

Oxidizer 0.02 M (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 7/6/2023 Revision date: 12/5/2023 Supersedes version of: 10/10/2023 Version: 1.2

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

1.1. Product identifier

Product form	: Mixture
Trade name	: Oxidizer 0.02 M (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)
UFI	: V7M3-P0VY-R00R-DKRQ
Product code	: NC-0503; NC-0504; NC-0506; NC-0507
Type of product	: Synthesis Reagent, Oxidizer
Product group	: End product

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

1.2.1. Relevant identified uses

Main use category	: Laboratory chemical, Professional use
Industrial/Professional use spec	: Industrial For professional use only
Use of the substance/mixture	: Substance manufacture Laboratory chemicals
Function or use category	: Laboratory chemicals, Oxidising agents

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

emp Biotech GmbH GmbH
Robert-Rössle-Str. 10
DE 13125 Berlin
Deutschland
T +49 (0)30 94 89 22 01 (Monday-Friday, 9:00 am-5:00 pm), F +49 (0)30 94 89 32 01
info@empbiotech.com, www.empbiotech.com

1.4. Emergency telephone number

Emergency number	: Giftnotruf Berlin +49 30 30686700 (Beratung in Deutsch), 24 Stunden, 7 Tage/Woche; International: INFOTRAC +1-352-323-3500 (Phone) or in the US 800-535-5053 (toll-free), 24 hours/day, 7 days/week
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2	H225
Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Dermal)	H312
Acute Tox. 4 (Inhalation)	H332
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Carc. 2	H351
STOT SE 3	H335

Full text of hazard classes, H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS02

GHS07

GHS08

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H225 - Highly flammable liquid and vapour.
H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H351 - Suspected of causing cancer.

Precautionary statements (CLP)

: P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P301+P312 - IF SWALLOWED: Call a POISON CENTER, doctor if you feel unwell.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - IF exposed or concerned: Get medical advice/attention.

EUH-statements

: EUH019 - May form explosive peroxides.

2.3. Other hazards

Other hazards which do not result in classification : This substance / mixture does not contain any components of 0.1% or higher that are either classified as persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Tetrahydrofuran substance with national workplace exposure limit(s) (DE); substance with a Community workplace exposure limit	CAS-No.: 109-99-9 EC-No.: 203-726-8 EC Index-No.: 603-025-00-0 REACH-no: 01-2119444314-46-XXXX	60 – 100	Flam. Liq. 2, H225 Carc. 2, H351 Eye Irrit. 2, H319 STOT SE 3, H335

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Pyridine (anhydrous) substance with national workplace exposure limit(s) (DE)	CAS-No.: 110-86-1 EC-No.: 203-809-9 EC Index-No.: 613-002-00-7 REACH-no: 01-2119493105-40-XXXX	0 – 25	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Oral), H302
Iodine	CAS-No.: 7553-56-2 EC-No.: 231-442-4 EC Index-No.: 053-001-00-3 REACH-no: 01-2119485285-30-XXXX	< 1	Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Aquatic Acute 1, H400

Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
Tetrahydrofuran	CAS-No.: 109-99-9 EC-No.: 203-726-8 EC Index-No.: 603-025-00-0 REACH-no: 01-2119444314-46-XXXX	(25 ≤ C < 100) STOT SE 3, H335 (25 ≤ C < 100) Eye Irrit. 2, H319

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Consult a doctor. Show this safety data sheet to the doctor in attendance.
First-aid measures after inhalation	: Move person to fresh air and ensure comfortable breathing. Get immediate medical advice/attention. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
First-aid measures after skin contact	: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Rinse skin with water/shower. Ask for medical advice.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if possible. Continue rinsing. Get medical advice/attention.
First-aid measures after ingestion	: Drink water immediately (max. 2 cups). Ask for medical advice.

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

Symptoms/effects	: The most important known symptoms and effects are described on the label (see 2.2) and / or in section 11.
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4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Carbon dioxide (CO ₂). Dry powder. Water spray.
Unsuitable extinguishing media	: There are no extinguishing agent restrictions for this substance.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Combustible.
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Explosion hazard	: Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.
Hazardous decomposition products in case of fire	: Carbon oxides Nitrogen oxides (NO _x) Mixture with combustible ingredients. Pay attention to flashback. . Hydrogen iodide.

