



# MATERIAL SAFETY DATA SHEET

(According to GHS rev. 5)

## POLYBUT

1.IDENTIFICATION	
<b>Company:</b> YPF S.A. <b>Address:</b> Av. Macacha Güemes n° 515 <b>CP</b> C1106BKK <b>Buenos Aires - ARGENTINA</b> <b>Tel#</b> (+ 5411) 5441-2000 <b>Fax#</b> (+ 5411) 5441-5796	<b>Commercial name:</b> POLYBUT 0; POLYBUT 0E; POLYBUT 5E; POLYBUT 10; POLYBUT 30; POLYBUT 150; POLYBUT 200 <b>Chemical name:</b> Polybutene.
	<b>Synonyms:</b>  Butene/isobutylene Copolymer
	<b>Emergency Telephone:</b> <b>Argentina:</b> 0800-222-2933 <b>Other countries:</b> (+5411) 4611-2007

2.HAZARD IDENTIFICATION			
2.1 LABEL ELEMENTS			
<b>Pictograms</b>			
<b>Warning word</b>			
<b>Hazard statement</b>	Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008. This substance is not classified as dangerous according to Directive 67/548/EEC.	-	-
<b>Classification criteria</b>	-	-	-
<b>Other regulations</b>	-		
<b>OTHER HAZARDS</b>			

### 3.COMPOSITION/INFORMATION ON INGREDIENTS

**General composition:**

Butene/isobutylene Copolymer. This product can be described with the CAS # 9044-17-1

Main components	Range %	Classification	S Phrases
Polybutene CAS# 9003-29-6 Nro. CE 500-004-7	>99	NP	NP

### 4. FIRST-AID MEASURES

**Inhalation:** Move the affected person to fresh air. If breathing is difficult, apply artificial respiration or administer oxygen. Call for medical attention.

**Ingestion/Aspiration:** If conscious, give the affected person some water. Call for medical attention.

**Contact skin/eyes:** Remove contaminated clothing. Wash the affected area thoroughly with soap and water. In case of burns by contact with heated product, cool quickly with plenty of water. Do not remove the solidified product without medical assistance. Call for medical attention . Flush with copious amounts of water for up to 15 minutes. Call for medical attention.

**General measures:** Call for medical attention.

### 5. FIRE-FIGHTING MEASURES

**Extinguishing agents:** CO<sub>2</sub>, foams, water spray and dry chemicals.

WATER SHOULD NEVER BE USED DIRECTLY.

**Non suitable extinguishing agents:** NP

**Combustion products:** CO<sub>2</sub>, H<sub>2</sub>O and CO (in case of incomplete combustion).

**Special measures:** Move container from fire area if it can be done without risk. Apply cooling water to the containers sides exposed to flames until well after fire is out. Stay away from tank. In case of massive fire in cargo area, use unmanned hose holder or monitor nozzles; if fire goes out of control, withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank wall due to fire. Consult and follow existing emergency standard procedures.

**Special hazards:** Combustible liquid.

**Protective equipment:** Fire-fighters' protective clothing. At high concentration of vapours and/or fumes, self-contained breathing apparatus will be needed.

### 6. ACCIDENTAL RELEASE MEASURES

**Environmental precautions:** Spillages form a film over water surface, which avoid oxygen transfer.

**Cleanup methods:** Small spillages: Take up with non-combustible absorbent materials. Transfer to sealed containers for later disposal.

Large spillages: Avoid product dispersion with mechanical barriers. Dike far ahead of liquid spill and aspirate liquid into closed containers for later disposal.

**Personal precautions:** Avoid skin and eye contact with the product and inhalation of vapours from heated product.

**Personal protection:** Suitable protective clothing, safety goggles and gloves.

## 7. HANDLING AND STORAGE

### Handling:

*General precautions:* Wear suitable protective clothing, gloves and safety goggles to prevent skin and eyes contact with the product and use respiratory protection to prevent inhalation of vapours from heated product. In the areas where the product is stored, handled or used, keep all ignition sources away and do not smoke, eat or drink. Product transfer must be done in earthed, airtight conducts. Electrically ground all equipment when handling this product and use only non-sparking tools.

