Thames River Chemical, 905-681-5353 (Phone), 905-681-5377 (Fax)
5230 Harvester Road, Burlington, Ontario, L7L 4X4

Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name **PIB 240**
Synonyms **polybutene, polyisobutene, butene polymer, butylene polymer & others**
CAS# **9003-27-4; *alternates* 9003-29-6 & 9044-17-1**
EC# **500-004-7 (*butene, homopolymer*)**
Product Uses **lubricant additive, component of putty & other uses**

In an Emergency:		
Canada	**Call CANUTEC (collect)**	**(613) 996-6666**
U.S.A.	**Call CHEMTREC**	**(800) 424-9300**

2. HAZARDS

GHS Class (Category) ***NOT HAZARDOUS***
Signal Words ***NONE***

Hazard Statements *NONE*

GHS Precautionary Statements for Labelling **NONE**

3. COMPOSITION

	%	TWAEV / TLV ppm / mg/m^3	LD_{50} (mg/kg) ORAL	LD_{50} (mg/kg) SKIN	LC_{50} ppm INHALATION
Polymerized Butene	100%	not listed	30,000	>10,000	not known

4. FIRST AID

SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION: Remove from contaminated area promptly. ***CAUTION: Rescuer must not endanger himself!*** If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this non-toxic substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

5 FLAMMABILITY & FIRE FIGHTING

Flash Point	280°C / 536°F (closed cup)
Autoignition Temperature	not known
Flammable Limits	not known
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	as for materials sustaining fire ***OR*** as for an oil fire; firefighters must wear SCBA
Static Charge Accumulation	may accumulate a static charge on agitation or pumping; no danger of ignition by static discharge

6. SPILL PROCEDURES

Leak Precaution	dyke to control spillage and prevent environmental contamination – *viscous liquid may not flow far . . .*
Handling Spill	recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel & store in closed containers for recycling or disposal

7. HANDLING & STORAGE

Store away from oxidising agents, strong acids, and below 200°C / 392°F – otherwise no restrictions. May oxidize slowly in air to form peroxides. The product's viscous nature ensures this reaction cannot proceed rapidly nor penetrate deeply into the product.

NOTE: *This viscous product is shipped & used at elevated temperature; if its temperature is above 50°C/120°F, contact may cause thermal burns!*

8. EXPOSURE CONTROL

Ontario TWAEV	not listed	Ontario STEV	not listed
ACGIH TLV	not listed	ACGIH STEL	not listed
OSHA PEL	not listed	OSHA STEL	not listed

Ventilation	no special mechanical ventilation required
Hands	no special protective gloves required; ***wear insulated "Viton" gloves if handled above 50°C / 120°F***
Eyes	safety glasses with side shields should be worn – *always protect eyes*
Clothing	no special protective clothing required; ***wear insulated "Viton" protective clothing if product is above 50°C/120°F, and there is a splash risk***

9. PHYSICAL PROPERTIES

NOTE: *for Flash Point, Autoignition Temp, & Flammable Limits see Part 5.*

Odour & Appearance	clear, colourless, odourless, semi-solid at ambient temperature; viscous liquid when heated
Odour Threshold	not known – *odourless*
Vapour Pressure	not known – *very low, not volatile*
Evaporation Rate (*Butyl Acetate = 1*)	not known – *not volatile*
Vapour Density (air = 1)	~150 – *theoretical value; far heavier than air*
Decomposition Temperature	*decomposition begins above 260°C / 500°F*
Boiling Point	not known – *decomposes without boiling*
Pour Point	above 15°C / 59°F
Density (*kg/litre*)	0.92 (15.5°C / 60°F)
Water Solubility	nil – *below 1 milligram per litre*
- in other solvents	soluble in non-polar liquids: hydrocarbons & halogenated hydrocarbons; insoluble in alcohols, esters; slightly soluble in acetone
Log $P_{o/w}$ (*Octanol/H_2O Partition Coefficient*)	7.8
Viscosity	12,000 centistokes (100°C / 212°F)
pH	none – *yields no hydrogen ions in solution*
Molecular Weight	average 4400 grams/mole

10. STABILITY / REACTIVITY

Dangerously Reactive With	strong oxidising agents, strong acids; may cause explosions with silver peroxide
Also Reactive With	not known
Chemical Stability	stable; will not polymerize
Decomposes in Presence of	oxidizes gradually in the presence of oxygen; heating above 200°C/390°F accelerates this
Decomposition Products	apart from Hazardous Combustion Products, peroxides may form on oxidation
Mechanical Impact	not sensitive

11 TOXICITY

Effects, Acute Exposure

Skin Contact	no effect at ambient temperature; *if product is used hot, thermal burns can occur on contact*
Skin Absorption	probably nil
Eye Contact	little to no effect – *viscous substance cannot flow into eyes*; *if product is used hot, thermal burns may occur on contact*
Inhalation	high viscosity & very low vapour pressure makes inhalation impossible
Ingestion	very low toxicity[2]; ingestion of 100ml+ may cause temporary diarrhoea
LD_{50} (oral)	>30,000mg/kg (rat); >2000mg/kg (rat, 2 reports)[1], >10,000mg/kg (rat, 3 reports)[1] – *no mortality seen*
LD_{50} (skin)	>10,000mg/kg (rabbit), >2000mg/kg (rabbit)[1] – *no mortality seen*
LC_{50} (inhalation)	not known – testing difficult due to high viscosity – will not readily form vapour or mist