5.3. Advice for firefighters

Protection during firefighting	: Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Other information	: Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: For personal protection see section 8.
Emergency procedures	: Avoid breathing vapours, mist, gas, spray. Avoid substance contact. Ensure adequate ventilation, observe emergency procedures, consult an expert. Keep away from heat and sources of ignition.

6.1.2. For emergency responders

Protective equipment	: Wear recommended personal protective equipment.
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6.2. Environmental precautions

Do not allow to enter drains or water courses. Be careful of explosion risk.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.
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6.4. Reference to other sections

Information on exposure controls/personal protective equipment and on Instructions for disposal can be found in sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge.
Precautions for safe handling	: Use under laboratory hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
Hygiene measures	: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothes.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Keep container tightly closed in a well-ventilated, dry place. Store in cool place. Keep away from heat and sources of ignition. . Keep locked up or in an area accessible only to qualified or authorized persons. Keep contents under inert gas. Dry residue is explosive. Test for peroxide formation periodically and before distillation.
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Storage temperature : 5 – 20 °C
Storage area : Storage class (TRGS 510): See section 15.1.2.

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Tetrahydrofuran (109-99-9)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Tetrahydrofuran
IOEL TWA	150 mg/m ³
	50 ppm
IOEL STEL	300 mg/m ³
	100 ppm
Remark	Skin
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Tetrahydrofuran
AGW (OEL TWA)	150 mg/m ³
	50 ppm
Remark	DFG,EU,H,Y
Germany - Biological limit values (TRGS 903)	
Local name	Tetrahydrofuran
Biological limit value	2 mg/l Urine Remarks: End of exposure or end of shift.
Pyridine (anhydrous) (110-86-1)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Pyridin
AGW (OEL TWA)	15 mg/m ³
	5 ppm - Remarks: Indicative Legal reference: Commission Directive 91/322/EEC on release of indicative limit values
Iodine (7553-56-2)	
Germany - Occupational Exposure Limits (Generic OEL data)	
	Contains no substances with occupational exposure limits

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

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8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Wear eye protection. Wear closed safety glasses. EN 166. Use face shield for larger quantities.

8.2.2.2. Skin protection

Skin and body protection:

Wear protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Flame retardant antistatic protective clothing

Hand protection:

Wear protective gloves. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

. Splash contact-material: butyl-rubber

Minimum layer thickness: 0,7 mm

Break through time: 10 min

8.2.2.3. Respiratory protection

Respiratory protection:

Required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards:

DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type ABEK. Wear respiratory protection

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Light brown to dark brown.
Appearance	: Clear.
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not available
Boiling point	: 65 °C At 1.013 hPa (Main component)

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Flammability	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: -21.2 °C - c.c (Main component)
Auto-ignition temperature	: 215 °C (Main component)
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Vapors can form an explosive mixture with air. Peroxides may be formed.

10.2. Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Moisture. Heat. High temperature.

10.5. Incompatible materials

Oxidizing agent. Strong acids. oxygen.

10.6. Hazardous decomposition products

Peroxides. In the event of fire: see section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Harmful in contact with skin.
Acute toxicity (inhalation)	: Harmful if inhaled.

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Additional information

: Tetrahydrofuran:
LD50 Oral: Rat - male and female: 1.650 mg/kg
Remarks: (ECHA)
Symptoms: Irritation of mucous membranes
LC50 Inhalation: Rat - male and female: 4 h: > 16,9 mg/l
Remarks: (US-EPA)
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract
LD50 Dermal: Rat - male and female: > 2.000 mg/kg
Remarks: (OECD Test Guideline 402)

Iodine:
LD50 Oral: Rat: 315 mg/kg
Remarks: (US-EPA)