*Specific conditions:* Good local exhaust ventilation.

*Specific Use:* Industrial use.

### Storage:

*Temperature and decomposition products:* The product begins to decompose at about 350 °C, releasing CO<sub>2</sub>, H<sub>2</sub>O and CO (in case of incomplete combustion).

*Dangerous reactions:* Mixtures of silver peroxide with 1% of polyisobutylene are explosive.

*Storage conditions:* Keep the product in properly sealed and labelled containers in cool and well-ventilated place. Keep them away from ignition sources and incompatible materials.

*Incompatible materials:* Oxidizers. Silver peroxide.

## 8.EXPOSURE CONTROLS/PERSONAL PROTECTION

### Personal protection:

*Eye protection:* Safety goggles or face-shield to prevent eyes contact with the product.

*Respiratory protection:* Respiratory protection to prevent inhalation of vapours from heated product.

*Skin protection:* Gloves, suitable protective clothing and appropriate footwear are recommended.

*Other protective equipment:* Showers and eye-washers in working area.

**General precautions:** Good local exhaust ventilation. Avoid direct contact with the product and vapour inhalation.

**Specific hygiene measures:** Contaminated clothing should be changed immediately. Good work practices and the adoption of good personal hygiene measures reduce unnecessary exposures. Care should be taken to ensure proper skin cleaning by washing thoroughly with soap and water, followed by the application of a skin re-conditioning cream. Use skin reconditioning cream after work.

**Exposure controls:** NP

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Transparent liquid.

**pH:** NP

**Colour:** Yellowish.

**Odour:** Characteristic.

**Boiling point:** NP

**Melting/Freezing point:** NP

**Flash point:** 120-190 °C

**Autoignition temperature:**

**Explosive properties:** NP

**Oxidizing properties:** NP

**Vapour pressure:** NP

**Density:** 0.850 g/m<sup>3</sup>

**Surface tension:** NP

**Viscosity:**

POLYBUT 0E: 9.1 - 11.8 cSt; POLYBUT 5E: 70-90 cSt; POLYBUT 10: 210-250 cSt; POLYBUT 30: 595 - 665 cSt; POLYBUT 150: 2150 - 2700 cSt; POLYBUT 200: 4009 - 4503 cSt

**Vapour density:**

**Partition coefficient (n-octanol/water):** NP

**Water solubility:** Insoluble in cold water.

**Solubility:** Readily soluble in non-polar liquids.

**Other data:** Fire point: 399 °C (750.2 °F)

## 10. STABILITY AND REACTIVITY

**Stability:** Stable at room temperature.

**Conditions to avoid:** High temperatures.

**Materials to avoid:** Oxidizers. Silver peroxide.

**Hazardous decomposition/combustion products:** The product begins to decompose at about 350 °C, releasing CO<sub>2</sub>, H<sub>2</sub>O and CO (in case of incomplete combustion).

**Polymerizations risk:** NP

**Conditions to avoid:** NP

## 11. TOXICOLOGICAL INFORMATION

**Routes of exposure:** Inhalation. Skin and eyes contact. Ingestion is easy to avoid

**Acute and chronic effects:**

Vapours from heated product may cause respiratory system, skin and eyes irritation. Slightly irritant in contact with skin or eyes. Contact with heated product may cause burns.

Animal values:

LD50, oral, rat (OECD401): > 2000 mg/kg bw

LC50, inh., 4hs, rat (EPA): > 19171 mg/m<sup>3</sup>

LD50, dermal, rat, (OECD): > 2000 mg/kg bw

**Carcinogenicity:** NP

**Reproductive toxicity:** No data available.

**Medical conditions which increase hazard to exposure:** Respiratory deficiencies and dermatological problems.

## 12. ECOLOGICAL INFORMATION

### **Pollutant potential:**

*Persistence and degradability:* The product has long hydrocarbon insoluble chains that make biodegradation process difficult. It is not readily removed from water or soil and it has high persistence in the environment.

*Mobility/bioaccumulative potential:* No data available on polyisobutylene bioaccumulative problems.

**Ecotoxicological effects:** No data available.

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods (surplus):** Recycling when possible.

