

SAFETY DATA SHEET

according to Regulation (EC) 1907/2006 (REACH), as amended by 2020/878/EU



DIFFU - THERM® Penetrant Red BDR - L (Aerosol)

1. Identification of the substance/mixture and of the company/undertaking:

1.1. Product identifier

Trade name: Penetrant
Article number: BDR - L
UFI KT82-W1VW-U001-KVY3

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

Application of the substance / the preparation
At the penetration process by colours acc. to EN ISO 3452-1 [EN 571-1] (DIN 54 152 part 1)
for finding surface cracks.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier

Helmut Klumpf
Technische Chemie GmbH & Co. KG
Industriestr. 15
D - 45699 Herten Phone.: +49(0)2366 1003 - 0 E-mail: info@diffu-therm.de

1.4. Emergency telephone number: a.m. or next Emergency phone:

2. Hazards identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008			
Hazard class	Category	Hazard class and category	Hazard statement
Aerosol	Category 1	--	H222, H229

The full text of the hazard statements listed in this section can be found in section 16.

2.2. Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labeled according to the CLP regulation.



Hazard pictograms GHS02

Signal word Danger

Hazard statements

H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

2.3 Other hazards

There is no information on endocrine disrupting properties for the environment.
Toxicological information: There is no information on endocrine disrupting properties for human health.
The results of the PBT and vPvB assessment can be found in subsection 12.5.

3. Composition/information on ingredients

3.1. Chemical characterization:

Aerosol with mixture of substances listed below and non-hazardous additions.

Components:	Name of chemical	weight %
CAS: 106-97-8 EINECS: 203-448-7	n-butane GHS02 Flam. Gas 1, H220; GHS04	5 - 20
CAS: 74-98-6 EINECS: 200-827-9	propane GHS02 Flam. Gas 1, H220; GHS04	5 - 20
CAS: 196823-11-7 EINECS: Polymer	oxirane, methyl-, polymer with oxirane, mono isotridecyl ether, block GHS07 Eye Dam./Irrit. 2, H319 signal word: Attention	< 3

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CAS: 509-34-2	xanthene dyes C. I. Solvent Red 49	< 2
EINECS: 208-096-8	Acute Tox. 4(oral), H302 S 2, GHS07 Eye Dem./Irrit. 2, H319, H411	

4. First aid measures

4.1. Description of first aid measures

General notes:

Self-protection of the first aider. Remove affected person from the danger area and lay down.
Take off immediately all contaminated clothing. Get immediate medical advice/attention.

Following inhalation:

Remove to fresh air. If symptoms persist, seek medical attention.

Following skin contact:

Wash with soap and water. If skin irritation persists, seek medical attention.

Following eye contact:

Rinse thoroughly with plenty of water, also under the eyelids.
Rinse opened eyes under running water for at least 15 minutes and seek medical advice.

Following ingestion.

Rinse mouth with water. Never give anything by mouth to an unconscious person.
DO NOT induce vomiting. If symptoms persist, seek medical attention.

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

See Section 11 for more detailed information on health effects and symptoms

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

Treatment: In case of accidental inhalation apply glucocorticoid inhalation spray. Treat symptomatically.

5. Firefighting measures

5.1. Extinguishing media:

Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media:

High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting:

Highly flammable liquid and vapour. The vapour may be invisible, heavier than air and spread along ground.
Vapours may form explosive mixtures with air. Flash back possible over considerable distance.

Hazardous combustion products: Carbon monoxide, Carbon dioxide (CO₂)

5.3. Advice for firefighters

In case of fire, wear self-contained breathing apparatus. Wear personal protective equipment.

Additional information's:

Cool containers at risk with water spray jet.
Danger for bursting of aerosols when heated for more than 50°C.
Aerosols that burst in fire can be mightily shot away.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures:

Personal precautions:

Avoid contact with eyes and skin.
Ventilate affected rooms thoroughly.
Do not inhale vapor. Remove ignition sources. Do not smoke. Avoid sparks.

6.2. Environmental precautions:

Do not allow to enter the subsoil/soil.
Do not allow to enter drains/surface water/groundwater.

6.3. Methods and materials for containment and cleaning up:

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.

6.4. Reference to other sections:

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

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7. Handling and storage

7.1. Precautions for safe handling:

Advice on safe handling:

Ensure adequate ventilation. Use personal protective equipment.

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist.

Hygiene measures:

Keep away from food, drink and animal feed. Do not eat, drink or smoke in the area of application. Wash hands before breaks and at the end of work. Remove soiled clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities:

Requirements for storage areas:

Store in a solvent-proof place in the original container.

Advice on protection against fire and explosion:

Keep away from sources of ignition - Do not smoke. Vapours may be invisible, heavier than air and spread along the ground. Vapours may form explosive mixtures with air. Take measures against electrostatic charging.

Use only in a place with explosion-proof equipment.

