

SAFETY DATA SHEET

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



DIFFU - THERM® Penetrant Red BDR (Aerosol)

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

1.1. Product identifier

Trade name: Penetrant
Article number: BDR
UFI: EKJ2-J19E-200H-2QDP

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

Application of the substance / the preparation

As **Penetrant** 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
Corrosive/irritant effect on the skin	Category 2	--	H315
Specific target organ Toxicity - single/repeated exposure exposure	Category 3 Category 2	Central nervous system	H336 H373
Long-term (chronic) Hazardous to water	Category 3	--	H412

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, GHS07, GHS08

Signal word Danger

Hazard statements

H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

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.
P273 Avoid release to the environment.
P280 Wear protective gloves protection.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Immediately call a POISON CENTER/doctor.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

Additional Labelling:

EUH066 Repeated exposure may cause skin dryness or cracking.

SAFETY DATA SHEET

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

DIFFU - THERM® Penetrant Red BDR (Aerosol)



2.3. Other hazards

Harmful to aquatic organisms.

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) classified as either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

Environmental information:

There is no information available on endocrine disrupting properties for the environment.

Toxicological information:

There is no information on endocrine disrupting properties for human health.

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 %
EG-Nr.: 920-107-4	Hydrocarbons, C12-C15, n-alkanes, Isoalkanes, cyclenes GHS08 H304, Asp. Tox.1; EUH066	< 40
EG-Nr.: 918-481-9 EINECS: 265-149-8	Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclenes < 2% aromatics GHS08, H304, Asp. Tox.1; EUH066	< 30
EG-Nr.: 918-811-1	Hydrocarbons, aromatics, C10, <1% naphthalene GHS08, H304, Asp. Tox.1; H336, STOT SE3; H411, Aquatic Chronic2 EUH066	< 25
CAS: 106-97-8 EINECS: 203-448-7	n-butane GHS02 Flam. Gas 1, H220; GHS04	10 - 20
CAS: 74-98-6 EINECS: 200-827-9	propane GHS02 Flam. Gas 1, H220; GHS04	10 - 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	< 10
CAS: 124-17-4 EINECS: 204-685-9	Butyl diglycol acetate/ BDGA Substance for which a Community workplace exposure limit value applies	< 5
CAS: 33703-08-1 EG-Nr.: 251-646-7	Diisononyl adipate	< 5
CAS: 111-90-0 EG-Nr.: 203-919-7	2-ethoxyethanol	< 5
CAS: 56358-09-9 EC-Nr.: 260-124-8	C.I. Solvent Red 19E Skin Irrit. 2 (H315) Skin Sens. 1 (H317) STOT RE 2 (H373) Aquatic Chronic 4 (H413)	< 2
CAS: 57712-94-4 EC-Nr.: 260-913-7	C.I. Solvent Red 19T Skin Irrit. 2 (H315) Skin Sens. 1 (H317) STOT RE 2 (H373) Aquatic Chronic 4 (H413)	< 2

4. First aid measures

4.1. Description of first aid measures

General information:

Remove the affected person from the danger zone and lie down. Remove contaminated clothing immediately.

Consult a doctor in case of complaints.

After inhalation:

Remove to fresh air. If breathing is irregular or has stopped, give artificial respiration. If unconscious, place in recovery position. Call a doctor after serious exposure.

After skin contact:

Wash off immediately with soap and plenty of water. If skin irritation persists, consult a doctor.

After eye contact:

Rinse immediately with plenty of water for at least 15 minutes, also under the eyelids. If eye irritation persists, consult a specialist.

After swallowing:

Rinse mouth with water. Never give anything by mouth to an unconscious person. DO NOT induce vomiting. Place a vomiting person lying on their back in the recovery position. Call a doctor immediately.

Safety measures for first aiders

First aiders should pay attention to self-protection and wear the recommended protective clothing.

SAFETY DATA SHEET

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



DIFFU - THERM® Penetrant Red BDR (Aerosol)

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

Symptoms:

Headache, dizziness, fatigue, drowsiness, nausea, vomiting, inhalation can lead to CNS depression and anaesthesia. CNS depression and narcosis. Prolonged or repeated contact may dry out the skin and cause irritation.

Effects:

Aspiration hazard if swallowed - may enter the lungs and damage them.

Aspiration can lead to pulmonary oedema and pneumonia.

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

Treatment:

Symptomatic treatment. Subsequent observation for pneumonia and pulmonary oedema.

