

Cray Valley USA, LLC

Material Safety Data Sheet

Product: Krasol LBM-32
MSDS ID: S-001523

Revised Date: 01-17-2005

01. GENERAL INFORMATION

Cray Valley USA, LLC
Oaklands Corporate Center
468 Thomas Jones Way
Exton, Pennsylvania 19341

Emergency phone number:
800/424-9300 (CHEMTREC)

Product information:
610/363-4100

GENERIC NAME

Modified Polybutadiene

DOT PROPER SHIPPING NAME
N/AP

UN/NA NUMBER
N/AP

DOT HAZARD CLASS
Not regulated

02. SUMMARY OF HAZARDS

WARNING

PHYSICAL HAZARDS: No significant hazards expected

ACUTE HEALTH EFFECTS:
(SHORT-TERM) Suspect slight eye irritation hazard
Suspect slight skin irritation hazard
Suspect slight respiratory tract irritation hazard
May cause respiratory and skin sensitization
Not expected to be a skin absorption hazard
Not expected to be an ingestion hazard

CHRONIC HEALTH EFFECTS:
(LONG-TERM) No data are known to exist for this product.

03. COMPONENTS

| COMPONENT NAME | CAS NUMBER | % COMPOSITION (BY WT.) |
|--|---------------|------------------------|
| Polybutadiene homopolymer, with terminal maleic and fumaric acid half-ester groups** | None assigned | AP 100 |

TSCA status: Not listed on the US EPA TSCA inventory. Section 5(h)(3) limitations apply. For research and development use only. See MSDS attachment for details.

Cray Valley USA, LLC

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Product: Krasol LBM-32
MSDS ID: S-001523

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**Exportation of this product is controlled by the United States Government. See Section 13 of MSDS for details.

04. PHYSICAL AND CHEMICAL DATA

| | |
|--|---------------------------------|
| BOILING POINT | pH |
| N/DA; decomposes above 475F by polymerization | N/DA |
| FREEZING POINT | DRY POINT |
| N/DA | N/DA |
| SPECIFIC GRAVITY (H2O=1 at 39.2F) | VOLATILE CHARACTERISTICS |
| N/DA | Negligible |
| VISCOSITY UNITS, TEMP. (Brookfield) | SOLUBILITY IN WATER |
| AP 35,000-80,000 cps at 25C/77F | Negligible |
| VAPOR PRESSURE | STABILITY |
| N/DA | Stable |
| VAPOR SP GR (AIR=1 at 60 - 90F) | HAZARDOUS POLYMERIZATION |
| N/DA | May occur at temperatures >400F |

APPEARANCE AND ODOR

White or yellow turbid and viscous liquid with pungent, maleic anhydride-type odor

CONDITIONS AND MATERIALS TO AVOID

Elevated temperatures, excessive heat, open flames;
Avoid long exposures at temperatures >190F;
Strong oxidizing agents, acids, bases, amines, alcohols, mercaptans and moisture

HAZARDOUS DECOMPOSITION PRODUCTS

Acrid smoke-fumes/carbon monoxide/carbon dioxide and perhaps other toxic vapors may be released during a fire involving this product. Small amounts of butadiene may also be released.

05. OCCUPATIONAL EXPOSURE LIMITS

| SUBSTANCE | SOURCE | DATE | TYPE | VALUE | TIME |
|-----------|--------|------|------|-------|------|
|-----------|--------|------|------|-------|------|

A PEL or TLV has not been established

06. FIRE AND EXPLOSION

| | |
|---------------------------------|----------------------------|
| FLASH POINT: METHOD (Estimated) | AUTOIGNITION TEMP.: METHOD |
| GT 93C/200F | N/DA |

FLAMMABLE LIMITS (% VOLUME IN AIR)

LOWER: N/DA UPPER: N/DA

FIRE AND EXPLOSION HAZARDS

Cray Valley USA, LLC

Material Safety Data Sheet

Product: Krasol LBM-32
MSDS ID: S-001523

Revised Date: 01-17-2005

This product will tend to polymerize thermally at temperatures above 204C/400F. Once initiated, the reaction generates sufficient heat to continue spontaneously. Heat from fire can generate flammable vapors. When mixed with air and exposed to an ignition source, vapors can burn. Such fires are very smoky. Closed drums can also rupture in a fire causing flame to spread, increasing risk of burns. Personal contact with hot liquid after a fire can cause severe burns due to high temperatures.

