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 QFS16**

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

Intended use **Surface activator**

Identified Uses	Industrial	Professional	Consumer
Use	✓	✓	-

1.3. Details of the supplier of the safety data sheet

Name **Permabond Engineering Adhesives**
Full address **Niederkasseler 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	
Flammable liquid, category 2	Highly flammable liquid and vapour.
Aspiration hazard, category 1	May be fatal if swallowed and enters airways.
Specific target organ toxicity - repeated exposure, category 2	May cause damage to organs through prolonged or repeated exposure.
Skin irritation, category 2	Causes skin irritation.
Specific target organ toxicity - single exposure, category 3	May cause drowsiness or dizziness.

Hazard pictograms:

Signal words: Danger

Hazard statements:

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H373	May cause damage to organs through prolonged or repeated exposure.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.

Precautionary statements:

2. Hazards identification ... / >>

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe the powder or aerosols or aerosols.
P242	Use only non-sparking tools.
P280	Wear protective gloves / eye protection / face protection.
P271	Use only outdoors or in a well-ventilated area.
P264	Carefully wash the contaminated skin after use.
P240	Ground / bond container and receiving equipment.
P243	Take precautionary measures against static discharge.
P241	Use explosion-proof electrical / ventilating / lighting / . . . / equipment.

Response:

P331	Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.
P301+P310	In case of ingestion: contact an anti -center center or a doctor immediately.
P312	Call a POISON CENTER / doctor / . . . / if you feel unwell.
P332+P313	If skin irritation occurs: Get medical advice / attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302+P352	In case of contact with the skin: wash abundantly with soap and water.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	In case of fire: use dry powder, dry sand or dry earth to extinct.

Storage:

P403+P235	Store in a well-ventilated place. Keep cool.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
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:**
HYDROCARBONS, C7, N-ALKANES, ISOALKANES, CYCLICS		
	60 ≤ x < 100	**Flammable liquid, category 2 H225, Aspiration hazard, category 1 H304, Skin irritation, category 2 H315, Specific target organ toxicity - single exposure, category 3 H336**
EC *927-510-4*		
CAS *64742-49-0*		
REACH Reg. *01-2119475515-33-XXXX*		
TRANS-DICHLOROETHYLENE		
INDEX *602-026-00-3*	5 ≤ x < 10	**Flammable liquid, category 2 H225, Acute toxicity, category 4 H332, Eye irritation, category 2 H319, Specific target organ toxicity - single exposure, category 3 H336**
EC *205-860-2*		
CAS *156-60-5*		
REACH Reg. *01-2120093504-55-XXXX*		
N,N-DIMETHYL-p-TOLUIDINA		
INDEX *612-056-00-9*	1 ≤ x < 5	**Flammable liquid, category 4 H227, Acute toxicity, category 3 H301, Acute toxicity, category 3 H311, Acute toxicity, category 3 H331, Specific target organ toxicity - repeated exposure, category 2 H373**
EC *202-805-4*		
CAS *99-97-8*		
REACH Reg. *01-2119956633-31-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

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

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

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

Information not available

5. Fire-fighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.
UNSUITABLE EXTINGUISHING EQUIPMENT
Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.

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.
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. Accidental release measures ... / >>

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

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Do not eat, drink or smoke during use. Avoid leakage of the product into the environment.

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. Store in a cool and well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. 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, failure time and permeability.
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 limit of use will be defined by the manufacturer (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	liquid	
Colour	colourless	

9. Physical and chemical properties ... / >>

Odour		characteristic		
Odour threshold		not available		
pH		not available		
Melting point / freezing point		not available		
Initial boiling point	>	45	°C	(113 °F)
Boiling range		not available		
Flash point	<	0	°C	(32 °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		0.72		
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

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

The vapours may also form explosive mixtures with the air.