Effects, Chronic Exposure

General	no known effect
Sensitising	not a sensitiser[1]
Carcinogen/Tumorigen	not known to be a tumorigen or a carcinogen in humans or animals[1]
Reproductive Effect	no known effect on humans or animals[1]
Mutagen	not known as a mutagen or teratogen in animals or humans[1] – *not a teratogen up to 1000mg/kg/day*[1]
Synergistic With	not known

NOTE: *The USA EPA has determined that PIB range of polymers is non-toxic to humans.*[2]

12. ENVIRONMENTAL INFORMATION

Bioaccumulation	not readily absorbed and cannot bioaccumulate
Biodegradation	biodegrades slowly in the presence of oxygen due to high viscosity and water insolubility; *Biodegradation rate depends on environmental conditions, particularly dispersion into the watery medium.*
Abiotic Degradation	not known – probably degrades very slowly in this way
Mobility in soil, water	water insoluble; immobile in soil & the water column
Aquatic Toxicity	
LC_{50} (Fish 96 hr)	>10,000mg/litre (Leuciscus idus)[1]
LC_{50} (Crustacea, 48hr)	>100mg/litre (Daphnia magna)[1]
EC_{50} (Algae, 96hr)	>19mg/litre (Desmodesmus subspicatus)[1], >100mg/litre (Pseudokirchnerella subcapitata)[1]
LC_{50} (Microorganisms)	not known

NOTE: *Polybutene is water insoluble. Various means were used to perform the above tests. Sometimes, low molecular weight versions (more easily dispersed or emulsified) were used. The substance appears to be inert in the watery environment; either it does not enter the watery medium at all, or if dispersed, has no effect.*

NOTE: *The USA EPA has determined that PIB range of polymers is non-toxic to the environment despite its slow biodegradation.*[2]

13. DISPOSAL

Waste Disposal **do not flush to sewer**, mix with a suitable flammable waste and incinerate in approved facility Containers
Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.
Pails must be vented and thoroughly dried prior to crushing and recycling.
IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years.
Never cut, drill, weld or grind on or near this container, even if empty

14. TRANSPORT

Canada TDG	**PIN**	**UN- not regulated for transport**
AND	**Shipping Name**	**not regulated for transport**
U.S.A. 49 CFR	**Class**	**not regulated for transport**
	Packing Group	**not regulated for transport**
Marine Pollutant		***not a marine pollutant***
ERAP		**not required**

15. REGULATIONS

Canada DSL	**on inventory**
U.S.A. TSCA	**on inventory**
Europe EINECS	**on inventory**

U.S.A. Regulations:

Allowable Tolerances: Polybutenes are exempt from the requirement of a tolerance for residues in or on the raw agricultural commodity cottonseed when used as sticker agent for formulations of the attractant gossyplure (1:1 mixture of (Z,Z)- and (Z,E)-7,11-hexadecadien-1-ol acetate) to disrupt the mating of the pink bollworm. Polybutenes are exempt from the requirement of a tolerance for residues in or on the raw agricultural commodity artichokes when used as a sticker agent in multi-layered laminated controlled-release dispensers of (Z)-11 hexadecenal to disrupt the mating of the artichoke plume moth.

Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Polybutene is produced, as an intermediate or a final product, by process units covered under this subpart.

FIFRA Requirements: As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide reregistration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for reregistration. In addition, all pesticides must meet the new safety standard of the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA, as amended in 1988, were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern and List D pesticides of less concern. Polybutene is found on List D. Case No: 4076; Pesticide type: Rodenticide (Bird Repellent); Case Status: RED Approved 12/94; OPP has made a decision that some/all uses of the pesticide are eligible for reregistration, as reflected in a Reregistration Eligibility Decision (RED) document.; Active ingredient (AI): Polybutene; Data Call-in (DCI) Date(s): 07/06/93; AI Status: OPP has completed a Reregistration Eligibility Decision (RED) document for the case/AI. Polybutenes are exempt from the requirement of a tolerance for residues in or on the raw agricultural commodity cottonseed when used as sticker agent for formulations of the attractant gossyplure (1:1 mixture of (Z,Z)- and (Z,E)- 7,11-hexadecadien -1-ol acetate) to disrupt the mating of the pink bollworm. Polybutenes are exempt from the requirement of a tolerance for residues in or on the raw agricultural commodity artichokes when used as a sticker agent in multi-layered laminated controlled-release dispensers of (Z)- 11 hexadecenal to disrupt the mating of the artichoke plume moth.

FDA Requirements: Polybutene, hydrogenated is an indirect food additive for use as a component of adhesives.

16. PREPARATION INFORMATION

Prepared for Thames River Chemical by Peter Bursztyn, (705) 734-1577
With data from RTECS, Haz. Substance Data Base, Cheminfo (CCOHS), IUCLID Datasheets (European Chem. Substance Info. System), & others, as available
Preparation Date: ***April 2016*** *Revision Date*: **-**

(1) European Chemicals Agency (EChA) dossier on butane, homopolymer:
http://echa.europa.eu/registration-dossier/-/registered-dossier/13116

(2) United States Environmental Protection Agency, reassessment of isobutylene–butene copolymers:
http://www.epa.gov/sites/production/files/2015-04/documents/isobutylene.pdf

Please ensure that this SDS is given to, and explained to people using this product.

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