</sup>
NIOSH IDLH		1500 mg/m <sup>3</sup>

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b> powder
<b>Color</b> white
<b>Odor</b> faint
<b>Boiling point/range</b> not applicable (Decomposes)
<b>Melting point/range</b> Decomposes prior to melting.
<b>Flash point</b> not applicable
<b>Flammability</b> Decomposition products may be flammable.
<b>Explosive properties</b> no
<b>Oxidizing properties</b> not applicable
<b>Vapour pressure</b> not applicable
<b>Density</b> 1230 kg/m <sup>3</sup> (20°C / 68°F) Specific gravity = 1.23 (20 °C / 68°F)
<b>Bulk density</b> 640 kg/m <sup>3</sup> (20°C / 68°F) Specific gravity = 0.64 (20° C / 68°F)
<b>Solubility in water</b> Insoluble at 20°C / 68°F
<b>Solubility in other solvents</b> not determined
<b>pH value</b> not determined
<b>Partition coefficient n-octanol/water</b> not determined

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<b>Relative vapour density (air=1)</b> not applicable
<b>Viscosity</b> not applicable
<b>Active oxygen content</b> 3.3 %
<b>Peroxide content</b> 49-51 %
<b>Autoignition temperature</b> Test method not applicable (See Section 7)
<b>SADT</b> 55 °C. See also Section 10.
<b>Explosion limits</b> not determined
<b>Volatile %</b> not determined

### 10. STABILITY AND REACTIVITY

<b>Stability</b>
SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the following temperature: 55 °C. Contact with incompatible substances can cause decomposition at or below the SADT 55 °C.
<b>Conditions to avoid</b>
To maintain quality store in original closed container below: 25 °C.
Avoid shock and friction. Confinement must be avoided.
<b>Incompatibles</b>
Avoid contact with rust, iron and Copper. Contact with incompatible materials such as acids, alkalies, heavy metals and reducing agents will result in hazardous decomposition. Do not mix with peroxide accelerators. Use only Stainless steel 316, PVC, polyethylene or glass-lined equipment.
<b>Polymerization</b>
Polymerization does not occur.
<b>Decomposition</b>
Hazardous decomposition products; Benzoic acid, Benzene.
<b>Other information</b>
Emergency procedures will vary depending on conditions. The customer must have an emergency response plan in place. Contact Akzo Nobel for assistance with developing an emergency response plan.

### 11. TOXICOLOGICAL INFORMATION

No experimental toxicological data on the preparation as such available. The following data are applicable to the ingredient(s) listed below.
<b>Dibenzoyl peroxide, 78 %</b>
<b>Acute toxicity</b>
<b>Oral LD50</b> rat:> 5000 mg/kg
<b>Inhalation LC50</b> rat:> 24.3 mg/l ; 4 hours exposure time max. attainable concentration

## PERKADOX CH-50

<b>Irritation</b>
<b>Skin</b> Non-irritating ( 4 hours exposure time )
<b>Eye</b> Moderately irritating
<b>Sensitization</b> Sensitization possible by skin contact
<b>Genotoxicity</b> Ames test: Not mutagenic

### 12. ECOLOGICAL INFORMATION

No experimental ecological data are available on the preparation as such. The following data are applicable to the ingredient(s) listed below.	
<b>Dibenzoyl peroxide, 78 %</b>	
<b>Ecotoxicity</b>	
<b>fish</b>	Acute toxicity, 96h-LC50 = 2.0 mg/l. ( Poecilia reticulata.)
<b>daphnia</b>	48 h-EC50 : 2.91 mg/l
<b>bacteria</b>	Activated sludge respiration inhibition test EC50 = 35 mg/l.
<b>Fate</b>	
<b>Degradation Biotic</b>	Readily biodegradable ( Closed bottle test ).

### 13. DISPOSAL CONSIDERATIONS

<b>Product</b>	Due to the high risk of contamination recycling/recovery is not recommended. Waste disposal in accordance with regulations (most probably controlled incineration).
<b>Contaminated packaging</b>	According to local regulations. Emptied container might retain product residues. Follow all warnings even after the container is emptied.
<b>Other information</b>	For further advice contact manufacturer.

### 14. TRANSPORT INFORMATION

<i>Land transport</i>	
<b>Class</b>	5.2
<b>Packing group</b>	II
<b>TREM-Card or ERG number</b>	145
<b>UN number</b>	3106
<b>Proper Shipping Name</b>	Organic peroxide type D, solid ( Dibenzoyl peroxide, 50% )



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<b>Other information</b> This product does not contain an environmentally hazardous substance per 49 CFR 172.101, Appendix A.
<b>Required labels</b> ORGANIC PEROXIDE.

<i>Sea transport (IMDG-code/ IMO)</i>
<b>Class</b> 5.2
<b>UN number</b> 3106
<b>EMS</b> F-J, S-R
<b>Marine pollutant</b> no
<b>Proper Shipping Name</b> Organic peroxide type D, solid ( Dibenzoyl peroxide )
<b>Other information</b> Label(s): 5.2


<i>Air transport (ICAO-TI/ IATA-DGR)</i>
<b>UN number</b> 3106
<b>Class</b> 5.2
<b>Proper Shipping Name</b> Organic peroxide type D, solid ( Dibenzoyl peroxide )
<b>Other information</b> Label(s); 5.2

#### 15. REGULATORY INFORMATION

Product and or components listed below are subject of the following	
<b>Dibenzoyl peroxide</b>	
Massachusetts Substance List	yes
New Jersey R-T-K Hazard. Sub.	yes
Penn. Hazardous Substance list	yes
SARA Title III, Section 313	yes
Toxic Subst. Cont. Act -listed	yes
Domestic Substance List-Canada	yes
<b>Dicyclohexyl phthalate</b>	
Toxic Subst. Cont. Act -listed	yes
Domestic Substance List-Canada	yes

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<b>Hazard classes</b>	
<b>Description</b>	<b>Applicable</b>
EPA Immediate health	yes
EPA Delayed health	no
EPA Fire	yes
EPA Pressure	no
EPA Reactive	yes
EHS Material	no
Hazard Rating Source	HMIS
HMIS Health	2
HMIS Flammability	3
HMIS Reactivity	3
WHMIS Hazard classes	B-4,C,D-2B,F
	

**Other regulatory information**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

**16. OTHER INFORMATION**

**History**

**Other information**

PERKADOX: This is a registered trademark of Akzo Nobel Chemicals BV or any of its affiliated companies in one or more territories in the world.

**Date of printing/  
pdf file generated**

2007/03/21

**Revision**

0.04

**Composed by**

N. Shoshenskiy, Regulatory Affairs - North America.J.W. Wessels - Regulatory Affairs - Europe.

**Changes were made in section**

globalized

The information in this material safety data sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable as of the date of publication. However, no warranty is made as to the accuracy of and/or sufficiency of such information and/or suggestions as to the merchantability or fitness of the product for any particular purpose, or that any suggested use will not infringe any patent. Nothing in here shall be construed as granting or extending any license under any patent. Buyer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. The information contained herein supersedes all previously issued bulletins on the subject matter covered. If the date on this document is more than three years old, call to make certain that this sheet is current.