EXTINGUISHING MEDIA

Dry chemical
CO2
Water spray
Foam

SPECIAL FIREFIGHTING PROCEDURES

Do not enter fire area without proper protection. See Section 5 - decomposition products possible. Fight fire from safe distance/protected location. Though not normally combustible, material will eventually burn if exposed to fire/fire may build enough pressure to rupture closed containers, spreading contents, which are harmful if inhaled, swallowed or splashed in the eyes or on the skin. See Section 8 for personal protection recommended. Notify authorities if liquid enters sewer/public waters.

07. HEALTH HAZARDS

ROUTES OF EXPOSURE

INHALATION

No significant adverse health effects are expected to occur at standard conditions due to the low volatility of this material. However, aerosols, or vapors which may be generated at elevated processing temperatures, may result in respiratory tract irritation. Symptoms may include sore throat, coughing or shortness of breath. Prolonged or repeated exposure to vapors or aerosols may result in headache, nausea, drowsiness and weakness.

May cause respiratory sensitization.

Exposure may produce cough, mucous, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitization reaction.

EYE CONTACT -- PRIMARY ROUTE

Although no appropriate human or animal health effects data are known to exist, this material is expected to cause slight eye irritation.

Symptoms of irritation may include redness, tearing or excessive blinking.

Cray Valley USA, LLC

Material Safety Data Sheet

Product: Krasol LBM-32
MSDS ID: S-001523

Revised Date: 01-17-2005

SKIN ABSORPTION

Although no appropriate human or animal health effects data are known to exist, this material is not expected to be a health hazard by skin absorption.

SKIN IRRITATION -- PRIMARY ROUTE

Although no appropriate human or animal health effects data are known to exist, this material is expected to be a slight skin irritant.

Symptoms may include slight localized redness or rash and swelling.

Although no appropriate human or animal health effects data is known to exist, this material may cause an allergic skin reaction (sensitization) in susceptible individuals upon repeated exposure.

INGESTION

Although no appropriate human or animal health effects data is known to exist, this material is not expected to be an ingestion hazard.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

This material or its emissions may induce an allergic or sensitization reaction and thereby aggravate systemic disease.

This material or its emissions may aggravate pulmonary/bronchial disease and/or cause breathing difficulty.

08. PROTECTIVE EQUIPMENT / CONTROL MEASURES

RESPIRATORY PROTECTION

No occupational exposure standards have been developed for this material. Where exposure through inhalation may occur from use, NIOSH/MSHA approved respiratory protection equipment is recommended.

EYE PROTECTION

Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor. Contact lenses should not be worn.

SKIN PROTECTION

Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn. This equipment should be cleaned thoroughly after each use.

Use nitrile or natural rubber gloves/skin protection.

ENGINEERING CONTROLS

If handling results in aerosol or vapor generation, local exhaust ventilation is recommended.

OTHER HYGIENIC PRACTICES

Cray Valley USA, LLC

Material Safety Data Sheet

Product: Krasol LBM-32
MSDS ID: S-001523

Revised Date: 01-17-2005

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

OTHER WORK PRACTICES

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

09. EMERGENCY AND FIRST AID

INHALATION

If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

EYE CONTACT

In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention if pain, blinking, tears or redness persist.

SKIN CONTACT

Remove contaminated clothing as needed. Wash skin thoroughly with mild soap/water. Flush with lukewarm water for 15 minutes. If sticky, a waterless cleaner may be used.

INGESTION

Not expected to present a significant ingestion hazard under anticipated conditions of normal use. However, if ingested, obtain emergency medical attention.

EMERGENCY MEDICAL TREATMENT PROCEDURES

Treat symptomatically.

10. SPILL AND DISPOSAL

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED

Evacuate/limit access. Prevent flow to sewers/public waters. Impound/recover large land spill; soak up small spill. On water, material insoluble. Contain/minimize dispersion/collect. Report per regulatory requirements.

Liquid may be slippery--use granular cover.

WASTE DISPOSAL METHODS

When discarded in its purchased form, this product is not a RCRA hazardous waste. However, it is the responsibility of the generator to determine at the time of disposal whether the product meets the criteria of a hazardous waste. Comply with all applicable federal,

Cray Valley USA, LLC

Material Safety Data Sheet

Product: Krasol LBM-32
MSDS ID: S-001523

Revised Date: 01-17-2005

state and local regulations. Waste disposal options include landfilling solids at permitted sites. Use registered transporters.

Burn concentrated waste in properly designed combustion systems compatible with highly viscous liquids. Avoid flameouts and assure that emissions comply with all applicable standards. Wastewater containing floating polybutadiene resins must not be fed to any biomass unless floating resin is first removed. Assure that any effluent from biotreatment complies with all applicable regulations.

