SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 30-Nov-2024 **Revision Number** 5

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: 3,3',5,5'-Tetramethylbenzidine solution, Ready-to-Use, high sensitivity
Cat No. : J61325
Molecular Formula C16 H20 N2

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH
Erlenbachweg 2, 76870 Kandel, Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG
Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
https://www.fishersci.ch/ch/en/customer-help-support/forms/email-us.html

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

customers in Switzerland:
Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

Poison Centre - Emergency information services

Ireland : National Poisons Information Centre (NPIC) -
01 809 2166 (8am-10pm, 7 days a week)
Malta : +356 2395 2000
Cyprus : +357 2240 5611

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 3 (H226)

Health hazards

Acute oral toxicity	Category 4 (H302)
Acute dermal toxicity	Category 4 (H312)
Acute Inhalation Toxicity - Vapors	Category 3 (H331)
Specific target organ toxicity - (single exposure)	Category 1 (H370)

Environmental hazards
Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Danger**

Hazard Statements
H226 - Flammable liquid and vapor
H331 - Toxic if inhaled
H370 - Causes damage to organs
H302 + H312 - Harmful if swallowed or in contact with skin
EUH066 - Repeated exposure may cause skin dryness or cracking

Precautionary Statements
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P311 - Call a POISON CENTER or doctor/physician
P308 + P311 - IF exposed or concerned: Call a POISON CENTER or doctor

2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

Section 3: Composition/information on ingredients

3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Water	7732-18-5	231-791-2	71.8	-
Methanol	67-56-1	200-659-6	20	Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370)
Acetone	67-64-1	200-662-2	8	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) STOT SE 3 (H336) EUH066
[1,1-Biphenyl]-4,4-diamine, 3,3,5,5-tetramethyl-, dihydrochloride	64285-73-0	EEC No. 264-769-6	0.1	-
Hydrogen peroxide	7722-84-1	231-765-0	0.1	Ox. Liq. 1 (H271) Acute Tox. 4 (H302) Acute Tox. 4 (H332) Skin Corr. 1A (H314) Eye Dam. 1 (H318) STOT SE 3 (H335) Aquatic Chronic 3 (H412)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Methanol	STOT Single Exp. 1 :: >= 10 STOT Single Exp. 2 :: 3 - < 10	-	-
Hydrogen peroxide	Ox. Liq. 1 :: C>=70% Ox. Liq. 2 :: 20%<=C<70% Ox. Liq. 3 :: 8%<=C<20% Skin Corr. 1A :: C>=70% Skin Corr. 1B :: 50%<=C<70% Eye Dam. 1 :: >=8%C<50% Eye Irrit. 2 :: 5%<=C<8% Skin Irrit. 2 :: 35%<=C<50% STOT SE 3 :: C>=35% Aquatic Chronic 3 :: C>=63%	-	-

Full text of Hazard Statements: see section 16

Section 4: First aid measures

4.1. Description of first aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

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

Notes to Physician Treat symptomatically.

Section 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media
Carbon dioxide (CO_2). Powder. Water spray. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products
Nitrogen oxides (NOx).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

Section 7: Handling and storage

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep refrigerated. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany) Class 3

Switzerland - Storage of hazardous substances Storage class - SC 3
https://www.kvu.ch/de/themen/stoffe-und-produkte
https://www.kvu.ch/fr/themes/substances-et-produits
https://www.kvu.ch/it/temi/sostanze-e-prodotti

7.3. Specific end use(s)

Use in laboratories

Section 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits
List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
Methanol	TWA: 200 ppm 8 hr TWA: 260 mg/m³ 8 hr Skin	WEL - TWA: 200 ppm TWA; 266 mg/m³ TWA WEL - STEL: 250 ppm STEL; 333 mg/m³ STEL	TWA / VME: 200 ppm (8 heures). restrictive limit TWA / VME: 260 mg/m³ (8 heures). restrictive limit STEL / VLCT: 1000 ppm. restrictive limit: this value is not set by regulation and comes from a circular published by the Ministry of Labor. STEL / VLCT: 1300 mg/m³. restrictive limit:	TWA: 200 ppm 8 uren TWA: 266 mg/m³ 8 uren STEL: 250 ppm 15 minuten STEL: 333 mg/m³ 15 minuten Huid	TWA / VLA-ED: 200 ppm (8 horas) TWA / VLA-ED: 266 mg/m³ (8 horas) Piel

