

SECTION 1: Identification

1.1. Product identifier

Name : Polyisobutylene
 Trade name : Polyisobutene (PIB)
 Product code : PIB06, PIB06 IBC, PIB06 TF, PIB06 TR, PIB08, PIB08 TF, PIB08 TR, PIB10, PIB10 IBC, PIB10 TF, PIB10 TR, PIB10B, PIB10B IBC, PIB10B TF, PIB12, PIB12 TF, PIB12 TR, PIB16, PIB16 IBC, PIB16 TF, PIB16 TR, PIB18, PIB18 TF, PIB18 TR, PIB20, PIB20 TF, PIB20 TR, PIB24, PIB24 A, PIB24 A TR, PIB24 TF, PIB24 TR, PIB28, PIB28 TF, PIB28 TR, PIB28LZ, PIB30, PIB30 TF, PIB30 TR, PIB32, PIB32DM, PIB32 TF, PIB32 TR, PIB32 3M, PIB38, PIB80, PIB80 TF, PIB80 TR, PIB90, PIB120, PIB120 TF, PIB120 TR, PIB121, PIB121 TR, PIB122, PIB122 TF, PIB122 TR, PIB122LZ, PIB126, PIB126 TF, PIB126 TR, PIB128, PIB128 TF, PIB128 TR, PIB128KL, PIB128KL TR, PIB240, PIB240 TF, PIB240 TR, PIB240KL, PIB240KL TR, PIB N/E
 CAS-No. : 9003-27-4
 Chemical name : 1-Propene, 2-methyl-, homopolymer
 Formula : (C₄H₈)_x

1.2. Other means of identification

Synonyms : POLYISOBUTENE / Poly(4+) isobutylene / Polyisobutene / 1-Propene, 2-methyl-, homopolymer
 EC-No. : 618-360-8

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Industrial use resulting in manufacture of another substance (use of intermediates)

1.4. Supplier's details

Braskem
 One Temasek Avenue
 Millenia Tower #29-02
 Singapore 039192
 Tel:+65 6671- 0431

1.5. Emergency telephone number

Emergency number : CHEMTREC Singapore (must be dialed within the country): 800-101-2201
 CHEMTREC Singapore +(65)-31581349 CHEMTREC: +1 703-741-5970 (International – 24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not classified as hazardous according to GHS

2.2. Label elements

No labelling applicable

2.3. Other hazards

Other hazards which do not result in classification : Spilled material may present a slipping hazard

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Concentration (%)	GHS SG classification
Polyisobutylene (Main component)	CAS-No.: 9003-27-4 EC-No.: 618-360-8	100	Not classified

Comments : The substance has a variable viscosity and some grades meet the criteria for classification as an aspiration hazard, while some grades do not meet the criteria for classification. The information in Section 3 of this SDS indicates that the CAS number is associated with the Aspiration Toxicity hazard classification. In the absence of a measured viscosity, the substance will be classified as being an aspiration hazard. Where viscosity measurements are available, the overall classification presented in Section 2 of this SDS will reflect the hazard classification based on the measured viscosity.

3.2. Mixtures

Not applicable

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SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
Inhalation	: Remove victim to fresh air. If breathing stops, give artificial respiration. Get medical advice/attention. Allow affected person to breathe fresh air. Allow the victim to rest.
Skin contact	: In case of contact with cold material: Wash skin with plenty of water and soap. In case of contact with hot material: Rinse immediately with plenty of water for 15 minutes. Seek immediate medical advice. Obtain medical attention. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
Eye contact	: In case of contact with cold material: Rinse immediately with plenty of water. In case of contact with hot material: Rinse immediately with plenty of water for 15 minutes. Get medical advice/attention. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.
Ingestion	: Do NOT induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Seek medical attention immediately. Rinse mouth. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	: Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation	: Overexposure to vapours may result in cough.
Symptoms/effects after skin contact	: Heated product causes burns.
Symptoms/effects after eye contact	: Heated product causes burns.
Symptoms/effects after ingestion	: Ingestion may cause nausea and vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physician :	In case of skin burns, to minimize physical damage to the skin, do not remove the polybutene. Cover the injured area with appropriate burn gel.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Carbon dioxide (CO ₂), dry chemical powder, foam. Water spray. Foam. Dry powder. Carbon dioxide. Sand.
Unsuitable extinguishing media	: Do not use a water jet since it may cause the fire to spread. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: On combustion forms: Carbon dioxide. Carbon monoxide.
Explosion hazard	: No direct explosion hazard.

