

SAFETY DATA SHEET

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



DIFFU - THERM® Developer BEW (Aerosol)

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

1.1. Product identifier

Trade name: Developer permanent
Article number: BEW
UFI CFC3-A1FH-W001-WQDD

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
Eye irritation	Category 2	--	H319
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, GHS07

Signal word Danger

Hazard statements

H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H319 Causes serious eye irritation.
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.
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.

Additional Labelling:

EUH066 Repeated exposure may cause skin dryness or cracking.

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.
Ecological information: No information available about endocrine disruption properties for environment.
Toxicological information: No information available about endocrine disruption properties for human health.

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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: 67-63-0 EINECS: 200-661-7	propan-2-ol GHS02 Flam. Liq.2, H225; GHS07 Eye Irrit. 2, H319; STOT SE. 3, H336	25 - 60
CAS: 106-97-8 EINECS: 203-448-7	n-butane GHS02 Flam. Gas 1, H220; GHS04	10 - 30
CAS: 74-98-6 EINECS: 200-827-9	propane GHS02 Flam. Gas 1, H220; GHS04	10 - 30
CAS: 78-93-3 EINECS: 201-159-0	butanone GHS02 Flam. Liq. 2, H225; GHS07 Eye Irrit. 2, H319; STOT SE 3, H336	< 5
CAS: 13463-67-7 EG-No: 236-675-5	titan (IV)-oxide, EUH 211	< 0,5

4. First aid measures

Description of first aid measures

General advice:

Remove from exposure, lie down. Take off all contaminated clothing immediately. If symptoms call a physician.

After inhalation

Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position. Consult a physician after significant exposure.

After skin contact

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

After eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. 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. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately.

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

Symptoms

acidosis, Control the alkaline reserve, Shortness of breath, Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. See Section 11 for more detailed information on health effects and symptoms.

Effects

Aspiration hazard if swallowed - can enter lungs and cause damage. Aspiration may cause pulmonary oedema and pneumonitis.

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

Treatment

Treat symptomatically. Later control for pneumonia and lung oedema. In case of shortness of breath, give oxygen. Artificial respiration and/or oxygen may be necessary.

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.

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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.

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:

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.

8. Exposure controls/personal protection

Additional information about design for 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 load limits are not exceeded. Use explosion-proof ventilation equipment.

8.1. Control parameters

Components with critical values that require monitoring at the workplace:		
67-63-0	propan-2-ol	(25 - 60%)
WEL	Long-term value: 500 mg/m ³ , 200 ml/m ³	
106-97-8	butane	(10 - 30%)
WEL	2.400 mg/m ³ , 1.000 ml/m ³ ; 4(II); DFG	
74-98-6	propane	(10 - 30%)
WEL	1.800 mg/m ³ , 1.000 ml/m ³ ; 4(II); DFG	
78-93-3	butanone	(< 5%)
WEL	600 mg/m ³ , 200 ml/m ³ ; 1(I); DFG, EU, H, Y	

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8.2. Exposure controls

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:

- A chemical goggles is recommended.
- Tightly sealed safety glasses.
- Gauze goggles

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 temperature:	82 °C
Flash point:	12 °C
Ignition temperature:	> 350 °C
Explosion limits	Lower e.l.: 1,5 Vol.%
	Upper e.l.: 9,5 Vol.%
Vapour pressure (20°C):	48 mbar
Density (20°C):	0,862 g/cm ³
Solubility in water (20°C):	completely soluble (Solvent)
pH	No data available

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 used as directed.

10.2. Chemical stability

- Advice: Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

- Hazardous reactions: Vapours may form explosive mixture with air. Possible formation of peroxide.

