

SAFETY DATA SHEET

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



DIFFU - THERM®Cleaner BRE (Cans)

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

1.1. Product identifier

Trade name: Cleaner

Article number: BRE

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

Application of the substance / the preparation

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.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier

Helmut Klumpf

Technische Chemie KG

Industriestr. 15

D - 45699 Herten Phone.: +49(0)2366 1003 - 0 Fax: +49(0)2366 1003 - 11 Email: 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
Flammable liquids	Category 2	--	H225
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

H225 Highly flammable liquid and vapour.

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.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray

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.

P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Additional marking:

EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

Vapours can form an explosive mixture with air.

Particular risk of slipping due to leaking/spilled product.

Results of the PBT and vPvB assessment

According to the results of its assessment, this substance is neither a PBT nor a vPvB substance.

Endocrine disrupting properties

Not listed.

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3. Composition/information on ingredients

3.1. Chemical characterization:

Mixture of the substances to be labelled from the table and other components not subject to labelling.

Components:	Name of chemical	weight %
CAS: 78-93-3	Butanone	100
EINECS: 201-159-0	GHS02 Entz. Fl. 2, H225; GHS07 Eye Irrit. 2, H319; STOT einm. 3, H336	

4. First aid measures

Description of first aid measures

General information:

Remove the affected person from the danger area and lay them down. Remove contaminated clothing immediately. If you experience any symptoms, seek medical attention.

After inhalation:

Remove to fresh air. If breathing is irregular or has stopped, give artificial respiration. If unconscious, place patient in recovery position. If serious, seek medical attention.

After skin contact:

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

After eye contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Remove any contact lenses if possible. Continue rinsing.

After swallowing:

Rinse mouth immediately and drink plenty of water. DO NOT induce vomiting. Get medical advice/attention. Administer activated charcoal.

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

Narcotic effects, headache, dizziness, fatigue. Irritant effects.

Unconsciousness, coughing, pain, shortness of breath and general breathing difficulties.

Nausea, drowsiness, gastrointestinal complaints, pulmonary oedema. Poisoning effect on the central nervous system, which can cause convulsions, shortness of breath and unconsciousness.

Repeated contact may cause brittle or cracked skin.

Preventive skin protection (protective creams/ointments) is recommended.

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

Subsequent observation for pneumonia and pulmonary oedema.

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. Vapours may be invisible, heavier than air and spread along the ground. Vapours can form explosive mixtures with air. Re-ignition at long distance possible.

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

5.3. Advice for firefighters

Cool container with water spray. Do not inhale explosion and combustion gases.

Adapt extinguishing measures to the environment.

Do not allow extinguishing water to enter drains and waterways.

Collect contaminated extinguishing water separately.

Fight fire with the usual precautions from an appropriate distance.

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

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 vapour. Remove ignition sources. Do not smoke. Avoid sparks.

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6.2. Environmental precautions:

- Absorb with liquid-binding material (e.g. sand, sawdust, universal binding agent, diatomaceous earth).
- Ensure adequate ventilation.
- Dispose of in suitable containers.
- Dispose of contaminated material as waste according to point 13.

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 5 Hazardous combustion products.
- 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:

- Keep container tightly closed. Only use in well-ventilated areas.
- Ensure sufficient air exchange and/or extraction in work areas.
- Avoid aerosol formation. Avoid contact with eyes and skin.
- Emergency eye wash facilities should be available in the immediate vicinity.

Hygiene measures:

- Remove contaminated clothing immediately. Do not breathe gas/fume/vapour/aerosol.
- Keep away from food, drink and animal feedingstuffs. Do not eat in the area of application, drink or smoke in the application area. Wash hands before breaks and at the end of work.

7.2. Conditions for safe storage, including any incompatibilities:

Requirements for storage areas:

- Store in the original container. Store in a place with a solvent-proof 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: 3 flammable liquid

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 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 exposure limits are not exceeded. Use explosion-proof ventilation equipment.

8.1. Control parameters

Occupational exposure limits (occupational exposure limits)									
Country	Work substance	CAS-No.	Identifier	SMW [ppm]	SMW [mg/m³]	KZW [ppm]	KZW [mg/m³]	Note	Source
DE	2-Butanon (Methylethylketon)	78-93-3	MAK	200	600	200	600	H	DFG
DE	Butanon	78-93-3	AGW	200	600	200	600	H, Y	TRGS 900
EU	Ethylmethylketon	78-93-3	IOELV	200	600	300	900	-	2000/39/EG

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Note

H skin-resorptive

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

Y There is no need to fear a risk of fruit damage if the occupational exposure limit value and the biological limit value (BGW) need not be feared.

Biological limit values

Ccountry	Work substance	Parameter	Nots	Identificator	Value	Material	Source
DE	Butanon (Methylethylketon)	2-Butanon	-	BLV	2 mg/l	Urine	TRGS 903
DE	Butanon (Methylethylketon)	Ethylmethylketon	-	BAT	2 mg/l	Urine	DFG

Values relevant for human health

Relevant DNELs and other thresholds

Endpoint	Threshold	Protection goal, exposure route	Use in	Exposure time
DNEL	600 mg/m ³	Human, inhalative	Employees (industry)	Chronic - systemic effect
DNEL	1.161 mg/kg KG/day	Human, dermal	Employees (industry)	Chronic - systemic effect

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: 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: liquid

Colour: colourless / clear

Smell: Characteristically pungent

Data relevant for safety:

Boiling point/Boiling range: 79 - 80 °C

Flash point: -9 -6 °C

Ignition temperature: 476 - 515 °C

Critical values for explosion: Lower e.l.: 1,8 Vol.%

Upper e.l.: 11,5 Vol.%

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Vapour pressure(20°C):	100 – 126 hPa at 20°C
Steam pressure at 20°C:	24 mbar
Density (20°C):	0,804 g/cm ³
Solubility in water (20°C):	250 g/l at 20°C
	not miscible in any ratio
Dynamic viscosity (20°C)	not determined

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:

Vapours can form an explosive mixture with air.