			this value is not set by regulation and comes from a circular published by the Ministry of Labor. Peau		
Acetone	TWA: 500 ppm (8h) TWA: 1210 mg/m³ (8h)	TWA: 500 ppm TWA: 1210 mg/m³ STEL: 1500 ppm STEL: 3620 mg/m³	TWA / VME: 500 ppm (8 heures). restrictive limit TWA / VME: 1210 mg/m³ (8 heures). restrictive limit STEL / VLCT: 1000 ppm. restrictive limit STEL / VLCT: 2420 mg/m³. restrictive limit	TWA: 246 ppm 8 uren TWA: 594 mg/m³ 8 uren STEL: 492 ppm 15 minuten STEL: 1187 mg/m³ 15 minuten	TWA / VLA-ED: 500 ppm (8 horas) TWA / VLA-ED: 1210 mg/m³ (8 horas)
Hydrogen peroxide		STEL: 2 ppm 15 min STEL: 2.8 mg/m³ 15 min TWA: 1 ppm 8 hr TWA: 1.4 mg/m³ 8 hr	TWA / VME: 1 ppm (8 heures). TWA / VME: 1.5 mg/m³ (8 heures).	TWA: 1 ppm 8 uren TWA: 1.4 mg/m³ 8 uren	TWA / VLA-ED: 1 ppm (8 horas) TWA / VLA-ED: 1.4 mg/m³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Methanol	TWA: 200 ppm 8 ore. Time Weighted Average TWA: 260 mg/m³ 8 ore. Time Weighted Average Pelle	100 ppm TWA MAK; 130 mg/m³ TWA MAKSkin absorber	STEL: 250 ppm 15 minutos TWA: 200 ppm 8 horas TWA: 260 mg/m³ 8 horas Pele	huid TWA: 100 ppm 8 uren TWA: 133 mg/m³ 8 uren	TWA: 200 ppm 8 tunteina TWA: 270 mg/m³ 8 tunteina STEL: 250 ppm 15 minuutteina STEL: 330 mg/m³ 15 minuutteina Iho
Acetone	TWA: 500 ppm 8 ore. Time Weighted Average TWA: 1210 mg/m³ 8 ore. Time Weighted Average	TWA: 500 ppm TWA: 1200 mg/m³	STEL: 750 ppm 15 minutos TWA: 500 ppm 8 horas TWA: 1210 mg/m³ 8 horas	STEL: 1 ppm 15 minuten STEL: 2420 mg/m³ 15 minuten TWA: 500 ppm 8 uren TWA: 1210 mg/m³ 8 uren	TWA: 500 ppm 8 tunteina TWA: 1200 mg/m³ 8 tunteina STEL: 630 ppm 15 minuutteina STEL: 1500 mg/m³ 15 minuutteina
Hydrogen peroxide		TWA: 0.5 ppm (8 Stunden). AGW - TWA: 0.71 mg/m³ (8 Stunden). AGW - exposure factor 1 TWA: 0.5 ppm (8 Stunden). MAK TWA: 0.71 mg/m³ (8 Stunden). MAK Höhepunkt: 0.5 ppm Höhepunkt: 0.71 mg/m³	TWA: 1 ppm 8 horas		TWA: 1 ppm 8 tunteina TWA: 1.4 mg/m³ 8 tunteina STEL: 3 ppm 15 minuutteina STEL: 4.2 mg/m³ 15 minuutteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Methanol	Haut MAK-KZGW: 800 ppm 15 Minuten MAK-KZGW: 1040 mg/m³ 15 Minuten MAK-TMW: 200 ppm 8 Stunden MAK-TMW: 260 mg/m³ 8 Stunden	TWA: 200 ppm 8 timer TWA: 260 mg/m³ 8 timer STEL: 400 ppm 15 minutter STEL: 520 mg/m³ 15 minutter Hud	Haut/Peau STEL: 400 ppm 15 Minuten STEL: 520 mg/m³ 15 Minuten TWA: 200 ppm 8 Stunden TWA: 260 mg/m³ 8 Stunden	STEL: 300 mg/m³ 15 minutach TWA: 100 mg/m³ 8 godzinach	TWA: 100 ppm 8 timer TWA: 130 mg/m³ 8 timer STEL: 150 ppm 15 minutter. value calculated STEL: 162.5 mg/m³ 15 minutter. value calculated Hud
Acetone	MAK-KZGW: 2000 ppm 15 Minuten MAK-KZGW: 4800 mg/m³ 15 Minuten MAK-TMW: 500 ppm 8 Stunden MAK-TMW: 1200 mg/m³ 8 Stunden	TWA: 250 ppm 8 timer TWA: 600 mg/m³ 8 timer STEL: 500 ppm 15 minutter STEL: 1200 mg/m³ 15 minutter	STEL: 1000 ppm 15 Minuten STEL: 2400 mg/m³ 15 Minuten TWA: 500 ppm 8 Stunden TWA: 1200 mg/m³ 8 Stunden	STEL: 1800 mg/m³ 15 minutach TWA: 600 mg/m³ 8 godzinach	TWA: 125 ppm 8 timer TWA: 295 mg/m³ 8 timer STEL: 156.25 ppm 15 minutter. value calculated STEL: 368.75 mg/m³ 15 minutter. value calculated
Hydrogen peroxide	MAK-KZGW: 2 ppm 15 Minuten	TWA: 1 ppm 8 timer TWA: 1.4 mg/m³ 8 timer	STEL: 2 ppm 15 Minuten	STEL: 0.8 mg/m³ 15 minutach	TWA: 1 ppm 8 timer TWA: 1.4 mg/m³ 8 timer

