

1/2-B 33/5 Sathangadu Village
Manali Chennai India - 600 068
T +91 44 2594 1308
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MATERIAL SAFETY DATA SHEET

1.0 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product Name: Polybutene (KVIS 30 Grade)

MANUFACTURER / SUPPLIER:

Kothari Petrochemicals Ltd
Petrochemical Division – Polybutene Plant,
1/2b, 33/5, Sathangadu Village, Manali,
Chennai – 600 068, India.

EMERGENCY HEALTH INFORMATION:

T: 091 – 044 – 25941308/309/227

EMERGENCY SPILL INFORMATION:

T: 091 – 044 – 25941308/309/227

OTHER PRODUCT SAFETY INFORMATION:

T: 091 – 044 – 25941308 /309/227

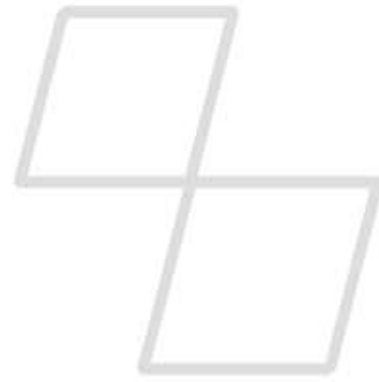
2.0 COMPOSITION / INFORMATION ON INGREDIENTS

Component CAS# 9003-29-6
POLY BUTENE polymerized from its respective monomer.

3.0 HAZARDS IDENTIFICATION

Emergency Overview: This product has been evaluated and found as non-hazardous, does not require any hazard warning.

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POTENTIAL HEALTH EFFECTS:

- Eye Contact: Heated material can cause thermal burns.
- Skin Contact: Heated material can cause thermal burns.
- Inhalation: No significant health hazards identified.
- Ingestion: No significant health hazards identified.
- HMIS Code: (Health: 1) (Flammability: 1) (Reactivity: 0)
- NFPA Code: (Health: 1) (Flammability: 1) (Reactivity: 0)

4.0 FIRST AID MEASURES

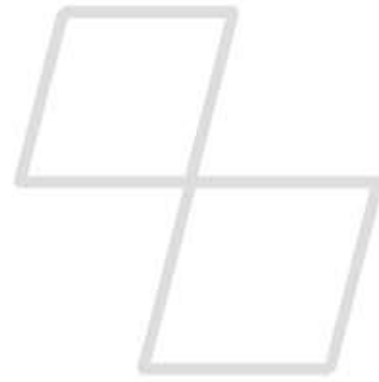
EYE:

- Hot material: Flush eyes with plenty of water for at least 15 minutes. Seek medical assistance for mechanical removal of polybutene from the eye. The use of flush fluid, other than water, is not recommended.
- Cold Material: Flush eyes with plenty of water.

SKIN:

- Hot material: Immediately flush in cool water for at least 15 minutes. Get immediate medical attention.
- Cold material: Clean exposed skin with waterless hand cleaner.
- Inhalation: If adverse effects occur, remove to uncontaminated area. Get medical attention.
- Ingestion: If a large amount is swallowed, get medical attention.
- Note to Physicians: Medical personnel may leave the polybutene in place to minimize physical damage to the skin. Medical personnel may cover the polybutene with a burn gel to prevent the adhesion of the dressing to the polymer.