**Waste:** Liquids from industrial processes.

*Disposal:* Consult with authorized environmental regulatory agencies for guidance on acceptable disposal practices.

*Handling:* Contaminated materials should be regarded as toxic and dangerous waste and have the same risk and need the same precautions as the product. Do not run off the product to sewers.

*Provisions:* Companies that recover, dispose, store, transport or handle waste should comply with local and/or national provisions in force on waste management.

## 14. TRANSPORT INFORMATION

**Special precautions:** Stable at room temperature and during transport. Transport in properly sealed and labelled containers.

### Additional Information:

If the product is transported in temperatures lower than 100° C, is not classified as a hazardous material. If the product is transported in temperature ABOVE 100°C, this SDS does not apply.

### LAND TRANSPORT:

Proper shipping name :	Not classified as a Dangerous Goods for Transportation
UN Number :	Not classified as a Dangerous Goods for Transportation
Hazard class :	Not classified as a Dangerous Goods for Transportation
Hazard identification number :	Not classified as a Dangerous Goods for Transportation
Packing group :	Not classified as a Dangerous Goods for Transportation
Exempt amount :	Not classified as a Dangerous Goods for Transportation

### AIR TRANSPORT (ICAO/IATA) :

Proper shipping name :	Not classified as a Dangerous Goods for Transportation
UN Number :	Not classified as a Dangerous Goods for Transportation
Hazard class :	Not classified as a Dangerous Goods for Transportation
Packing group :	Not classified as a Dangerous Goods for Transportation
CRE :	Not classified as a Dangerous Goods for Transportation
Passenger and cargo aircraft :	Not classified as a Dangerous Goods for Transportation
Cargo aircraft only :	Not classified as a Dangerous Goods for Transportation

### MARITIME TRANSPORT (IMDG/IMO) :

Proper shipping name :	Not classified as a Dangerous Goods for Transportation
UN Number :	Not classified as a Dangerous Goods for Transportation
Hazard class :	Not classified as a Dangerous Goods for Transportation
Packing group :	Not classified as a Dangerous Goods for Transportation
Marine pollutant :	Not classified as a Dangerous Goods for Transportation
Stowage and segregation :	Not classified as a Dangerous Goods for Transportation
Ems :	Not classified as a Dangerous Goods for Transportation

## 15. REGULATORY INFORMATION

**CLASIFICACION:**      **LABELLING**

**Symbols:** NP

NP

**Phrases R:** NP

**Phrases S:** NP

**Other regulations:** Polyisobutylene is listed in TSCA Inventory (EPA).

## 16. OTHER INFORMATION

### Data Bases consulted

EINECS: European Inventory of Existing Commercial Substances.  
HSDB: US National Library of Medicine  
RTECS: US Dept. of Health & Human Services.

### R phrases show in the document:

### Legislation consulted:

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).  
Dir. 67/548/EEC about classification, labelling and packaging of dangerous substances (including amendments and adaptations in force).  
Dir. 1999/45/EC about classification, labelling and packaging of dangerous preparations (including amendments and adaptations in force).  
Dir. 91/689/EEC dangerous waste; Dir. 91/156/EEC waste management.  
Royal Decree 363/95: Regulation about notification of new substances and classification, packaging and labelling of dangerous substances.  
Royal Decree 255/2003: Regulation about classification, packaging and labelling of dangerous preparations.  
European Agreement concerning the international carriage of dangerous goods by road (ADR).  
Regulation on the international transport of dangerous goods on the railway. (RID)  
International maritime code of dangerous goods. (IMDG)  
International Air Transport Association (IATA) regulation pertaining to air shipment.

### Glossary:

CAS: Chemical Abstract Service  
IARC: International Agency for Research on Cancer  
TLV: Threshold Limit Value  
TWA: Time Weighted Average  
STEL: Short-Term Exposure Level  
REL: Recommendable Exposure Limit  
PEL: Permissible Exposure Limit  
VLA: Valor Límite Ambiental  
LD50: Lethal Dose Medium  
LC50: Lethal Concentration Medium  
EC50: Effective Concentration Medium  
IC50: Inhibitory Concentration Medium  
BOD: Biological Oxygen Demand  
NP: Not Pertinent  
½ : Changes from the last revision.