

Safety Data Sheet

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

1. Identification

1.1. Product identifier

Product name **Permabond ET5429B**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Adhesive**

| Identified Uses | Industrial | Professional | Consumer |
|-----------------|------------|--------------|----------|
| Use | ✓ | ✓ | - |

1.3. Details of the supplier of the safety data sheet

Name **Permabond Engineering Adhesives**
Full address **Niederlasser Lohweg 18**
District and Country **40547 Düsseldorf Germany**
Tel. **+44 (0)1962 711 661**

e-mail address of the competent person responsible for the Safety Data Sheet **info.europe@permabond.com**

Supplier: **Permabond LCC**
14 Robinson Street
Pottstown, PA 19464, USA
tel 732-868-1372 OR 800-640-7599
www.permabond.com

1.4. Emergency telephone number

For urgent inquiries refer to **Medical: Poison Control Center 866-827-6282 (toll free) or 303-389-1109**
Transport: CHEMTREC 800-424-9300 (toll free) or 1-703-741-5970

2. Hazards identification

2.1. Classification of the substance or mixture

Classification and Hazard Statement
Reproductive toxicity, category 2
Acute toxicity, category 4
Skin corrosion, category 1
Serious eye damage, category 1
Skin sensitization, category 1

Hazard pictograms:



Signal words:

Danger

Hazard statements:

H361 Suspected of damaging fertility or the unborn child.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.

Precautionary statements:

Prevention:

P260 Do not breathe the powder or aerosols or aerosols.
P202 Do not handle until all safety precautions have been read and understood.

Permabond ET5429B

2. Hazards identification ... / >>

| | |
|-----------------------|--|
| P201 | Obtain special instructions before use. |
| P280 | Wear protective gloves/ protective clothing / eye protection / face protection. |
| P270 | Do not eat, drink or smoke when using this product. |
| P264 | Carefully wash the contaminated skin after use. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |
| Response: | |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower. |
| P310 | Immediately call a POISON CENTER / doctor / . . . |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P330 | Rinse mouth. |
| P302+P352 | In case of contact with the skin: wash abundantly with soap and water. |
| P301+P312 | IF SWALLOWED: Call a POISON CENTER / doctor / . . . / if you feel unwell. |
| P363 | Wash contaminated clothing before reuse. |
| Storage: | |
| P405 | Store locked up. |
| Disposal: | |
| P501 | Dispose of the product according to current regulations. |

2.2. Other hazards

No other hazards known.

3. Composition/information on ingredients

3.2. Mixtures

Contains:

| Identification | x = Conc. % | Classification: |
|---|------------------|---|
| POLYAMINOAMIDE | $30 \leq x < 60$ | Serious eye damage, category 1 H318, Skin irritation, category 2 H315, Skin sensitization, category 1 H317 |
| EC 500-191-5 | | |
| CAS 68082-29-1 | | |
| REACH Reg. 01-2119972320-44-XXXX | | |
| ATBN POLYMER | $10 \leq x < 30$ | Eye irritation, category 2 H319, Skin irritation, category 2 H315, Skin sensitization, category 1B H317 |
| CAS 68683-29-4 | | |
| 2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL | $10 \leq x < 25$ | Acute toxicity, category 4 H302, Eye irritation, category 2 H319, Skin irritation, category 2 H315 |
| INDEX 603-069-00-0 | | |
| EC 202-013-9 | | |
| CAS 90-72-2 | | |
| REACH Reg. 01-2119560597-27-XXXX | | |
| 3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE) | $5 \leq x < 10$ | Skin corrosion, category 1B H314, Skin sensitization, category 1 H317 |
| EC 224-207-2 | | |
| CAS 4246-51-9 | | |
| REACH Reg. 01-2119963377-26-XXXX | | |
| 2-piperazin-1-ylethylamine | $0.1 \leq x < 1$ | Reproductive toxicity, category 2 H361, Acute toxicity, category 3 H311, Acute toxicity, category 4 H302, Specific target organ toxicity - repeated exposure, category 2 H373, Skin corrosion, category 1B H314, Skin sensitization, category 1 H317 |
| INDEX 612-105-00-4 | | |
| EC 205-411-0 | | |
| CAS 140-31-8 | | |
| REACH Reg. 01-2119471486-30-XXXX | | |

* There is a batch to batch variation.