Further information on storage conditions:

Keep tightly closed in a dry and cool place. Keep away from direct sunlight. Keep in a well-ventilated place.

Advice on common storage:

Incompatible with oxidizing agents. Do not store together with oxidizing and self-igniting products. Keep away from food, drink and animal feeding stuffs.

German storage class: 2B Aerosols flammable

7.3. Specific end use(s)

For dye penetrant testing according to DIN EN ISO 3452-1 [EN 571-1] (54 152 Part 1), to detect surface defects..

8. Exposure controls and personal protection

Additional advice on system design:

The necessary protection measures and the nature of the technical procedures will vary depending upon potential exposure conditions.

Control measures: To load limits are not exceeded, should be provided adequate ventilation.

Use explosion-proof ventilation equipment.

8.1. Control parameters:

Component:	2-(2-Ethoxyethoxy)ethanol	CAS-No. 111-90-0
Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)		
DNEL Workers, Long-term - systemic effects, Skin contact	:	50 mg/kg bw/day
DNEL Workers, Long-term - systemic effects, Inhalation	:	37 mg/m ³
DNEL Workers, Long-term - local effects, Inhalation	:	18 mg/m ³
DNEL Consumers, Long-term - systemic effects, Skin contact	:	25 mg/kg bw/day
DNEL Consumers, Long-term - systemic effects, Inhalation	:	18,3 mg/m ³
DNEL Consumers, Long-term - systemic effects, Ingestion	:	25 mg/kg bw/day
DNEL Consumers, Long-term - local effects, Inhalation	:	9 mg/m ³
Predicted No Effect Concentration (PNEC)		
Fresh water	:	0,74 mg/l
Marine water	:	0,074 mg/l
Intermittent releases	:	10 mg/l
Sewage treatment plant (STP)	:	500 mg/l
Fresh water sediment Related to, dry weight	:	2,47 mg/kg
Marine sediment Related to, dry weight	:	0,274 mg/kg
Soil Related to, dry weight	:	0,15 mg/kg

Component:	2-(2-Ethoxyethoxy)ethanol	CAS-No. 111-90-0
Other Occupational Exposure Limit Values		
Germany. TRGS 900, Occupational Exposure Limits (AGW), as amended, Exposure limit(s);, Vapor and aerosol.		
6 ppm, 35 mg/m ³ , (2)		
If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).		

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8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice: Required, if exposure limit is exceeded (e.g. OEL). Required if vapours or aerosol are released.
Respiratory protection complying with EN 141.

Hand protection

Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.

Eye protection

Advice : Safety goggles

Skin and body protection

Advice : Protective work clothing

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Form: Aerosol Colour: red Smell: almost odourless

Data relevant for safety: (Product without power gas)

Boiling range:	195 - 230 °C
Flash point:	94 °C
Ignition temperature:	320 °C
Explosion limits	Lower e.l.: 1,2 Vol.% Upper e.l.: 11,6 Vol.%
Vapor pressure (20°C):	< 0,7 mbar
Density (20°C):	0,99 g/cm ³
Solubility in water (20°C):	completely miscible
Viscosity (20°C):	6,05 mm ² /s

9.2 Other information

The product is not explosive, but the formation of explosive vapor/air formation of explosive vapor/air mixtures is possible.

10. Stability and reactivity

10.1. Reactivity

Advice : No decomposition if stored and applied as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Air (may form explosive peroxides) Oxidizing agents (fire hazard)
Bases. Acids. Metals (due to hydrogen evolution in an acidic/alkaline environment).

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Do not smoke.

10.5. Incompatible materials

Acids, bases, oxidizing agents, peroxides.

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.

11. Toxicological information

11.1. Information on the hazard classes within the meaning of Regulation (EC) No. 1272/2008

Irritation

Skin: Causes skin irritation.
Eye: Splashes in the eyes could be unpleasant.

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Classification according to GHS (1272/2008/EC, CLP)

This substance does not meet the criteria for classification according to Regulation No. 1272/2008/EC.

Acute toxicity: Shall not be classified as acutely toxic (oral).
Shall not be classified as acutely toxic (dermal).

LD/LC50 values relevant for classification:		
111-90-0	2-(2-ethoxyethoxy)ethanol(< 50%)	
Oral	LD50	6.031 mg/kg Body weight (mouse) (OECD Test Guideline 401)
Dermal	LD50	9.143 mg/ kg (rabbit, male) (OECD Test Guideline 402)
Inhalativ	LC0	0,025 mg/l (rat, male and female; 8 h; vapour)

Primary irritant effect:

Skin: No skin irritation (rabbit; 4 h) (OECD Test Guideline 404)
Repeated exposure may cause skin dryness or cracking.

Eyes: Eye irritation (rabbit) (OECD Test Guideline 405)

Sensitization: Non-sensitizing (Buehler test; dermal; guinea pig) (OECD Test Guideline 406)

CMR effects/properties:

Carcinogenicity: Did not show carcinogenic effects in animal tests.

