

# Safety data sheet

Resin comp. B

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## 1. Product/Preparation and Company Identification

Description: epros Resin, Type S Longliner Resin, Comp. B  
Commercial product name: Type S Longliner Resin  
Manufacturer/supplier: epros GmbH  
Dr.-Alfred-Herrhausen-Allee 20d  
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## 2. COMPOSITION

Hazardous ingredient:

Diphenylmethane –4,4'-Diisocyanate, isomers and homologs (MDI, Polymer-MDI)  
(Monomer MDI <20-25%, polymer MDI <50% in total < 80%)

CAS No.: 9016-87-9

## 3. HAZARDS IDENTIFICATION

EFFECTS OF ACUTE EXPOSURE: Harmful by inhalation. In eyes it will cause irritation and may result in mild cornea opacity. May cause skin irritation. Ingestion may cause adverse health effects.  
EFFECTS OF CHRONIC EXPOSURE: The isocyanate component is a respiratory sensitizer. It may cause allergic respiratory reaction. Medical supervision of all employees who handle or come in contact with isocyanates is recommended. This should include pre employment and periodic medical examinations with respiratory function tests. Persons with asthmatic conditions or other chronic respiratory diseases or recurrent eczema or sensitization should be excluded from working with isocyanates. Once a person has been diagnosed as having been sensitized to an isocyanate, no further exposure should be permitted.

## 4. FIRST AID MEASURES

If aerosol or vapour is inhaled in high concentration: Remove the person to fresh air. Assist breathing if necessary. Call an ambulance. Obtain medical attention immediately. Eye Contact: Immediately rinse with plenty of water, holding eye open if necessary and seek medical advice immediately. Skin Contact: Wash thoroughly with soap and water. If irritation develops obtain medical assistance. Swallowing: If victim is alert and not convulsing, give 1/2 to 1 glass water to dilute material. Do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain emergency medical attention immediately.

## 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media: Water, fog, foam, dry chemicals, CO<sub>2</sub>

5.2 Fire and explosion hazards. Flammable limits in air (% by volume), Lower N/D, Upper N/D

Burning rate N/D. Unusual fire and explosion hazards: Water contamination of product will generate CO<sub>2</sub> gas.

In confined or closed containers or chambers, this will cause pressurization or explosion.

Special fire fighting procedures: Wear self-contained breathing apparatus in confined areas or when exposed to combustion products.

5.3 Protective equipment: Wear self-contained breathing apparatus in confined areas or when exposed to combustion products.

## 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions: Wear suitable protective clothing (see paragraph 8)

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6.2 After spillage, leakage: do not touch spilled material. Confine spill and cover with absorbent material.

Wash down spill area with decontaminant solution of 90% water, 8% ammonia and 2% detergent. Allow to react at least 10 minutes. Contaminated absorbent material may pose the same hazards as the spilled material. CO<sub>2</sub> and heat will be released. Collect in open containers. Add more decontamination solution. Cover containers loosely.

### 7. HANDLING AND STORAGE

7.1 Handling: Keep the usual precautionary measures for chemicals. Avoid eye and skin contact. Avoid inhaling. In all areas where MDI aerosols and/or vapour are produced, exhaust ventilation must be provided.

7.2 Storage: Store in a cool, dry and well ventilated location. Keep containers tightly closed. Avoid product temperatures above 25°C and below 15°C. Protect opened containers with dry inert gas before re-closing.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTIN

8.1 Exposure controls

Occupational exposure limits. Methylene bisphenyl isocyanate (MDI): ACGIH TLV is 0.005 ppm (0.051 mg/m<sup>3</sup>): TWA and OSHA PEL is 0.02 ppm ceiling. Engineering controls: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

8.2 Personal protective equipment:

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed: however, if material is heated or sprayed, use an approved air purifying respirator or positive pressure supplied air respirator.

Protective gloves: Use protective clothing impervious to this material. Selection of specific items such as face shield, gloves, boots or full-body suit will depend on operation.

Eye protection: Use safety glasses/goggles.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Form/Appearance/Physical State:

	Liquid at room temperature
Color	Dark-brown
Odor	Earthy, musty
Temperature of decomposition	>260 °C (Literature data)
Density	1.20 – 1.25 g/cm <sup>3</sup> (20 °C)
Viscosity	150 – 500 mPa.s (20 °C)
Vapor pressure	<10 <sup>-5</sup> mbar (20 °)
Solubility (Water)	Not applicable: Reacts with water
Partition coefficient	N/A
PH (1% solution)	N/A
Flash point	>200 °C (Literature data)
Ignition temperature	>400 °C (Literature data)
Explosion limits	not determined

### 10. STABILITY AND REACTIVITY

Stability: stable under normal conditions. Flammable under fire conditions.

Conditions to avoid: Protect from humidity.

No hazardous decomposition of the product occurs when stored and handled correctly.

Incompatibilities: Humidity, alcohols, amines, strong bases.