5. Fire fighting 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:

Keep away from heat and sources of ignition. Keep away unprotected persons. Use personal protective equipment.

Provide adequate ventilation. Avoid contact with skin and eyes. Do not breathe vapours or spray mist.

6.2. Environmental precautions:

Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Ensure adequate ventilation.

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.

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 inhale 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. Store on a floor.

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.

SAFETY DATA SHEET

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



DIFFU - THERM® Penetrant Red BDR (Aerosol)

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 uses

For dye penetrant testing in accordance with DIN EN ISO 3452-1 [EN 571-1] (54 152 Part 1), for the detection of surface defects.

8. Exposure controls/personal protection

Additional information on the design of technical systems:

The necessary protective measures and the type of technical measures depend on the potential exposure conditions.

Possible technical measures: Sufficient ventilation should be provided to ensure that the exposure limits are not exceeded. Use explosion-proof ventilation equipment.

8.1. Control parameters

Occupational exposure limit values (Workplace Exposure Limits)

Components with critical values that require monitoring at the workplace:	
EG-Nr.: 918-481-9 Hydrocarbons, C10-C13, isoalkanes, < 2% aromatics	
TRGS 900 AGW	KZW 600 mg/m ³ SMW 300 mg/m ³
CAS: 124-17-4 Butyl diglycol acetate/ BDGA	
AGW	Long-term value: 67 mg/m ³ , 10 ml/m ³ 1,5(I);DFG, Y, 11
CAS: 106-97-8 n-butane (10 – 20%)	
WEL	2.400 mg/m ³ , 1.000 ml/m ³ ; 4(II); DFG
CAS: 74-98-6 propane (10 – 20%)	
WEL	1.800 mg/m ³ , 1.000 ml/m ³ ; 4(II); DFG

Note:

KZW short-term value (limit value for short-term exposure): Limit value that should not be exceeded, related to a duration of 15 minutes (unless otherwise specified).

SMW Shift mean value (limit value for long-term exposure): Time-weighted average value, measured or calculated for a reference period of eight hours (unless otherwise stated).

Exposure controls

8.2. Personal protection equipment

General protective and hygienic measures

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

Breathing equipment:

If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable.

In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.

Half-face filter respirator Type A.

Protection of hands: Protective gloves.

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection: Tightly sealed safety glasses.

Body protection: Protective work clothing.

SAFETY DATA SHEET

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

DIFFU - THERM® Penetrant Red BDR (Aerosol)



9. Physical and chemical properties

9.1. Information on basic physical and chemical properties General Information

Appearance:

Form: Aerosol Colour: red Smell: charakteristisch

Data relevant for safety: (Product without power gas)

Boiling point/Boiling range: 203 - 263 °C
Flash point: 67 °C
Ignition temperature: 200 °C
Critical values for explosion: Lower e.l.: 0,6 Vol.%
Upper e.l.: 7 Vol.%
Steam pressure at 20°C: 30 mbar
Density (20°C): 0,87 g/cm³
Solubility in water (20°C): emulsifiable
Dynamic viscosity (20°C) 3 mm²/s
pH value (20°C) n.a.

9.2 Other information

The product is not explosive, but the formation of explosive vapour/air formation of explosive vapour/air mixtures is possible. Flammability (liquids) Flammable liquid.
Remarks: Highly flammable liquid and vapour.

10. Stability and reactivity

10.1. Reactivity

Note: No decomposition if stored and used as directed.

10.2. Chemical stability

Note: Stable under specified storage conditions.

10.3. Possibility of hazardous reactions

The formation of explosive vapour/air mixtures is possible.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Humidity.

Thermal decomposition: No data available

10.5. Incompatible materials

Substances to avoid: Strong oxidising agents, Strong acids, Aluminium

10.6. Hazardous decomposition products:

In case of fire: Carbon oxides

11. Toxicological information

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

Information on probable routes of exposure

Product information

Inhalation: May cause central nervous system depression with nausea, headache, drowsiness, vomiting and incoordination. Anaesthetic effects. Specific
Specific test data for the substance or mixture are not available. May cause irritation of the Respiratory tract irritation. May cause drowsiness and dizziness.
Eye contact: Specific test data for the substance or mixture are not available.
Skin contact: May cause sensitisation by skin contact. Specific test data for the substance or mixture the mixture are not available. Repeated or prolonged skin exposure may cause may cause allergic reactions in susceptible individuals. (based on the ingredients). Causes skin irritation.
Ingestion: May cause irritation. Specific test data for the substance or mixture are not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. and diarrhoea.

