

SAFETY DATA SHEET

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



DIFFU - THERM® Developer BEA - N (Aerosol)

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

1.1. Product identifier

Trade name: Developer
Article number: BEA - N
UFI: ATR4-X110-J00Y-X3NY

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

Application of the substance / the preparation

As **DEVELOPER** 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
Serious eye damage/eye irritation	Category 1	--	H318
Specific target organ Toxicity - single exposure	Category 3	Central nervous system	H336

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, GHS05, GHS07

Signal word Danger

Hazard statements

H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.

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.
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.
P310 Immediately call a POISON CENTER/doctor.
P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

Other information on labelling:

Further information: Related to titanium dioxide
The classification as 'carcinogenic by inhalation' applies only to mixtures in the form of powder containing at least 1% titanium dioxide in particulate form or incorporated in particles with an aerodynamic diameter $\leq 10 \mu\text{m}$.
The product contains less than 1% titanium dioxide in particulate form with an aerodynamic diameter $\leq 10 \mu\text{m}$.
Therefore, the product is not classified as a category 2 carcinogen (H351, inhalation).

2.3. Other hazards

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.

SAFETY DATA SHEET

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DIFFU - THERM® Developer BEA - N (Aerosol)

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: 71-23-8 EINECS: 200-746-9	propan-1-ol GHS02 Flam. Liq. 2, H225; GHS07 Eye Dam.1, H318; STOT SE 3, H336	50 - 80
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: 13463-67-7 EG-No: 236-675-5	titan (IV)-oxide, EUH 211	< 0,5

4. First aid measures

4.1. Description of first aid measures

General information:

Move affected person into fresh air, position comfortably, loosen constricting clothing.
In case of irregular breathing or respiratory arrest, give artificial respiration.
Immediately remove any clothing contaminated with product.

After inhalation: Supply fresh air; consult doctor in case of symptoms.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

After eye contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and easy to do. Continue rinsing.

After swallowing:

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

Information for doctor Gastric lavage may be due to aspiration only under endotracheal intubation.

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

Breathing difficulty
Dizziness
Dazed
Unconsciousness

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

No further relevant information available.

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.

SAFETY DATA SHEET

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



DIFFU - THERM® Developer BEA - N (Aerosol)

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.

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

8.1. Control parameters

Occupational exposure limit values (Workplace Exposure Limits)

This information is not available

Components with critical values that require monitoring at the workplace:		
106-97-8	butane	(10 – 20%)
WEL	2.400 mg/m ³ , 1.000 ml/m ³ ; 4(II); DFG	
74-98-6	propane	(10 – 20%)
WEL	1.800 mg/m ³ , 1.000 ml/m ³ ; 4(II); DFG	

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.

SAFETY DATA SHEET

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



DIFFU - THERM® Developer BEA - N (Aerosol)

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.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties General Information

Appearance:

Form: Aerosol Colour: white Smell: alcoholic

Data relevant for safety: (Product without power gas)

Boiling point/Boiling range: 97 °C

Flash point: 21,5 - 25,5 °C

Ignition temperature: 400 °C

Critical values for explosion: Lower e.l.: 2,1 Vol.%

Upper e.l.: 13,7 Vol.%

Steam pressure at 20°C: 19 hPa

Density (20°C): 0,80 g/cm³

Solubility in water (20°C): Fully miscible

pH (value) ~7 (in aqueous solution: 200 g/l)

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

This material is not reactive under normal ambient conditions.

If heated: Risk of ignition.

10.2. Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. See below "Conditions to avoid".

10.3. Possibility of hazardous reactions

In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture.

10.4. Conditions to avoid

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

Take precautionary measures against static discharge.

Humidity.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

10.5. Incompatible materials

Materials to avoid: acids, oxidisers

10.6. Hazardous decomposition products:

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

Hazardous combustion products: see section 5.

11. Toxicological information

11.1. Toxicity test:

Acute Toxicity (LD/LC₅₀-values relevant to classification):

LD/LC ₅₀ values that are relevant for classification:		
71-23-8 propan-1-ol		
Oral	LD50	8.000 mg/kg (rat)
Dermal	LD50	4.032 mg/kg (rabbit)
Inhaled	LC50/4 h	33,8 mg/l (rat) (4h/OECD 403)

Primary irritant effect:

SAFETY DATA SHEET

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

DIFFU - THERM® Developer BEA - N (Aerosol)



Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin. (ECHA, OECD Guideline 404)

Serious eye damage/irritation

Causes serious eye damage. ECHA, OECD Guideline 405)

Respiratory or skin sensitization:

Skin sensitization:

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory sensitisation:

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity:

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Carcinogenicity:

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Reproductive toxicity:

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness. (1272/2008/EC, Annex VI)

Specific target organ toxicity - repeated exposure:

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Aspiration hazard:

Shall not be classified as presenting an aspiration hazard.

Information on other hazards

Endocrine disrupting properties

Not listed.

12. Ecological information

12.1. Toxicity

Aquatic toxicity:	
71-23-8 propan-1-ol	
EC 50	> 1.000 mg/l (Chronic bacterial toxicity) (3h/ activated sludge, (OECD 209)) 17.700 mg/l (Acute bacterial toxicity) ((Photobacterium phosphoreum)) 3.644 mg/l (Acute daphnia toxicity) (Daphnia magna, (DIN 38412, Part 11))
LC 50	4.555 mg/l (Acute fish toxicity (96h)) ((Pimephales promelas))

12.2. Persistence and degradability Easily biodegradable

Degree of elimination: > 83%

12.3. Bioaccumulative potential

Concentration in organisms is not expected. log P(o/w): <1

12.4. Mobility in soil No further relevant information available.

Ecotoxicological effects:

Remark:

During correct introduction of low concentrations to adapted biological purification plants no disturbances the degradation of the activated sludge can be expected.

12.4 .Additional ecological information:

CSB-value: ca. 2230 mg O₂/g

BSB₅-value: 1630 mg O₂

General notes:

The product may not be released into the aquatic environment without preliminary treatments (biological purification plant). Water hazard class 1 (Assessment by list): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

12.5. Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SAFETY DATA SHEET

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



DIFFU - THERM® Developer BEA - N (Aerosol)

12.6. Endocrine disrupting properties

Not listed.

12.7. Other adverse effects

Data are not available.

Remarks

Wassergefährdungsklasse, WGK (water hazard class): 1.

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 : Container must be completely emptied and must not be opened by force.

Packaging : Hand over to authorized disposal agency.

Dispose of it in accordance with local regulations.

European Waste : EAV: 15 01 10

Catalogue Number : 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

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DIFFU - THERM® Developer BEA - N (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: Water hazard class 1 (Assessment by list): slightly hazardous for water.

15.2. Chemical safety assessment: A Chemical Safety Assessment has been carried out for this substance.

16. Other information

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

- H220 Extremely flammable gas.
- H222 Extremely flammable aerosol.
- H225 Highly flammable liquid and vapour.
- H229 Pressurised container: May burst if heated.
- H318 Causes serious eye damage.
- H336 May cause drowsiness or dizziness.

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.