10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

10.5. Incompatible materials

Information not available

10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

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

11. Toxicological information ... / >>

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

N,N-DIMETHYL-p-TOLUIDINA

LD50 (Oral):	1767 mg/kg
LD50 (Dermal):	> 2000 mg/kg
LC50 (Inhalation vapours):	1.4 mg/l/4h

TRANS-DICHLOROETHYLENE

LD50 (Oral):	7902 mg/kg
LD50 (Dermal):	> 5000 mg/kg
LC50 (Inhalation vapours):	24100 ppm/4h

HYDROCARBONS, C7, N-ALKANES, ISOALKANES, CYCLICS

LD50 (Oral):	> 8 mg/kg
LD50 (Dermal):	3000 mg/kg
LC50 (Inhalation vapours):	> 23.3 mg/l/4h

SKIN CORROSION / IRRITATION

Causes skin irritation

SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class
Carcinogenicity Assessment:
99-97-8 N,N-DIMETHYL-p-TOLUIDINA
IARC:2B

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

May cause drowsiness or dizziness

STOT - REPEATED EXPOSURE

May cause damage to organs

ASPIRATION HAZARD

Toxic for aspiration

12. Ecological information

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

12.1. Toxicity

N,N-DIMETHYL-p-TOLUIDINA

LC50 - for Fish	52 mg/l/96h

TRANS-DICHLOROETHYLENE

LC50 - for Fish	135 mg/l/96h
EC50 - for Crustacea	250 mg/l/48h

HYDROCARBONS, C7, N-ALKANES, ISOALKANES, CYCLICS

LC50 - for Fish	> 13.4 mg/l/96h
EC50 - for Crustacea	3 mg/l/48h
EC50 - for Algae / Aquatic Plants	20 mg/l/72h

12.2. Persistence and degradability

TRANS-DICHLOROETHYLENE
NOT rapidly degradable

HYDROCARBONS, C7, N-ALKANES, ISOALKANES, CYCLICS
Rapidly degradable

12.3. Bioaccumulative potential

Information not available

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 ≥ 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: 1993

14. Transport information ... / >>

14.2. UN proper shipping name

ADR / RID: FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C7, n-Alkanes, isoalkanes, cyclis; Trans-dicloroethylene)
IMDG: FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C7, n-Alkanes, isoalkanes, cyclis; Trans-dicloroethylene)
IATA: FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C7, n-Alkanes, isoalkanes, cyclis; Trans-dicloroethylene)

14.3. Transport hazard class(es)

ADR / RID: Class: 3 Label: 3

IMDG: Class: 3 Label: 3

IATA: Class: 3 Label: 3

14.4. Packing group

ADR / RID, IMDG, IATA: II

14.5. Environmental hazards

ADR / RID: NO
IMDG: NO
IATA: NO

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 33	Limited Quantities: 1 L	Tunnel restriction code: (D/E)
	Special provision: 274, 601, 640(C-D)		
IMDG:	EMS: F-E, S-E	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 60 L	Packaging instructions: 364
	Passengers:	Maximum quantity: 5 L	Packaging instructions: 353
	Special provision:	A3	

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:

15. Regulatory information ... / >>

No component(s) listed.

DEA List I Chemicals (Precursor Chemicals):
No component(s) listed.

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:
156-60-5 TRANS-DICHLOROETHYLENE

EPCRA 313 TRI:
No component(s) listed.

RCRA Code:
156-60-5 TRANS-DICHLOROETHYLENE

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

State Regulations

Massachussetts:
156-60-5 TRANS-DICHLOROETHYLENE

Minnesota:
No component(s) listed.

New Jersey:
No component(s) listed.

New York:
156-60-5 TRANS-DICHLOROETHYLENE

Pennsylvania:
156-60-5 TRANS-DICHLOROETHYLENE

California:
156-60-5 TRANS-DICHLOROETHYLENE

Proposition 65:
WARNING! This product contains chemicals known to the State of California to cause cancer and birth defects or reproductive harm.

99-97-8 N,N-DIMETHYL-p-TOLUIDINA

	NSRL / MADL (µg/day)				
Hazard type	Oral	Dermal	Inhalation	Intravenous	Note
Carcinogenicity					-

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:

H225	Highly flammable liquid and vapour.
H227	Combustible liquid.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H304	May be fatal if swallowed and enters airways.
H373	May cause damage to organs through prolonged or repeated exposure.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
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

16. Other information ... / >>

- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Comunication 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
- Massachussetts 105 CMR Department of public health 670.000: "Right to Know"
- Minensota 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

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.

Changes to previous review:
The following sections were modified:
02 / 03 / 05 / 07 / 08 / 10 / 11 / 12 / 15 / 16.