10.2. Chemical stability:

The material is stable under normal ambient conditions and under the temperature and pressure conditions and pressure conditions to be expected during storage and handling.

10.3. Possibility of hazardous reactions:

In case of inadequate ventilation and/or during use, formation of explosive/highly flammable vapour/air mixtures possible. vapour/air mixtures possible. May form explosive peroxides.

Hazardous/dangerous reactions with oxidising agent.

10.4. Conditions to avoid:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

Do not smoke. UV radiation/sunlight. Take measures against electrostatic discharge.

Moisture. Ingress of air/oxygen.

Use explosion-proof electrical devices/ventilation systems/lighting systems.

Only use non-sparking tools.

10.5. Incompatible materials:

Carbon monoxide (CO). Carbon dioxide (CO₂). Peroxides.

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

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity:

Shall not be classified as acutely toxic (oral).

Shall not be classified as acutely toxic (dermal).

Inhalative:

Classification could not be made due to:

Missing, inconclusive or conclusive but insufficient data for classification.

Exposure path	End point	Value	Species	Method	Source	Note
oral	LD50	2.193 mg/kg	Rat	OECD Guideline 423	ECHA	-
dermal	LD50	> 8.000 mg/kg	Rabbit	OECD Guideline 402	ECHA	calculated

Irritation:

Skin: Is not classified as skin corrosive/irritant. (ECHA, OECD Guideline 404).

Eyes: Causes serious eye irritation. (OECD test guideline 405).

Sensitization: Non-sensitizing (guinea pig) (OECD Test Guideline 406)

CMR effects/properties

Carcinogenicity: No evidence of carcinogenicity.

Mutagenicity: In vitro tests showed no mutagenic effects.

Teratogenicity: Causes developmental disorders in animals at high doses.

Reproductive toxicity: Animal testing showed no effect on fertility.

Aspiration hazard: No classification for aspiration toxicity.

Further information

Inhalation of high vapor concentrations may cause symptoms such as headache, dizziness, fatigue, nausea and vomiting. Chronic exposure may cause dermatitis.,

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11.2 Information on other hazards

Endocrine disrupting properties

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

12. Ecological information

12.1. Toxicity

(Acute) aquatic toxicity

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

End point	Exposure duration	Value	Species	Method	Source
LC50	96 h	2.993 mg/l	American minnow (Pimephales promelas)	OECD Guideline 203	ECHA
EC50	48 h	308 mg/l	Daphnia magna	OECD Guideline 202	ECHA
ErC50	96 h	1.240 mg/l	Alge (Pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA

(Chronic) aquatic toxicity:

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

End point	Exposure duration	Value	Species	Method	Source
NOEC	72 h	566 mg/l	Alge (Pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA
Growth rate (ErCx) 10%	72 h	1.050 mg/l	Alge (Pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA

12.2. Persistence and degradability:

The material is readily biodegradable.

Degradability process				
Process	Degradation rate	Theme	Method	Source
Oxygen consumption	98 %	28 h	OECD Guideline 201 D	ECHA

Persistence: No data is available.

12.3. Bioaccumulative potential: n-octanol/water (log KOW) 0.3

12.4. Mobility in soil: No data available.

12.5. Results of PBT and vPvB assessment:

According to the results of its assessment, this substance is neither a PBT nor a vPvB substance..

12.6. Endocrine disrupting properties: Not listed.

12.7. Other adverse effects: There is no data available.

Other ecological information

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

Remarks: Water hazard class, WGK: 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 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** : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in Consultation with the regional waste disposer

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14. Transport information

14.1. UN number or ID number

1193

14.2. UN proper shipping name

ADR	ETHYLMETHYLKETON
RID	ETHYLMETHYLKETON
IMDG	ETHYL METHYL KETONE
ICAO-TI und IATA-DGR	ETHYL METHYL KETONE

14.3. Transport hazard class(es)

ADR-Class	:	3
shipment category	:	2
(Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)	:	3; F1; D/E
RID-Class	:	3; F1
Labels; Classification Code; Hazard Identification Number)	:	
IMDG-Class	:	3
(Labels; EmS)	:	F-E, S-D
ICAO-TI und IATA-DGR	:	3

14.4. Packaging group

ADR : II
RID : II
IMDG : II
IATA : II

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

Data for the product

Other regulations

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

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

Ingredient Butanone

Regulation (EC): 273/2004, drug precursors, category 3

Substances covered by the Combined Nomenclature (CN) Code: 2914 12 00,
Registered substance as listed in the Combined Nomenclature.

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

No. 3; Registered
No. 40; Registered
No. 75; Registered.

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.

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16. Other information

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

- H225 Highly flammable liquid and vapour.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.

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.

Department issuing data specification sheet:

Contact: Helmut. Klumpf 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 represent a guarantee of product properties and does not establish a contractual legal relationship.