5.3. Special protective actions for fire fighters

Firefighting instructions	: Cool closed containers exposed to fire with water spray. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protective equipment for firefighters	: Fully enclosed impervious protective suit with integral or tight-fitting gloves, boots, self-contained or supplied air respirator must be worn. For further information refer to section 8: "Exposure controls/personal protection". Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.1.1. For non-emergency personnel

Protective equipment	: Wear suitable protective clothing. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Stop leak if safe to do so. Stay upwind/keep distance from source. Clean up even minor leaks or spills if possible without unnecessary risk. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	: Wear suitable protective clothing. For further information refer to section 8: "Exposure controls/personal protection". Equip cleanup crew with proper protection.
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Emergency procedures : Stop leaks if it can be done without personal risk. Stay upwind/keep distance from source. Clean up any spills as soon as possible, using an absorbent material to collect it. Collect all waste in suitable and labelled containers and dispose according to local legislation. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Ventilate area.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. Do not discharge into drains or the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Stop leaks if it can be done without personal risk. Ventilate spillage area. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up : Take up liquid spill into dry absorbent material e.g.: dry sand/earth/vermiculite. Collect all waste in suitable and labelled containers and dispose according to local legislation. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For disposal of residues refer to section 13 : "Disposal considerations". See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Work in a well-ventilated area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Provide adequate ventilation.

Storage conditions : Store tightly closed in a dry, cool and well-ventilated place. Bulk storage does not require any special measure. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Strong acids. Strong oxidizing agents. Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

See Section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Monitoring

No additional information available

8.3. Appropriate engineering controls

Appropriate engineering controls : Ensure adequate ventilation. Either local exhaust or general room ventilation is usually required. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

8.4. Personal protective equipment

Hand protection : Insulating protective gloves. Impermeable protective gloves. Wear protective gloves

Eye protection : Wear chemical goggles if material is handled hot. No special eye protection equipment recommended under normal conditions of use. Chemical goggles or safety glasses

Skin and body protection : When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection must be worn

Respiratory protection : If excessive exposure exists, use only approved air-purifying or supplied air respirator operated in a positive pressure mode. Wear appropriate mask

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Clear. Viscous.