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. First-aid measures

4.1. Description of first aid measures

In case of doubt or in the presence of symptoms contact a doctor and show him this document.

In case of more severe symptoms, ask for immediate medical aid.

EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.

INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Rinse your mouth with running water. Do not give anything by mouth to an unconscious person. Get medical advice/attention.

INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

Rescuer protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

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

Specific information on symptoms and effects caused by the product are unknown.

DELAYED EFFECTS: Based on the information currently available, there are no known cases of delayed effects following exposure to this product.

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

If symptoms occur, whether acute or delayed, consult a doctor.

Means to have available in the workplace for specific and immediate treatment

Running water for skin and eye wash.

5. Fire-fighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS DUE TO EXPOSURE IN THE EVENT OF FIRE

Avoid breathing combustion products, carbon monoxide (CO), carbon dioxide (CO₂), and nitric oxides (NO_x).

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

6. Accidental release measures ... / >>

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

8. Exposure controls/personal protection

8.1. Control parameters

Information not available

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.

HAND PROTECTION

Protect hands with category III work gloves.

The following should be considered when choosing work glove material (OSHA 29 CFR 1910.138): compatibility, degradation, permeability time.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Information |
|--|---------------|--|
| Appearance | paste | |
| Colour | black | |
| Odour | amino | |
| Odour threshold | not available | |
| pH | not available | Reason for missing data: substance/mixture is non-soluble (in water) |
| Melting point / freezing point | not available | |
| Initial boiling point | not available | |
| Boiling range | not available | |
| Flash point | > 100 °C | (212 °F) |
| Evaporation rate | not available | |
| Flammability | not available | |
| Lower inflammability limit | not available | |
| Upper inflammability limit | not available | |
| Lower explosive limit | not available | |
| Upper explosive limit | not available | |
| Vapour pressure | not available | |
| Vapour density | not available | |
| Relative density | 1 | |
| Solubility | not available | |
| Partition coefficient: n-octanol/water | not available | |
| Auto-ignition temperature | not available | |
| Decomposition temperature | not available | |
| Viscosity | not available | |
| Explosive properties | not available | |
| Oxidising properties | not available | |

9.2. Other information

Information not available

10. Stability and reactivity

10.1. Reactivity

The following materials may react with the product: Strong oxidizing agents, Reducing agents, strong acids and bases.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid

Stable under normal conditions of storage and use.
Protect from direct sunlight.
Avoid contact with acids and oxidizing agents.

10.5. Incompatible materials

See the reactivity section.

10.6. Hazardous decomposition products

By thermal decomposition, carbon monoxide, carbon dioxide and other unidentified organic compounds.

11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

POLYAMINOAMIDE

LD50 (Oral): > 2000 mg/kg

LD50 (Dermal): > 2000 mg/kg

ATBN POLYMER

LD50 (Oral): > 2000 mg/kg

LD50 (Dermal): > 2000 mg/kg

SKIN CORROSION / IRRITATION

Corrosive for the skin

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Suspected of damaging fertility or the unborn child

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

12. Ecological information

This product is dangerous for the environment and is toxic for aquatic organisms. In the long term, it has negative effects on the aquatic environment.

12.1. Toxicity

POLYAMINOAMIDE

LC50 - for Fish 7.07 mg/l/96h

EC50 - for Crustacea 7.07 mg/l/48h

EC50 - for Algae / Aquatic Plants 4.34 mg/l/72h

12.2. Persistence and degradability

2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL

Solubility in water > 10000 mg/l
NOT rapidly degradable

12.3. Bioaccumulative potential

2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL

Partition coefficient: n-octanol/water -0.66

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.

