

POLY BUTADIENE RUBBER (PBR 1220)

Section-1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance/preparation:

Commercial name: Relflex Cisamer™ PBR 1220

Chemical name: Poly butadiene Rubber

Synonyms: Cisamer™ Polybutadiene Rubber

1.2 Use of the substance /preparation: Industrial use only. Used in Rubber products and Polymer modification

1.3 MANUFACTURER & SUPPLIER: Reliance Industries Limited

Emergency Coordination Centre contact details:

Vadodara Mfg. Division PO Petrochemicals, Dist: Vadodara, Gujrat, India	SSM Office	+91 265-3596525/+91 265-3593869 Mob: +91 6351238649
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SSM: Site Shift Manager

Section 2 – HAZARD IDENTIFICATION

2.1 Classification of the substance/preparation: Hazard class and category code.

GHS Category:

Health	Environmental	Physical
Irritating to eyes and respiratory organs	Aquatic Toxicity – Category- NA	Flammable – Category NA

NA: Not available

GHS Category table for reference:

Study/hazard statement	Category 1	Category 2	Category 3	Category 4	Category 5
Acute Oral LD50	≤ 5 mg/kg Fatal if swallowed	> 5 ≤ 50 mg/kg Fatal if swallowed	> 50 ≤ 300 mg/kg Toxic if swallowed	> 300 ≤ 2000 mg/kg Harmful if swallowed	> 2000 ≤ 5000mg/kg May be harmful if swallowed
Acute Dermal LD50	≤ 50 mg/kg Fatal in contact with skin	> 50 ≤ 200 mg/kg Fatal in contact with skin	> 200 ≤ 1000 mg/kg Toxic in contact with skin	> 1000 ≤ 2000 mg/kg Harmful in contact with skin	> 2000 ≤ 5000 mg/kg May be harmful in contact with skin
Acute Inhalation Dust LC50 Gases LC50 Vapours LC50	≤ 0.05 mg/L ≤ 100 ppm/V ≤ 0.5 mg/L Fatal if inhaled	> 0.05 ≤ 0.5 mg/L > 100 ≤ 500 ppm/V > 0.5 ≤ 2.0 mg/L Fatal if inhaled	> 0.5 ≤ 1.0 mg/L > 500 ≤ 2500 ppm/V > 2.0 ≤ 10 mg/L Toxic if inhaled	> 1.0 ≤ 5 mg/L > 2500 ≤ 20000 ppm/V > 10 ≤ 20 mg/L Harmful if inhaled	See footnote below this table
Flammable liquids	Flash point < 23 degrees C and initial boiling point ≤ 35 degrees C. Extremely flammable liquid and vapour	Flash point < 23 degrees C and initial boiling point > 35 degrees C. Highly flammable liquid and vapour	Flash point ≥ 23 degrees C ≤ 60 degrees C. Flammable liquid and vapour	Flash point > 60 degrees C ≤ 93 degrees C. Combustible liquid	Not Applicable

Note: Gases concentration are expressed in parts per million per volume (ppmV).

NOTE 1: Category 5 is for mixtures which are of relatively low acute toxicity but which under certain circumstances may pose a hazard to vulnerable populations. These mixtures are anticipated to have an oral or dermal LD50 value in the range of 2000-5000 mg/kg bodyweight or equivalent dose for other routes of exposure. In light of animal welfare considerations, testing in animals in Category 5 ranges is discouraged and should only be considered when there is a strong likelihood that results of such testing would have a direct relevance for protecting human health.

NOTE 2: These values are designed to be used in the calculation of the ATE for classification of a mixture based on its ingredients and do not represent test results. The values are conservatively set at the lower end of the range of Categories 1 and 2, and at a point approximately 1/10th from the lower end of the range for Categories 3 – 5.

GHS Category table for reference: Continued

Study/hazard statement	Category 1	Category 2	Category 3
Eye Irritation	Effects on the cornea, iris or conjunctiva that are not expected to reverse or that have not fully reversed within 21 days.	2A: Effects on the cornea, iris or conjunctiva that fully reverse within 21 days. Causes severe eye irritation.	Not applicable

POLY BUTADIENE RUBBER (PBR 1220)