Colour : Colourless

Odour : characteristic

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Odour threshold	: No data available
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: PIB06, PIB06 IBC, PIB06 TF, PIB06 TR : $\geq 125^{\circ}\text{C}$ PIB08, PIB08 TF, PIB08 TR : $\geq 130^{\circ}\text{C}$ PIB10, PIB10 IBC, PIB10 TF, PIB10 TR : $\geq 130^{\circ}\text{C}$ PIB10B, PIB10B IBC, PIB10B TF: $\geq 130^{\circ}\text{C}$ PIB12, PIB12 TF, PIB12 TR : $\geq 135^{\circ}\text{C}$ PIB16, PIB16 IBC, PIB16 TF, PIB16 TR : $\geq 135^{\circ}\text{C}$ PIB18, PIB18 TF, PIB18 TR: $\geq 150^{\circ}\text{C}$ PIB20, PIB20 TF, PIB20 TR: $\geq 165^{\circ}\text{C}$ PIB24, PIB24 TF, PIB24 TR: $\geq 190^{\circ}\text{C}$ PIB24 A, PIB24 A TR: $\geq 190^{\circ}\text{C}$ PIB28, PIB28 TF, PIB28 TR: $\geq 190^{\circ}\text{C}$ PIB30, PIB30 TF, PIB30 TR: $\geq 190^{\circ}\text{C}$ PIB32, PIB32 TF, PIB32 TR: $\geq 195^{\circ}\text{C}$ PIB32 3M: $\geq 200^{\circ}\text{C}$ PIB32DM: $\geq 220^{\circ}\text{C}$ PIB38: $\geq 190^{\circ}\text{C}$ PIB80, PIB80 TF, PIB80 TR: $\geq 220^{\circ}\text{C}$ PIB90 : $\geq 190^{\circ}\text{C}$ PIB120, PIB120 TF, PIB120 TR: $\geq 220^{\circ}\text{C}$ PIB121, PIB121 TR: $\geq 240^{\circ}\text{C}$ PIB122, PIB122 TF, PIB122 TR: $\geq 235^{\circ}\text{C}$ PIB126, PIB126 TF, PIB126 TR: $\geq 240^{\circ}\text{C}$ PIB128, PIB128 TF, PIB128 TR: $\geq 240^{\circ}\text{C}$ PIB128KL, PIB128KL TR: $\geq 240^{\circ}\text{C}$ PIB240, PIB240 TF, PIB240 TR, PIB240KL TR: $\geq 245^{\circ}\text{C}$
Auto-ignition temperature	: No data available
Decomposition temperature	: $> 260^{\circ}\text{C}$
Flammability	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: 0,84 (PIB06) - 0,92 (PIB240) (water =1)
Solubility	: Soluble in hydrocarbons. Water: $\leq 0.1\%$ Negligible in water
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available

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Viscosity, kinematic	: PIB06, PIB06 IBC, PIB06 TF, PIB06 TR : 26 - 34 mm ² /s (37.8°C) PIB08, PIB08 TF, PIB08 TR : 102 -110 mm ² /s (37.8°C) PIB10, PIB10 IBC, PIB10 TF, PIB10 TR : 20 - 30 mm ² /s (100°C) PIB10B, PIB10B IBC, PIB10B TF: 20 - 30 mm ² /s (100°C) PIB12, PIB12 TF, PIB12 TR : 34 - 42 mm ² /s (100°C) PIB16, PIB16 IBC, PIB16 TF, PIB16 TR : 46 - 52 mm ² /s (100°C) PIB18, PIB18 TF, PIB18 TR: 65 - 80 mm ² /s (100°C) PIB20, PIB20 TF, PIB20 TR: 100 - 120 mm ² /s (100°C) PIB24, PIB24 TF, PIB24 TR: 200 - 240 mm ² /s (100°C) PIB24 A, PIB24 A TR: 200 - 240 mm ² /s (100°C) PIB28, PIB28 TF, PIB28 TR: 260 - 320 mm ² /s (100°C) PIB30, PIB30 TF, PIB30 TR: 600 - 650 mm ² /s (100°C) PIB32 3M : 610 - 720 mm ² /s (100°C) PIB32, PIB32DM, PIB32 TF, PIB32 TR: 640 - 720 mm ² /s (100°C) PIB38: 750–870 mm ² /s (100 °C) PIB80, PIB80 TF, PIB80 TR: 1450 – 1700 mm ² /s (100°C) PIB90 : 1900 - 2100 °C mm ² /s (100°C) PIB120, PIB120 TF, PIB120 TR: 2300 - 2700 mm ² /s (100°C) PIB121, PIB121 TR: 2900 - 3200 mm ² /s (100°C) PIB122, PIB122 TF, PIB122 TR: 3000 - 3400 mm ² /s (100°C) PIB126, PIB126 TF, PIB126 TR: 3900 – 4200 mm ² /s (100°C) PIB128, PIB128 TF, PIB128 TR: 4000 – 4700 mm ² /s (100°C) PIB128KL, PIB128KL TR: 4000 – 4700 mm ² /s (100°C) PIB240, PIB240 TF, PIB240 TR, PIB240KL TR: 11000 – 14000 mm ² /s (100°C)
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable in use and storage conditions as recommended in item 7. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known. Hazardous polymerization will not occur. Not established.