Acute toxicity: Based on available data, the classification criteria are not met.

Information on the components

LD/LC50 values that are relevant for classification:		
EG-Nr.: 918-811-1 Hydrocarbons, C10, aromatics, < 1 % naphthalene		
Oral	LD50	> 5000 mg/kg (rat) (OECD Test Guideline 401)
Inhalative	LC50	> 3400 mg/kg (rab)
Dermal	LC50/4h	> 10,2 mg/l (rat)

SAFETY DATA SHEET

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



DIFFU - THERM® Penetrant Red BDR (Aerosol)

EC No. 920-107-4 Hydrocarbons, C12-C15, n-alkanes, isoalkanes, cyclic, < 2 % aromatics		
Oral	LD50	> 3.000 mg/kg (rab)
Inhalative	LC50	> 4688 mg/l (rat) (OECD Test Guideline 403)
Dermal	LD50	> 2000 mg/kg (rabbit) (OECD Test Guideline 402)
EC No. 918-481-9 Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclic, < 2 % aromatics		
Oral	LD50	> 5000 mg/kg (rat)
Inhalative	LC50	> 4,951 mg/l (Rat; vapour) (OECD Test Guideline 403)
Dermal	LD50	> 5000 mg/kg (rabbit) (OECD Test Guideline 402)
CAS: 124-17-4 Butyl diglycol acetate/ BDGA		
Dermal	LD50	14.500 mg/kg (rab)
CAS: 56358-09-9 (SOLVENTRED 19E)		
Oral	LD50	>2000 mg/kg (rat)
Inhalative	LD50	>2000 mg/kg (rat)
Dermal	LC50	---
CAS: 57712-94-4 (SOLVENTRED 19T)		
Oral	LD50	>2000 mg/kg (rat)
Inhalative	LD50	>2000 mg/kg (rat)
Dermal	LC50	---

Corrosive/irritant effect on the skin:

Prolonged or repeated contact may degrease the skin and cause dermatitis.

Serious eye damage/irritation:

Slight irritant effect possible - not subject to labelling.

Respiratory or skin sensitisation:

Skin sensitisation: May cause an allergic skin reaction.

Respiratory sensitisation:

Classification could not be made due to: Missing, inconclusive or conclusive, but insufficient data for classification.

Germ cell mutagenicity:

Based on available data, the classification criteria are not met.

Carcinogenicity:

Based on available data, the classification criteria are not met.

Reproductive toxicity:

Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure):

May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure:

May cause drowsiness and dizziness.

Aspiration hazard: May be fatal if swallowed and enters airways.

Other information: Repeated exposure may cause skin dryness or cracking.

11.2 Information on other hazards:

Endocrine disrupting properties:

The substance/mixture does not contain components with endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in quantities of 0.1% or more.

12. Ecological information

12.1 Toxicity: Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability

Persistence: No data available

Biodegradability: Readily biodegradable

Eliminated by activated carbon adsorption

12.3 Bioaccumulative potential: No further relevant information available.

12.4 Mobility in soil: No further relevant information available.

12.5 Results of PBT and vPvB assessment: Ingredient:

PBT: The product is not considered to be persistent, bioaccumulating or toxic (PBT).

vPvB: The product is not considered to be persistent or very bioaccumulative (vPvB).

12.6 Endocrine disrupting properties:

For information on endocrine disrupting properties see section 11.

SAFETY DATA SHEET

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



DIFFU - THERM® Penetrant Red BDR (Aerosol)

12.7 **Other adverse effects:** No further relevant information available.

Remark: Toxic to fish.

Other ecological information:

General information

Water hazard class 2 (self-classification): clearly hazardous to water Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground. Also toxic to fish and plankton in bodies of water.

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) (package ≤ 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 : 2.1; 5F; D
Identification Number; Tunnel restriction code)
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.

SAFETY DATA SHEET

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



DIFFU - THERM® Penetrant Red BDR (Aerosol)

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.

Other regulations:

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG). Take note of the national regulations on the protection of young people at work.

National regulations

Water hazard class: WGK 2 : clearly hazardous to water.

15.2. Chemical safety assessment: No data available

16. Other information

Full text of the hazard statements in sections 2 and 3.

- H220 Extremely flammable gas.
- H222 Extremely flammable aerosol.
- H229 Pressurised container: May burst if heated.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.
- EUH066 Repeated exposure may cause skin dryness or cracking.

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

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally contractual relationship.