	Causes severe eye damage.	2B : Effects on the cornea, iris or conjunctiva that fully reverse within 7 days. Causes eye irritation.	
Skin Irritation	Destruction of skin tissue, with sub categorization based on exposure of up to 3 minutes (A), 1 hour (B), or 4 hours (C). Causes severe skin burns and eye damage.	Mean value of $\geq 2.3 > 4.0$ for erythema / eschar or edema in at least 2 of 3 tested animals from gradings at 24, 48, and 72 hours (or on 3 consecutive days after onset if reactions are delayed); inflammation that persists to end of the (normally 14-day) observation period. Causes skin irritation.	Mean value of $\geq 1.5 < 2.3$ for erythema / eschar or edema in at least 2 of 3 tested animals from gradings at 24, 48, and 72 hours (or on 3 consecutive days after onset if reactions are delayed). Causes mild skin irritation.
Environment: Acute Toxicity Category	96 hr LC ₅₀ (fish) ≤ 1 mg/L 48 hr EC ₅₀ (crustacea) ≤ 1 mg/L, 72/96 hr ErC ₅₀ (aquatic plants) ≤ 1 mg/L Very toxic to aquatic life	96 hr LC ₅₀ (fish) $> 1 \leq 10$ mg/L 48 hr EC ₅₀ (crustacea) $> 1 \leq 10$ mg/L 72/96 hr ErC ₅₀ (aquatic plants) $> 1 \leq 10$ mg/L Toxic to aquatic life	96 hr LC ₅₀ (fish) $> 10 \leq 100$ mg/L 48 hr EC ₅₀ (crustacea) $> 10 \leq 100$ mg/L 72/96 hr ErC ₅₀ (aquatic plants) $> 10 \leq 100$ mg/L Harmful to aquatic life
Flammable Aerosol	Extremely flammable aerosol	Flammable aerosol	Not Applicable
Flammable solids	Using the burning rate test, substances or mixtures other than metal powders: (a) wetted zone does not stop fire and (b) burning time < 45 seconds or burning rate > 2.2 mm/second Using the burning rate test, metal powders that have burning time ≤ 5 minutes Flammable solid	Using the burning rate test, substances or mixtures other than metal powders: (a) wetted zone does not stop fire for at least 4 minutes and (b) burning time < 45 seconds or burning rate > 2.2 mm/second Using the burning rate test, metal powders that have burning time $> 5 \leq 10$ minutes Flammable solid	Not Applicable
Flammable gases	Gases, which at 20 degrees C and a standard pressure of 101.3 kPa: (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit. Extremely flammable gas	Gases, other than those of category 1, which, at 20 degrees C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air. Flammable gas	Not Applicable

GHS Label:

None

Signal word: None**Details of statements:**

Hazard Statements	H336: May cause drowsiness or dizziness.
Precautionary Statement Prevention	P261: Avoid breathing dust/fume/gas/mist/vapours/spray*.
Precautionary Statement Response	P381: Eliminate all ignition sources if safe to do so.
Precautionary Statement Storage	P403: Store in well ventilated area.
Precautionary Statement Disposal	No Statement

2.2 Information pertaining to particular dangers for human:

Irritating to skin.

2.3 Information pertaining to particular dangers for the environment:

NA

2.4 Other adverse effects: Flammable and Ignition possible when exposed to hot surfaces, sparks, naked flames and by electrostatic discharges too.

Route of entry:

Those with history of skin problems may be more susceptible to the effect of this material.

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
Yes	Yes	Yes	No	Yes

DATA REFERENCE: <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>.

Health hazards:

Source	NTP listed?	IARC cancer review group?	OSHA Regulated?
Carcinogenicity	No	No	No

DATA REFERENCE: Toxic release inventory (TRI) basis of Occupational Safety and Health Administration (OSHA) carcinogen, National Toxicological program (NTP), International Agency for Research on Cancer (IARC), <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>.

Section 3 – COMPOSITION & INFORMATION ON INGREDIENTS

Ingredients / Hazardous	CAS No.	Percentage
Polybutadiene Rubber/No	9003-17-2	>99.00 %

Section 4 – FIRST AID MEASURES

4.1 General advice

IMMEDIATE MEDICAL ATTENTION IS REQUIRED AFTER INHALATION OR AFTER SWALLOWING.

In case of health troubles or doubts, seek medical advice immediately and show this (Material) Safety Data Sheet.

Ensure activity of vitally important functions until the arrival of the doctor (artificial respiration, inhalation of oxygen, heart massage). If patient is unconscious, or in case of danger of blackout, transport patient in a stabilized position.

4.2 Inhalation

No fumes/dust.

4.3 Skin contact

Immediately take off all contaminated clothing and footwear. Flush effected area with copious quantities of water. **SYMPTOMS AND EFFECTS:** mild irritation.

4.4 Eye contact

Immediately flush eyes with clean lukewarm water and continue flushing for at least 15 minutes – keep the eyelids widely apart and flush thoroughly with mild water stream from the inner to the outer. Seek medical advice.