The GHS classification specified by the authority
LC50 Inhalation: Rat - male and female: 4 h: > 4,588 mg/l
Remarks:(OECD Test Guideline 403)
(Regulation (EC) No 1272/2008, Annex VI)
LD50 Dermal: Rabbit - male and female: 1.425 mg/kg
Remarks: (US-EPA)

Pyridine:
LD50 Oral: Rat: 1.500 mg/kg
Remarks: (ECHA)
Symptoms: Vomiting, Nausea
LC50 Inhalation: Rat - male: 4 h: 17,1 mg/l
Remarks: (US-EPA)
Symptoms: mucosal irritations, Cough, Shortness of breath
LD50 Dermal: Rabbit: > 1.000 - 2.000 mg/kg
Remarks: (OECD Test Guideline 402)

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ATE CLP (oral)	500 mg/kg bodyweight
ATE CLP (dermal)	1100 mg/kg bodyweight
ATE CLP (gases)	4500 ppmv/4h
ATE CLP (vapours)	11 mg/l/4h
ATE CLP (dust,mist)	1.5 mg/l/4h
Tetrahydrofuran (109-99-9)	
LD50 oral rat	1650 mg/kg - GAF Material Safety Data Sheet.
Pyridine (anhydrous) (110-86-1)	
LD50 oral rat	891 mg/kg BIOFAX Industrial Bio-Test Laboratories, Inc., Data Sheets. Vol. 14-4/1970.
LD50 dermal rabbit	1120 mg/kg BIOFAX Industrial Bio-Test Laboratories, Inc., Data Sheets. Vol. 14-4/1970.
Iodine (7553-56-2)	
LD50 oral rat	14000 mg/kg - DRFUD4 Drugs of the Future. (J.R. Prous, S.A., Apartado de Correos 540, 08080 Barcelona, Spain) Vol. 4, Pg. 876, 1979. (RTECS)

Skin corrosion/irritation : Causes skin irritation.

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Additional information	: Tetrahydrofuran: Skin - Rabbit Result: No skin irritation - 72 h (Draize Test) Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product. Iodine: Skin - reconstructed human epidermis (RhE) Result: Moderate skin irritation (Regulation (EC) No. 440/2008, Annex, B.46) Pyridine: Skin corrosion/irritation Skin - Rabbit Result: Mild skin irritation - 24 h (Draize Test)
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Tetrahydrofuran (109-99-9)

pH	7 – 8 at 20 °C; 200 g/l
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Pyridine (anhydrous) (110-86-1)

pH	≈ 8.5 at 25 °C
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Serious eye damage/irritation	: Causes serious eye irritation.
Additional information	: Tetrahydrofuran: Eyes - Rabbit Result: Eye irritation Remarks: (ECHA) (Regulation (EC) No 1272/2008, Annex VI) Pyridine: Eyes - Rabbit Result: Irritating to eyes. - 24 h Remarks: (ECHA)

Tetrahydrofuran (109-99-9)

pH	7 – 8 at 20 °C; 200 g/l
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Pyridine (anhydrous) (110-86-1)

pH	≈ 8.5 at 25 °C
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Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Suspected of causing cancer.
Additional information	: Tetrahydrofuran: Suspected of causing cancer.

Pyridine (anhydrous) (110-86-1)

IARC group	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
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Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.

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Additional information	: Tetrahydrofuran: Inhalation: May cause respiratory irritation. - Respiratory system May cause drowsiness or dizziness. - Nervous system Acute oral toxicity: Irritation of mucous membranes Acute inhalation toxicity: mucosal irritations, Cough, Shortness of breath Possible damages: damage of respiratory tract Iodine: Inhalation: May cause respiratory irritation. - Respiratory system Pyridine: Acute oral toxicity: Vomiting, Nausea Acute inhalation toxicity: mucosal irritations, Cough, Shortness of breath
STOT-repeated exposure	: Not classified
Additional information	: Tetrahydrofuran: The substance or mixture is not classified as specific target organ toxicant, repeated exposure Iodine: Oral - Causes damage to organs through prolonged or repeated exposure. - Thyroid Oral - Thyroid
Aspiration hazard	: Not classified

Tetrahydrofuran (109-99-9)

Viscosity, kinematic	0.539 mm ² /s
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Pyridine (anhydrous) (110-86-1)

Viscosity, kinematic	≈ 0.898 mm ² /s
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11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH article 57(f) or commission delegated regulation (EU) 2017/2100 or commission regulation (EU) 2018/605 at levels of 0.1% or higher.