Mutagenicity: In vitro tests showed no mutagenic effects.

Teratogenicity: Causes developmental disorders in animals at high doses.

Reproductive toxicity: Did not show any effect on fertility in animal tests.

Specific target organ toxicity

Single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification,

11.2. Information on other hazards

Endocrine disrupting properties: Not listed.

12. Ecological information

12.1. Toxicity

Aquatic toxicity:		
111-90-0	2-(2-Ethoxyethoxy)ethanol (>50%)	
LC50	6.010 mg/l	(Ictalurus punctatus; 96 h) (flow-through test; OECD Test Guideline 203)
EC50	1.982 mg/l	(Daphnia magna (Water flea); 48 h) (static test; OECD Test Guideline 202)
EC50	> 100 ml/l	(Desmodesmus subspicatus (green algae); 96 h) (static test; OECD Test Guideline 201)
IC50	> 5.000 mg/l	(Bacteria; 16 h) (static test)

12.2. Persistence and degradability

Persistence: No data available

Biodegradability

79,4 % (activated sludge; Related to: CO2 formation (% of the theoretical value).;

Exposure Time: 12 d)(OECD Test Guideline 301B)Readily biodegradable.

Eliminated by activated carbon adsorption

12.3. Bioaccumulative potential

2-(2-Ethoxyethoxy)ethanol

Result : log Kow -0,54

BCF: < 100; log Pow < 1

Bioaccumulation is not expected.

12.4. Mobility in soil: There is no data available.

12.5. Results of PBT and vPvB assessment:

This substance is neither persistent, bioaccumulative nor toxic (PBT).

This substance is not very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties:

No information available on endocrine disrupting properties for the environment.

Persistence: No data available

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12.7. Other adverse effects: No data available

Note: Water hazard class, WGK: 1.

Other ecological information

Avoid penetration into the subsoil. Do not allow to enter surface water or sewage system.

13. Disposal considerations

13.1. Waste treatment methods

Product	: Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services. This product shall be disposed of or recovered in compliance with Directive 2008/98/EC on waste as lastly amended.
Contaminated Packaging	: Container must be completely emptied and must not be opened by force. Hand over to authorized disposal agency. Dispose of it in accordance with local regulations.
European Waste Catalogue Number	: EAV: 15 01 10 term: Iron-metal containers with a contaminated rest of the contents

14. Transport information

14.1. UN number or ID number

1950

14.2. UN proper shipping name

ADR	DRUCKGASPACKUNGEN entzündbar
RID	DRUCKGASPACKUNGEN entzündbar
IMDG	Aerosols (Limited Quantities Only) (ackage ≤ 30 kg)
ICAO-TI und IATA-DGR	Aerosols, flammable

14.3. Transport hazard class(es)

ADR-Class	: 2
shipment category	: 2
(Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)	: 2.1; 5F; D
Labelling of the Package	: UN 1950 AEROSOLE
Limited Quantities Only (LQ)	: 1L (Package ≤ 30 kg)
RID-Class	: 2.1; 5F
Labels; Classification Code; Hazard Identification Number)	
Labelling of the Package	: UN 1950 AEROSOLE
Limited Quantities Only (LQ)	: 1L (Package ≤ 30 kg)
IMDG-Class	: 2.1
(Labels; EmS)	: F-D, S-U
Limited Quantities Only (LQ)	: 1L (Package ≤ 30 kg)
ICAO-TI und IATA-DGR	: 2.1 Flammable gas
Labelling of the Package	: UN 1950 AEROSOLE

14.4. Packaging group

ADR : --
RID : --
IMDG : --
IATA : --

14.5. Environmental hazards

Environmentally hazardous according to ADR : no
Environmentally hazardous according to RID : no
Marine Pollutant according to IMDG-Code : no

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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15. Regulatory information

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

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

EU. Regulation EU No. 649/2012 concerning the export and import of dangerous chemicals

The substance/mixture is not subject to this legislation.

EU. REACH, Annex XVII, Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles:

Not registered

Other regulations

Observe employment restrictions according to the law for the protection of mothers at work, in training and during studies (Maternity Protection Act - MuSchG).

Observe the national regulations on the protection of young people at the workplace.

Water hazard class:

WGK: 1 slightly hazardous to water.

15.2. Chemical safety assessment:

No data available.

16. Other information

Full text of H-Statements referred to under sections 2 and 3.

- H220 Extremely flammable gas.
- H222 Extremely flammable aerosol.
- H229 Pressurised container: May burst if heated.
- H302 Harmful if swallowed.
- H319 Causes serious eye irritation.
- H411 Toxic to aquatic life with long lasting effects.

Department issuing data specification sheet:

Contact: Technische Chemie GmbH & Co. KG

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

The information is based on our current state of knowledge, but does not constitute a guarantee of product of product characteristics and do not constitute a contractual legal relationship.