10.4. Conditions to avoid

Extremely high temperatures. Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases. fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met) pH: Not applicable
Serious eye damage/irritation	: Not classified (Based on available data, the classification criteria are not met)
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

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According to SS 586 Part 3: 2014

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified (Based on available data, the classification criteria are not met)

Hazardous to the aquatic environment, long-term (chronic) : Not classified (Based on available data, the classification criteria are not met)

Other information : Avoid release to the environment.

12.2. Persistence and degradability

Polyisobutene (PIB) (9003-27-4)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Polyisobutene (PIB) (9003-27-4)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

Polyisobutene (PIB) (9003-27-4)	
Mobility in soil	No additional information available

12.5. Other adverse effects

Ozone : Not classified (Based on available data, the classification criteria are not met)

Other adverse effects : No additional information available

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations : Consult an expert on waste disposal or treatment. Dispose of in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

IMDG	IATA	UNRTDG
14.1. UN number		
3257	3257	3257
14.2. Proper Shipping Name		
ELEVATED TEMPERATURE LIQUID, N.O.S. (Polyisobutylene)	Elevated temperature liquid, n.o.s. (Polyisobutylene)	ELEVATED TEMPERATURE LIQUID, N.O.S. (Polyisobutylene)
14.3. Transport hazard class(es)		
9	9	9
14.4. Packing group		
III	Not applicable	III
14.5. Environmental hazards		
Dangerous for the environment: Yes Marine pollutant: Yes, when transported at elevated temperature ($\Rightarrow 100^{\circ}\text{C}$).	Dangerous for the environment: Yes	Dangerous for the environment: Yes
Transport at temperature below 100°C : Not regulated for all modes of transport		

14.6. Special precautions for user

Special transport precautions : The information about transport regulations as supplied herein does not cover all technical and operational requirements and, therefore, can not be considered exhaustive. Please check out the guidelines from the regulations of the National Road and Rail organization, International Maritime Organisation (IMO) and the International Air Transport Association (IATA) before transporting the product. The transporting company is responsible for compliance with the laws, regulations and other rules as may apply to the transport of the material.

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UN RTDG

Special provisions (UN RTDG)	: 232, 274
Limited quantities (UN RTDG)	: 0
Excepted quantities (UN RTDG)	: E0
Packing instruction (UN RTDG)	: P099, IBC01
Portable tank and bulk container special instructions (UN RTDG)	: T3
Portable tank and bulk container special provisions (UN RTDG)	: TP3, TP29

IMDG

Special provisions (IMDG)	: 232, 274
Packing instructions (IMDG)	: P099
IBC packing instructions (IMDG)	: IBC01
Tank instructions (IMDG)	: T3
Tank special provisions (IMDG)	: TP3, TP29
EmS-No. (Fire)	: F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	: S-P - SPILLAGE SCHEDULE Papa - SUBSTANCES DANGEROUS WHEN WET (COLLECTABLE ARTICLES)
Stowage category (IMDG)	: A
Flash point (IMDG)	: above 100°C
Properties and observations (IMDG)	: Any liquid which is transported at or above 100°C but below its flashpoint. May cause fire if in contact with combustible material due to extreme temperature.

IATA

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: Forbidden
CAO max net quantity (IATA)	: Forbidden
ERG code (IATA)	: 9L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Product Name: POLY(+4)ISOBUTYLENE

SECTION 15: Regulatory information

15.1. National regulations

No additional information available

15.2. International Regulations

No additional information available

15.3 Chemical inventory status

AICIS	Yes
DSL	Yes
ECL	Yes
IECSC	Yes
INSQ	Yes
NDSL	No
TCSI	Yes

SECTION 16: Other information

Issue date	3 September 2021
Revision date	25 May 2023
Other information	: None.

Braskem - SDS_Singapore (modified 210824)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. It warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is up to the user of the product company providing this SDS to and promote the training of its employees about possible risks come upon of the product. The information contained herein is not absolute, but only general information on the use of the chemical and indication of safety and security measures.