11.2.2. Other information

Potential adverse human health effects and symptoms : Central nervous system depression, Cough, chest pain, Difficulty in breathing, Exposure to high airborne concentrations can cause anesthetic effects, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema
,Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice,The substance should be handled with special care.

Other information : To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified

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Tetrahydrofuran (109-99-9)	
LC50 - Fish [1]	2160 mg/l Flow-through test LC50 - Pimephales promelas (fathead minnow) - 96 h (OECD Test Guideline 203)
EC50 - Other aquatic organisms [1]	3485 mg/l Static test EC50 - Daphnia magna (Water flea) - 48 h (OECD Test Guideline 202)
Pyridine (anhydrous) (110-86-1)	
LC50 - Fish [1]	6.3 (1.1 – 106) mg/l Reference for median: Wan, M.T., D.J. Moul, and R.G. Watts 1987. Acute Toxicity to Juvenile Pacific Salmonids of Garlon 3A, Garlon 4, Triclopyr, Triclopyr Ester, and Their Transformation Products: 3,5,6-Trichloro-2 Pyridinol and 2-Methoxy-3,5,6-Trichloropyridine. Bull.Environ.Contam.Toxicol. 39(4):721-728 (OECDG Data File)
EC50 - Crustacea [1]	1130 (182 – 2550) mg/l Reference for median: Canton, J.H., and D.M.M. Adema 1978. Reproducibility of Short-Term and Reproduction Toxicity Experiments with Daphnia magna and Comparison of the Sensitivity of Daphnia magna with Daphnia pulex and Daphnia cucullata in Short-Term Experiments. Hydrobiologia 59(2):135-140 (Used Reference 2018)
EC50 96h - Algae [1]	110 mg/l Reference for median: Slooff, W. 1982. A Comparative Study on the Short-Term Effects of 15 Chemicals on Fresh Water Organisms of Different Tropic Levels. Natl.Tech.Inf.Serv., Springfield, VA :25 p. (DUT) (ENG ABS) (NTIS/PB83-200386)
Iodine (7553-56-2)	
LC50 - Fish [1]	1.73 (0.53 – 4.2) mg/l - Reference for median: Laverock, M.J., M. Stephenson, and C.R. MacDonald 1995. Toxicity of Iodine, Iodide, and Iodate to Daphnia magna and Rainbow Trout (Oncorhynchus mykiss). Arch.Environ.Contam.Toxicol. 29(3):344-350
EC50 - Crustacea [1]	0.33 mg/l - Reference for median: Office of Pesticide Programs 2000. Pesticide Ecotoxicity Database (Formerly: Environmental Effects Database (EEDB)). Environmental Fate and Effects Division, U.S.EPA, Washington, D.C.
12.2. Persistence and degradability	
Oxidizer 0.02 M (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)	
Persistence and degradability	Rapidly degradable
Tetrahydrofuran (109-99-9)	
Persistence and degradability	Rapidly degradable
Biodegradation	39 % Biodegradability aerobic Biochemical oxygen demand Exposure time 28 d Result: Not readily biodegradable. (OECD Test Guideline 301D)
Pyridine (anhydrous) (110-86-1)	
Persistence and degradability	Rapidly degradable
Biodegradation	97 % Aerobic - Exposure time 28 d Result: Readily biodegradable. (OECD Test Guideline 301B)
Iodine (7553-56-2)	
Persistence and degradability	Not established.

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12.3. Bioaccumulative potential

Tetrahydrofuran (109-99-9)

Partition coefficient n-octanol/water (Log Kow)	0.46
Bioaccumulative potential	No bioaccumulation is to be expected (log Pow <= 4).