11. ADDITIONAL PRECAUTIONS

HANDLING AND STORAGE PROCEDURES

Keep containers tightly closed when not in use. Prevent moisture contact and prolonged storage at elevated temperatures. Store in a cool, dry, well ventilated area. Keep away from heat, sparks, open flame, and oxidizing agents. Protect from freezing. If frozen, thaw (without overheating) and mix before reuse.

If heating is necessary due to product freezing or to facilitate material flow during use, use care to avoid localized overheating, possible degradation and container overpressure may occur. Do NOT use electric band heater to heat product--hot spots may be created and autopolymerization may occur. Avoid spillage of product to prevent highly viscous material from sticking to and contaminating clothes or shoes.

Products should be stored at temperatures up to 35C. Product's shelf life is six months from date of receipt.

DECONTAMINATION PROCEDURES

Follow standard plant procedures or supervisor's instructions for decontamination operations.

12. LABEL INFORMATION

USE STATEMENT

NOT ON US EPA TSCA INVENTORY; FOR RESEARCH AND DEVELOPMENT USE ONLY

SIGNAL WORD

WARNING

HEALTH HAZARDS

MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTIONS

PRECAUTIONARY MEASURES

AVOID EXCESSIVE HEAT/HIGH TEMPERATURES.

PREVENT MOISTURE CONTACT.

KEEP CONTAINER CLOSED WHEN NOT IN USE.

USE ONLY WITH ADEQUATE VENTILATION/PERSONAL PROTECTION.

AVOID CONTACT WITH EYES, SKIN, AND CLOTHING.

AVOID BREATHING VAPORS/MISTS.

Cray Valley USA, LLC

Material Safety Data Sheet

Product: Krasol LBM-32
MSDS ID: S-001523

Revised Date: 01-17-2005

WASH THOROUGHLY AFTER HANDLING.
BEFORE USING PRODUCT, READ MATERIAL SAFETY DATA SHEET.

13. SUPPLEMENT

NPCA - HMIS RATING

| | |
|-----------------------|----|
| Health | 2* |
| Flammability | 1 |
| Reactivity | 1 |
| Personal protection** | D |

**Respiratory protection may be necessary depending on conditions of use. See Section 8 of MSDS for details.

REGULATORY INFORMATION

TSCA STATUS:

TSCA status: Not listed on the US EPA TSCA inventory. Section 5(h)(3) limitations apply. For research and development use only. See MSDS attachment for details.

EXPORT RESTRICTIONS:

This product (a polybutadiene resin) and technical data related to this product are export controlled by the United States (US) Government. Exportation/international shipments of this product are subject to licensing by the US Government. Export, reexport or other diversion, either in the original product form or after being incorporated in an intermediate process into other end-items, is STRICTLY PROHIBITED unless expressly authorized by the cognizant agency of the US Government. If you plan to export this product in some form, please contact Sartomer Company for more information.

CALIFORNIA PROPOSITION 65:

California Proposition 65 Information: This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer and/or reproductive toxicity.

1,3-Butadiene

INTERNATIONAL STATUS

| | |
|-------------------|---------------------------|
| Australia (AICS): | not included on inventory |
| Canada (DSL): | not included on inventory |
| China (IECSC): | not included on inventory |
| Europe (EINECS): | polymer |
| Japan (ENCS): | not included on inventory |
| Korea (ECL): | not included on inventory |

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Material Safety Data Sheet

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Philippines (PICCS): not included on inventory

*Note - qualifiers and codes used in this MSDS
EQ = Equal; AP = Approximately; LT = Less Than; GT = Greater Than;
TR = Trace; UK = Unknown; N/AP = Not Applicable; N/P = No Applicable
Information Found; N/DA = No Data Available

14. DISCLAIMERS

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods 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. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Cray Valley USA, LLC

Material Safety Data Sheet

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MSDS Attachment

Dear Customer:

The product Sartomer is supplying you is not listed on the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA) inventory and must be used for research and development evaluation only -- it may not be used, processed or distributed for a commercial purpose in the United States.

Under TSCA's research and development exemption, 40 CFR 720.36 (1), you must ensure that you:

1. Use this product solely for research and development activities;
2. Have a technically qualified individual directly supervise all stages of your research and development activities;
3. Evaluate and inform all persons engaged in your research and development activities of any potential health risks associated with this product, as well as companies or persons to whom this product is distributed;
4. Notify companies or persons to whom this product is distributed that this product may be used for research and development only.

A material safety data sheet (MSDS) which includes an evaluation of the potential health risks associated with this product is enclosed.

Sincerely,

Sartomer Company, Inc.

(1) Please refer to 40 CFR 720.36 and 720.78 for complete information.