12.6. Other adverse effects

Information not available

13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: UN 2735

14.2. UN proper shipping name

ADR / RID: AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
(3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE))

IMDG: AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
(3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE))

IATA: AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.

14. Transport information ... / >>

(3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE))

14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8



IMDG: Class: 8 Label: 8



IATA: Class: 8 Label: 8



14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID: not marine pollutant
IMDG: not marine pollutant
IATA: not marine pollutant

14.6. Special precautions for user

| | | | |
|------------|---|---|--|
| ADR / RID: | HIN - Kemler: 80 Special provision: 274 | Limited Quantities: 5 L | Tunnel restriction code: (E) |
| IMDG: | EMS: F-A, S-B | Limited Quantities: 5 L | |
| IATA: | Cargo: Passengers: Special provision: | Maximum quantity: 60 L Maximum quantity: 5 L A3, A803 | Packaging instructions: 856 Packaging instructions: 852 |

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal Regulations

TSCA:

All components of this product are listed on US Toxic Substances Control Act (TSCA) Inventory or are exempt from the listing / notification requirements.

Clean Air Act Section 112(b):

No component(s) listed.

Clean Air Act Section 602 Class I Substances:

No component(s) listed.

Clean Air Act Section 602 Class II Substances:

No component(s) listed.

Clean Water Act – Priority Pollutants:

No component(s) listed.

Clean Water Act – Toxic Pollutants:

No component(s) listed.

DEA List I Chemicals (Precursor Chemicals):

No component(s) listed.

Permabond ET5429B**15. Regulatory information ... / >>**

DEA List II Chemicals (Essential Chemicals):
No component(s) listed.

EPA List of Lists:
313 Category Code:
No component(s) listed.

EPCRA 302 EHS TPQ:
No component(s) listed.

EPCRA 304 EHS RQ:
No component(s) listed.

CERCLA RQ:
No component(s) listed.

EPCRA 313 TRI:
No component(s) listed.

RCRA Code:
No component(s) listed.

CAA 112 (r) RMP TQ:
No component(s) listed.

State Regulations

Massachusetts:
140-31-8 2-piperazin-1-ylethylamine

Minnesota:
No component(s) listed.

New Jersey:
140-31-8 2-piperazin-1-ylethylamine

New York:
No component(s) listed.

Pennsylvania:
140-31-8 2-piperazin-1-ylethylamine

California:
90-72-2 2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL (Phenols)

Proposition 65:
This product does not contain any substances know to the State of California to cause cancer, reproductive harm or birth defects.

International Regulations
Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

| | |
|-------------|--|
| H361 | Suspected of damaging fertility or the unborn child. |
| H311 | Toxic in contact with skin. |
| H302 | Harmful if swallowed. |
| H312 | Harmful in contact with skin. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |

16. Other information ... / >>

| | |
|-------------|--|
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H411 | Toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |

LEGEND:

- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAA 112 © RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112©)
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: Regulation (EC) 1272/2008
- DEA: Drug Enforcement Administration
- EmS: Emergency Schedule
- EPA: US Environmental Protection Agency
- EPCRA: Emergency Planning and Community Right-to Know Act
- EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
- EPCRA 304 EHS RQ: Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
- EPCRA 313 TRI: Toxics Release Inventory (Section 313 Category Code)
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PEL: Predicted exposure level
- RCRA Code: Resource Conservation and Recovery Act Code
- REACH: Regulation (EC) 1907/2006
- REL: Recommended exposure limit
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TSCA: Toxic Substances Control Act
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- WHMIS: Workplace Hazardous Materials Information System.

GENERAL BIBLIOGRAPHY:

- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy
- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication Standard (HCS 2012)
- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112© of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minnesota Chapter 5206 Departemnt Of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

Permabond ET5429B**Note for users:**

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION

Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12. The data for evaluation of chemical-physical properties are reported in section 9.