Pyridine (anhydrous) (110-86-1)

Partition coefficient n-octanol/water (Log Kow)	0.65
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Iodine (7553-56-2)

Partition coefficient n-octanol/water (Log Kow)	2.49
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH article 57(f) or commission delegated regulation (EU) 2017/2100 or commission regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects

Other adverse effects : Discharge into the environment must be avoided.

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Tetrahydrofuran

: Toxicity to fish:
Flow-through test: LC50: Pimephales promelas (fathead minnow). 2.160 mg/l - 96 h
Remarks: (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates:
Static test: EC50: Daphnia magna (Water flea): 3.485 mg/l -48 h
Remarks: (OECD Test Guideline 202)
Toxicity to bacteria:
Static test: EC20: activated sludge: ca. 800 mg/l - 0,5 h
Remarks: (OECD Test Guideline 209)

Iodine:

Toxicity to fish:
Static test: LC50: Oncorhynchus mykiss (rainbow trout): 1,67 mg/l - 96 h
Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates:
Static test: EC50: Daphnia magna (Water flea): 0,55 mg/l - 48 h
Remarks: (ECHA)
EC50: Daphnia magna (Water flea): 0,2 mg/l - 48 h
Toxicity to algae:
Growth inhibition: ErC50: Desmodesmus subspicatus (green algae): 0,13 mg/l - 72 h
Remarks:(OECD Test Guideline 201)
Toxicity to bacteria: EC50 - activated sludge: 280 mg/l - 3 h
Remarks: (OECD Test Guideline 209)

Pyridine:

Toxicity to fish:
Semi-static test: EC50: Danio rerio (zebra fish): 560 - 1.000 mg/l - 96 h
Remarks: (OECD Test Guideline 203)
(in analogy to similar products)
Toxicity to daphnia and other aquatic invertebrates: EC50: Daphnia magna (Water flea):
320 mg/l - 48 h
Remarks: (OECD Test Guideline 202)
(in analogy to similar products)
Toxicity to algae:
Static test: EC50: Pseudokirchneriella subcapitata: 320 mg/l - 72 h
Remarks: (OECD Test Guideline 201)
(in analogy to similar products)
IC5: Scenedesmus quadricauda (Green algae): 120 mg/l - 7 d
Remarks: (maximum permissible toxic concentration)
EC50: SELENASTRUM: 100,00 - 180,00 mg/l - 72 h

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Product residues are to be disposed of in compliance with national and regional regulations dispose. Keep chemicals in original containers. Not with other waste mix. Uncleaned containers are to be treated according to the product.

Product/Packaging disposal recommendations : Contaminated packaging to be disposed as unused product.

SECTION 14: Transport information




In accordance with ADR / IMDG / IATA

ADR	IMDG	IATA
14.1. UN number or ID number		
UN 1993	UN 1993	UN 1993

Oxidizer 0.02 M (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)

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ADR	IMDG	IATA
14.2. UN proper shipping name		
FLAMMABLE LIQUID, N.O.S. (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)	FLAMMABLE LIQUID, N.O.S. (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)	FLAMMABLE LIQUID, N.O.S. (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)
14.3. Transport hazard class(es)		
3	3	3
		
14.4. Packing group		
II	II	II
14.5. Environmental hazards		
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available		

14.6. Special precautions for user

Overland transport

Tunnel restriction code (ADR) : D/E

Transport by sea

EmS-No. (Fire) : F-E

EmS-No. (Spillage) : S-E

Air transport

No data available

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

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Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Dual-Use Regulation (428/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

Seveso Directive (Disaster Risk Reduction)

Seveso Additional information : Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. : FLAMMABLE LIQUIDS : ENVIRONMENTAL HAZARDS

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG). Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG).
Water hazard class (WGK) : WGK 2, Significantly hazardous to water (Classification according to AwSV, Annex 1).
Storage class (LGK, TRGS 510) : LGK 3 - Flammable liquids.
Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

15.2. Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Full text of H- and EUH-statements:	
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Carc. 2	Carcinogenicity, Category 2
EUH019	May form explosive peroxides.
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

Oxidizer 0.02 M (Mixture of Iodine in Tetrahydrofuran, Pyridine and Water)

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Full text of H- and EUH-statements:

H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.