SYMPTOMS AND EFFECTS: severe irritation.

4.5 Swallowing

If patient is conscious and without convulsion, immediately try to induce vomiting. Never give anything by mouth to an unconscious person, just put patient into a stabilized position. Seek medical advice immediately.

SYMPTOMS AND EFFECTS: nausea, vomiting, convulsions, irregular heartbeat.

Section 5 – FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media:

Water in the form of spray is the best extinguishing media to apply. However, Foam, CO₂ or dry chemical powder can also be used.

5.2 Extinguishing media to be avoided:

Water in the form of Jet.

5.3 Caution about specific danger in case of fire and fire-fighting procedures:

When burning, it emits carbon monoxide, carbon dioxide and irritant fumes. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.4 Special protective equipment for fire-fighters:

Wear self-contained breathing apparatus and full protective fire-resistant clothing.

Section 6 – ACCIDENTAL RELEASE MEASURES

6.1 Person-related safety precautions

Wear protective clothing and equipment. Isolate hazard area. Evacuate all unauthorized personnel not participating in rescue operations from the area. Avoid entry into danger area. Remove all possible sources of ignition. Stop traffic and switch off the motors of the engines. Do not smoke and do not handle with naked flame. Use explosion-proof lamps and non-sparking tools.

6.2 Precautions for protection of the environment: NA

6.3 Recommended methods for cleaning and disposal

Dispose off under valid legal waste regulations.

Section 7 – HANDLING AND STORAGE

7.1 Information for safe handling

Observe all fire-fighting measures (no smoking, do not handle with naked flame and remove all possible sources of ignition). Take precautionary measures against static discharges. Wear recommended personal protective equipment and observe instructions to prevent possible contact of substance with skin and eyes and inhalation. Avoid leak to environment.

7.2 Information for storage

Storerooms should meet the requirements for the fire safety of constructions and electrical facilities and should be in conformity with valid regulations. Store in cool, well-ventilated place with effective exhaust, away from heat and all sources of ignition.

Take precautionary measures against static discharges. Avoid leak to environment.

7.3 Information for specific use: NA

Section 8 – EXPOSURE CONTROL & PERSONAL PROTECTION

8.1 Occupational Exposure Limits: NA

NA: Data not available

8.2 Occupational exposure controls

Collective protection measures: General and local ventilation, effective exhaust.

Individual protection measures: Personal protective equipment (PPE) for the protection of eyes, hands and skin corresponding with the performed labour has to be kept at disposition for the employees. All PPE have to be kept in disposable state and the damaged or contaminated equipment has to be replaced immediately.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE):

HANDS	EYES	BODY	RESPIRATORY
			

Respiratory protection: Not pertinent.

Eye protection: Use chemical safety goggles and/or a full-face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Hand protection: Wear gloves of impervious material.

Body protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Protective coverall antistatic design recommended.

Hygiene Measures: Wash hands, forearms and face thoroughly after handling. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

8.3 Environmental exposure controls

Proceed in accordance with valid air and water legislative regulations.

Engineering measures: If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended limits.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Amber to white Spongy
Odour	Odourless
Solubility in water	Insoluble
Relative Density (H ₂ O=1)	0.90 – 0.92
Boiling Point °C	NA
Melting Point °C	NA
Relative Vapour Density (Air=1)	NA
Flash point °C	NA
Auto ignition °C	NA
Vapour pressure (mmHg) @ 25 °C	NA
Molecular weight	NA
Explosive limits in air % by volume	NA
pH	NA
Viscosity cst	NA
Pour point °C	NA
Evaporation rate (water=1)	NA
Octanol/water partition coefficient log Kow	4.45
% volatile	NA

NA: NOT AVAILABLE

DATA REFERENCE <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>

Section 10 –CHEMICAL STABILITY AND REACTIVITY INFORMATION

10.1 Conditions to avoid: Keep away from heat, & flame.

10.2 Material to avoid: Can react with oxidizing materials.

10.3 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

Polymerization: Do not occur.

Section 11 –TOXICOLOGICAL INFORMATION

11.1 Acute effects: Product irritates eyes and skin.

Acute toxicity data: NA

11.2 Repeated dose toxicity: Chronic effects cause mild irritation.

11.3 Sensitisation: May cause mild skin irritation.

11.4 CMR effects (carcinogenicity, mutagenicity, toxicity for reproduction)

Not a CMR.