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5.0 FIRE FIGHTING MEASURES

- Flashpoint: 210–230C (Cleave Land Open cup) ASTM – D - 92
: Min 170 C (PMCC) ASTM– D-93
- UEL: Not determined.
- LEL: Not determined.
- Autoignition Temperature: Not determined.
- Flammability Classification: Inflammable
- Extinguishing Media: Agents approved for Class C hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.
- Unusual Fire & Explosion Hazards: None identified.
- Fire-fighting Equipment: Firefighters should wear all protective equipments such as safety goggles, face shield, SCBA and flame retardant clothing.
- Precautions: Where the insulation of tankage and equipment is required, it is recommended that closed- cell foam insulation to be used.
- Hazardous Combustion Products: Incomplete burning can produce carbon monoxide / carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

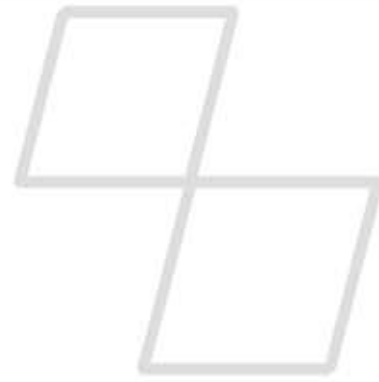
Remove mechanically or contain on an absorbent material such as dry sand or earth. Keep out of sewers and waterways. Treat as an oil spill.

7.0 HANDLING & STORAGE

Handling: Keep away from ignition sources (e.g., heat, sparks, or open flames).

Storage: Where the insulation of tankage and equipment is required, it is recommended that closed- cell foam insulation to be used.

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8.0 EXPOSURE CONTROLS / PERSONNEL PROTECTION

EYE:

- Hot material: Wear chemical goggles if material is handled hot.
- Cold material: None required; however, use of eye protection is good industrial practice.

SKIN:

Wear heat-resistant protective gloves, clothing and face shield that are able to withstand the temperature of the molten product.

Inhalation: None required; however, use of adequate ventilation is good industrial practice.

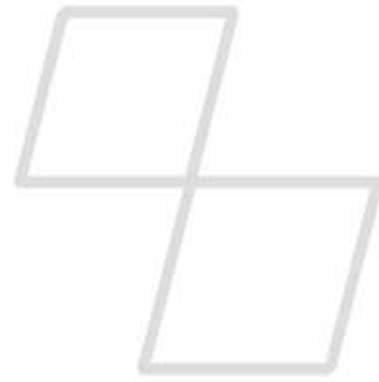
Engineering Controls: Control airborne concentrations below the exposure guidelines.

Exposure Guidelines:
Component CAS# 9003-29-6, No exposure limit established

9.0 CHEMICAL & PHYSICAL PROPERTIES

- Appearance and Odour: Clear, Viscous Liquid
- PH: Not determined.
- Vapour Pressure: Not determined.
- Vapour Density: Not determined.
- Boiling Point: IBP >280°C
- Melting Point: Not determined.
- Solubility in Water: Negligible, below 0.1%.
- Specific Gravity (@15.6C): 0.8910 – 0.910
- Viscosity: 600 – 697 CST @ 100°C

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10.0 STABILITY & REACTIVITY

- Stability: Stable
- Conditions to Avoid: None identified
- Materials to Avoid: None identified
- Hazardous Decomposition: None identified. Incomplete burning can produce carbon monoxide / carbon dioxide and other harmful products.
- Hazardous Polymerisation: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

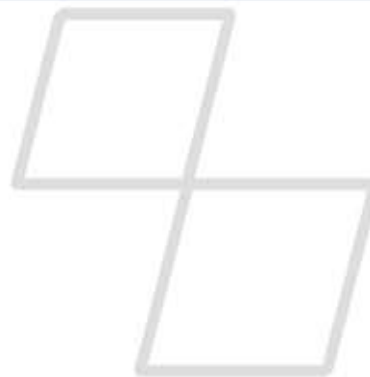
- Eye Irritation: 0.7/110 (rabbit)
- Skin Irritation: 0.4/8 (rabbit)
- Dermal LD50: greater than 10250 mg/kg (rabbit).
- Oral LD50: greater than 34600 mg/kg (rat).
- Inhalation LC50: greater than 17000 mg/m³ (rat)

OTHER TOXICITY DATA:

This material produced an eye irritation score of 0.7 out of a possible total of 110 with complete disappearance of effects in 72 hours (rabbits), indicating negligible eye irritation potential. When applied to the skin of rabbits, it caused no deaths at 10,250 mg/kg and scored 0.4 out of a possible total of 8.0, indicating negligible skin irritation potential. It was non-irritating in 4-day repeated patch tests in humans. Inhalation of this product for 4 hours at 865 mg/m³ produced no deaths in rats. In a two years rat and dog study and a three-generation reproduction study with rats, no adverse effects were found when this product was fed at levels as high as 2% in the diet.