10.4. Conditions to avoid

- Conditions to avoid Thermal decomposition: Heat, flames and sparks. 235 °C

10.5. Incompatible materials

- Materials to avoid:
Strong reducing agents, Oxidizing agents, Halogenated compounds, Alkali metals, Ethanolamine, Hydrogen peroxide, Ammonium nitrate, Organic peroxides, potassium permanganate, Nitric acid, Alkali hydroxide

10.6. Hazardous decomposition products: Under fire conditions: Carbon oxides

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11. Toxicological information

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

Acute Toxicity: (LD/LC ₅₀ -values that are relevant for classification):		
67-63-0	propan-2-ol	(25 – 60%)
Oral	LD50	5.840 mg/kg (rat)
Dermal	LD50	13.900 mg/kg (rabbit)
Inhaled	LC50/4 h	> 25 mg/l (rat) (6h/ LC50 > 25.000 mg/m³t)
78-93-3	butanone	(< 5%)
Oral	LD50	2.193 mg/kg (rat)
Dermal	LD50	> 5.000 mg/kg (rabbit)
Inhaled	LC50/4 h	34 mg/l (rat)

Irritation:

Skin: No skin irritation (OECD Test Guideline 404) Degreases the skin which may cause dry and rough. Prolonged or repeated skin contact may result in dermatitis.

Eyes: Eye irritation (OECD Test Guideline 405) Splashes in eyes may cause strong pain. Vapour acts irritant.

Sensitisation: not sensitizing (Buehler Test; Dermal; Guinea pig) (OECD Test Guideline 406)

CMR effects

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

Mutagenicity: In vitro tests did not show mutagenic effects.

Teratogenicity: No effects on or via lactation.

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

Specific Target Organ Toxicity

Single exposure: Target Organs: Central nervous system May cause drowsiness or dizziness.

Repeated exposure:

Oral and inhalation repeated exposure studies demonstrated target organ effects in male rats (kidney) and male and female mice (thyroid) by mechanisms of action that are not relevant to humans

Other toxic properties

Aspiration hazard:

Aspiration hazard if swallowed - can enter lungs and cause damage. Aspiration may cause pulmonary oedema and pneumonitis. Based on available data, the classification criteria are not met.,

Information on other hazards

Endocrine disrupting properties

No information available about endocrine disruption properties for human health.

Irritation of the respiratory system

slightly irritating

Test results or other study results do not meet the criteria for classification.

12. Ecological information

12.1. Toxicity

Aquatic toxicity:		
67-63-0	propan-2-oll	
LC50 Fish	9.640 mg/l	(Pimephales promelas; 96 h) (flow-through test; OECD Test Guideline 203)
LC50 Daphnia	9.714 mg/l	(Daphnia magna; 24 h) (static test; OECD Test Guideline 202)
EC50 Algae	> 100 mg/l	(Scenedesmus subspicatus; 72 h)
EC50 Bacteria	> 100 mg/l	(bacteria) no harmful effect
78-93-3	butanone	
EC50	1.972 mg/l	(Pseudokirchneriella subcapitata (green algae); 72 h) (static test; End point: Growth rate; OECD Test Guideline 201)
EC50	308 mg/l	(Daphnia magna; 48 h) (static test; OECD Test Guideline 202)
LC50	2.993 mg/l	(Pimephales promelas; 96 h) (static test; OECD Test Guideline 203)
EC0	1.150 mg/l	(Pseudomonas putida; 16 h) (Static test; DIN 38412)

12.2. Persistence and degradability

Persistence: Result: Transformation due to hydrolysis not expected to be significant.

Biodegradability:

Result: 53 % (aerobic; domestic sewage; Related to: O₂ consumption; Exposure Time: 5 d) (Directive 67/548/EEC, Annex V, C.5) Readily biodegradable.

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12.3. Bioaccumulative potential

Bioaccumulation: Result: log Kow 0,05: Bioaccumulation is not expected.

12.4. Mobility in soil

Mobility: Water The product is water soluble; Soil: Mobile in Soil.

12.5. Results of PBT and vPvB assessment

Result: 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 is not considered to be persistent, bioaccumulating nor toxic (PBT).

This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6. Endocrine disrupting properties

Endocrine disrupting No information available about endocrine disruption properties

Potential for environment.

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 : 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 : --

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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.

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.

National regulations:

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.

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 H-Statements referred to under 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.

H319 Causes serious eye irritation.

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.