11.5 Toxicokinetics, metabolism, distribution: NA.

Section 12 –ECOLOGICAL INFORMATION

12.1 Eco toxicity data: NA

12.2 Mobility: NA

12.3 Persistence and degradability: NA

12.4 Bio accumulative potential: NA

12.5 Results of PBT assessment Persistence and Degradation: NA

12.6 Other adverse effects

Environmental Fate: NA

Section 13– DISPOSAL CONSIDERATION

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations. This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

The same safety consideration applies to scraps/waste as apply to the product as it is. Residue should be disposed of as required by national and local regulations.

13.1 Disposal methods after declared Shelf life

- Re-evaluate quality parameters after declared shelf-life is over.
- If found okay, proceed to consume under supervision and as per internal guideline.
- If found not okay, proceed to supply as input material to rubber reclaim industries and approved co-processors/incinerators.

Waste treatment methods

13.2 Recommendation:

The reclamation, co-processing/incineration must be done under approved conditions, possibly with energy recovery and only at suitable facilities equipped with a scrubber for the treatment of fumes before their release into the atmosphere.

After suitable treatment (cleaning, grinding, etc.), the product can be

safely re-used, as is or mixed with fresh material, when this is compatible with the intended final application.

Landfilling should be avoided as far as possible. If unavoidable, use approved landfill sites.

Uncleaned packaging:

13.3 Recommendation: Disposal must be made according to official regulations.

13.5 Recommended cleansing agents: Water, if necessary together with cleansing agents.

13.5 Recommended cleansing agents: Water, if necessary together with cleansing agents.

13.6 Waste regulation: Follow local regulation.

Section 14– TRANSPORT INFORMATION

International Transport Regulation:

ADR/RID (Road/Rail), IMDG (Sea) and ICAO/IATA (Air)

14.1

Proper Shipping Name: NA

Hazard Class: NA

UN Number: NA

Emergency Action Code: NA

14.2 Special transport precautionary measures

Not applicable.

Section 15– REGULATORY INFORMATION

(M)SDS format on a 16 Section based on guidance provided in:

Indian Regulation:

Manufacture, Storage and Import of Hazardous Chemicals Rule, 1989.

The Factories Act 1948

International Regulations:

European SDS Directive

ANSI MSDS Standard

ISO 11014-1 1994

WHMIS Requirements

United States

Hazard Communication Standard

Canada

Hazardous Products Act and Controlled Products Regulations

Europe

Dangerous Substance and Preparations Directives

Australia

National Model Regulations for the Control of Workplace Hazardous Substances

The Globally Harmonized System of Classification and Labeling of Chemicals endorsed by The UN Economic and Social Council

*RISK PHRASES: NA

*SAFETY PHRASES: NA

*These standard risk and safety phrases for use when interpreting (Material) Safety data Sheets are derived from the European Union Regulation, CHIP Regulations - Chemicals (Hazard Information and Packaging for Supply). They are required to be used in (Materials) Safety Data Sheets to identify potential hazards and offer safe handling advice.

Section 16 – OTHER INFORMATION

Training instructions

Personnel handling the product has to be acquainted demonstrably with its hazardous properties, with health and environmental protection principles related to the product and first aid principles.

Tremcard details/Reference: Refer Section 14

Local bodies involved (Applicable only with in India): Local District Authority and Local Crisis Group

Sources of data used to compile the (Material) Safety Data Sheet

Data compilation reference: National Institute for Occupational Safety and Health guide to chemical hazards and International Chemical Safety Cards (WHO/IPCS/ILO) and <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>, <http://webnet3.oecd.org/eChemPortal/Results2.aspx?SubstanceId=169630>, <http://ecb.jrc.ec.europa.eu/esis/index.php?PGM=ein>, <http://www.cdc.gov/niosh/npg/npgd0049.html>

(M)SDS Revision Status:

Date of Revision	Revised Sections	Supersedes
Sep. 01, 2009	Format revised	Feb. 01, 2008
Sep. 01, 2011	Section 4 (4.3)	Sep. 01, 2009
Aug. 01, 2013	Section 1.3	Sep. 01, 2011
May 01, 2016	Section 1 & Format change	Aug. 01, 2013
Jan 28, 2020	Section 1.3	May 01, 2016
Oct 30,2022	Section 5 & 13	Jan 28, 2020

This (M)SDS is issued by the Safety and Operational Risk, Reliance Industries Limited

Contact Details: For any enquiry/comment regarding this (Material) Safety Data Sheet, kindly contact the Safety and Operational Risk at HSE.ExcellenceCentre@ril.com

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(Material) Safety Data Sheet
Issue Date: Oct 30, 2022
Supersedes: Jan 28, 2020

POLY BUTADIENE RUBBER
(PBR 1220)



as to any results obtained or arising from any use of the product or reliance on such information.

End of (M)SDS