No component of this product at levels greater than 0.1% is identified as a carcinogen.

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12.0 ECOLOGICAL INFORMATION

ECOTOXICITY TEST DATA:

Polybutene have very low solubility in water, so aquatic studies refer to the amount of chemical added to the test system, not the amount dissolved in water. Most acute aquatic toxicity studies of these have used the water-accommodated fraction, obtained by mixing the test chemical in water for 20 to 24 hours, then siphoning the water for use in the test.

Tests of Polybutene found no toxicity to two representative freshwater fish. Tests of the freshwater fishes suggest that these chemicals are not toxic, although globules of undissolved test material may trap individuals. In a test of the water- accommodated fraction, the 48-hour EC50 exceeded 1,000 mg/L, the highest concentration tested. In a separate test of water-accommodated fraction of another similar chemical, the 48-hour EC50 exceeded 10,000 mg/L, the highest concentration tested.

Polybutene is not expected to adversely affect microbial activity. Following a modified OECD Method 209, bacterial inhibition using activated sludge microbes was tested with various grades of polybutene. The tests showed no bacterial inhibition at polybutene loadings of up to 25 mg/L, measured through oxygen consumption (respiration).

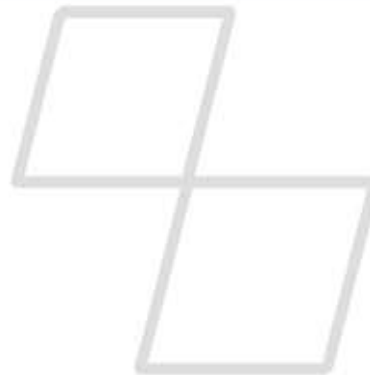
In separate tests, the biological oxygen demand (BOD) of microorganisms was measured. In these tests, there was no evidence of bacterial toxicity, even at loadings of polybutene of about 200,000 mg/L.

Biodegradation Potential: In the BOD tests described above, only very slight biodegradation was measured. The oxygen demand is used in this test to measure how much Polybutene is degraded by microorganisms. For all grades of polybutene, BOD was small and it decreases with increase in polybutene chain length. The reduced capacity of the microorganisms to decompose higher molecular weight polymer is probably due to the increased size of the Isobutylene molecules. Polybutene are not expected to be readily biodegradable.

BIOCONCENTRATION POTENTIAL: NOT STUDIED

Other Ecological Information: Polybutenes are not expected to be bioconcentrated or bioaccumulated by organisms because they are poorly soluble in water and many organic solvents, and because their molecular size minimizes bioavailability. The weight of evidence from toxicity tests, comparisons with structurally similar chemicals indicates that Polybutenes are non-hazardous in the environment.

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13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable Central or State regulations. Determine waste classification at the time of disposal. Conditions of use may render the spent product a hazardous waste. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

Since the emptied containers retain product residue, follow product handling instructions even after the container got emptied.

14.0 TRANSPORTATION INFORMATION

INDIAN DEPT OF TRANSPORTATION

This product is not identified as a hazardous material for transportation.
Refer: Transport information card issued for further details.

15.0 REGULATORY INFORMATION

Indian Hazardous Chemicals Handling and Management Act Rule 1989 Amended on 2000: Not hazardous

16.0 OTHER INFORMATION

To remove Polybutene from clothing, use a solvent (i.e. mineral spirits).

Shipping Name: Not Regulated.

Prepared by: Environment and Safety Department

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

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