Hazardous polymerization: Polymerizes about 260 °C with evolution of CO<sub>2</sub>.

Conditions to avoid: Humidity, alcohols, amines, strong bases. Polymerization produces gases which may burst closed or confined containers.

Decomposition products: CO, NO<sub>x</sub>, HCN

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### 11. TOXICOLOGICAL INFORMATION

For the Diphenylmethane Diisocyanate

LC50 (inhalation, rat): 178 mg/m<sup>3</sup> ; 370 mg/m<sup>3</sup> as aerosol of 4 hours exposure

The LD 50 for skin absorption in rabbits is >2000 mg/kg

Single dose oral toxicity on rats: > 15000 mg/kg

Skin irritation: yes

Eye irritation: yes

Sub acute and chronic toxicity:

No effect level (NOEL): 0.2 mg/m<sup>3</sup> (inhalation of aerosols)

Lowest effect level (LOEL): 1.0 mg/m<sup>3</sup> (inhalation of aerosols)

Mutagenicity data on MDI are inconclusive. MDI was weakly positive in some in vitro (test tube) studies; other in vitro studies were negative. A mutagenicity study in animals was negative.

Carcinogenicity Data: The ingredient(s) of this product is (are) not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency For Research on Cancer), not regulated as carcinogens by OSHA, (Occupational Safety and Health Administration) and not listed as carcinogens by NTP (National Toxicology Program).

MDI is not classifiable as to its carcinogen city to humans (IARC). There is evidence that a breakdown (hydrolysis) product of MDI, 4,4'-methylene dianiline, is carcinogenic in rats and mice. IARC evaluation: There is no adequate data for evaluating the carcinogen city of 4,4'-methylene dianiline to humans. Other cancer information: Lung tumours have been observed in laboratory animals exposed to aerosol droplets of MDI/Polymeric MDI (6 mg/m<sup>3</sup>) for their lifetime. Tumours occurred concurrently with respiratory irritation and lung injury. 0.2 mg/m<sup>3</sup> concentration is considered as the "no-effect level".

Current exposure guidelines are expected to protect against these effects.

According to available information, the ingredients have not been found to show reproductive toxicity, teratogenicity, mutagenicity or synergistic toxic effects with other materials.

Experience on humans:

No detrimental effects to health are known where the product is handled properly and industrial hygiene precautions are observed. Acute exposure is characterized by the irritation of the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function. Overexposure may lead to bronchitis, bronchial spasm and pulmonary edema. Chronic exposure may lead to sensitization or asthmatic attack in certain individuals, with the following symptoms, chest tightness, wheezing, cough and shortness of breath.

### 12. ECOLOGICAL INFORMATION

Immiscible in water. Reacts with water to form insoluble polyureas. Polyurea is inert and non-degradable.

Ecotoxic effect on

Daphnia: EL/LC<sub>50</sub> : > 1000 mg/l

Bacteria: EC/LC<sub>50</sub> : > 10000 mg/l

Fish: EC/LC<sub>50</sub> : > 10000 mg/l

### 13. DISPOSAL CONSIDERATION

Dispose in accordance with state and local environmental regulations. Landfill or incinerate in approved facility by licensed contractor. Do not incinerate in closed containers. Do not allow into any sewers, or the ground, or into any body of water.

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### 14. TRANSPORT INFORMATION

DOT Shipping Name: Diphenylmethane-4,4' Diisocyanate  
DOT Hazard Class or Division: Not Regulated  
Identification Number: N/A  
Packing Group: N/A  
Labels Required: N/A

### 15. REGULATORY INFORMATION

Labeling in accordance with directive 88/379/EEC and its amendments and adaptations:

Chemical health hazard: Yes

Labeling categories: Harmful, irritant

Hazard symbols: Xn, Xi

Risk phrases: R20 Harmful by inhalation;  
R36/37/38 Irritating to eyes, respiratory system and skin  
R42 may cause sensitization by inhalation

Safety phrases: S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 After contact with skin, wash immediately with plenty of water.

S38 In case of insufficient ventilation, wear suitable respiratory equipment.

S45 In case of accident or if you fell unwell, seek medical advice immediately (show the label where possible).

Protection of workers:

TRGS 900 MAK value: 0.005 ppm = 0.05 mg/m<sup>3</sup>

Hungarian limit value in work environment: 0.05 mg/m<sup>3</sup> (TWA); 0.1 mg/m<sup>3</sup> (peak concentration)

Council Directive 82/501/EEC on the major accident hazards of certain industrial activities regulates quantity of MDI (Annex II; Part I; Item No. 27)

National Prescriptions: WGK (German classification of water pollution risk) 2 Polluting substances

Waste code: 572 02 (Germany) 070299 (European Union)

### 16. OTHER INFORMATION

It is the responsibility of persons in receipt of this Product Safety Data Sheet to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product.

The information contained herein is based on the present state of our knowledge and does not therefore guarantee certain properties. Recipients of our product must take responsibility for observing existing laws and regulations.

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