	MAK-KZGW: 2.8 mg/m³ 15 Minuten MAK-TMW: 1 ppm 8 Stunden MAK-TMW: 1.4 mg/m³ 8 Stunden	STEL: 2 ppm 15 minutter STEL: 2.8 mg/m³ 15 minutter	STEL: 2.8 mg/m³ 15 Minuten TWA: 1 ppm 8 Stunden TWA: 1.4 mg/m³ 8 Stunden	TWA: 0.4 mg/m³ 8 godzinach	STEL: 3 ppm 15 minutter. value calculated STEL: 2.8 mg/m³ 15 minutter. value calculated

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Methanol	TWA: 200 ppm TWA: 260.0 mg/m³ Skin notation	kože TWA-GVI: 200 ppm 8 satima. TWA-GVI: 260 mg/m³ 8 satima.	TWA: 200 ppm 8 hr. TWA: 260 mg/m³ 8 hr. STEL: 600 ppm 15 min STEL: 780 mg/m³ 15 min Skin	Skin-potential for cutaneous absorption TWA: 200 ppm TWA: 260 mg/m³	TWA: 250 mg/m³ 8 hodinách. Potential for cutaneous absorption Ceiling: 1000 mg/m³
Acetone	TWA: 600 mg/m³ STEL : 1400 mg/m³	TWA-GVI: 500 ppm 8 satima. TWA-GVI: 1210 mg/m³ 8 satima.	TWA: 500 ppm 8 hr. TWA: 1210 mg/m³ 8 hr. STEL: 1500 ppm 15 min STEL: 3630 mg/m³ 15 min	Skin-potential for cutaneous absorption TWA: 500 ppm TWA: 1210 mg/m³	TWA: 800 mg/m³ 8 hodinách. Ceiling: 1500 mg/m³
Hydrogen peroxide	TWA: 1.5 mg/m³	TWA-GVI: 1 ppm 8 satima. TWA-GVI: 1.4 mg/m³ 8 satima. STEL-KGVI: 2 ppm 15 minutama. STEL-KGVI: 2.8 mg/m³ 15 minutama.	TWA: 1 ppm 8 hr. TWA: 1.5 mg/m³ 8 hr. STEL: 3 mg/m³ 15 min STEL: 2 ppm 15 min		TWA: 1 mg/m³ 8 hodinách. Ceiling: 2 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Methanol	Nahk TWA: 200 ppm 8 tundides. TWA: 250 mg/m³ 8 tundides. STEL: 250 ppm 15 minutites. STEL: 350 mg/m³ 15 minutites.	Skin notation TWA: 200 ppm 8 hr TWA: 260 mg/m³ 8 hr	skin - potential for cutaneous absorption STEL: 250 ppm STEL: 325 mg/m³ TWA: 200 ppm TWA: 260 mg/m³	TWA: 260 mg/m³ 8 órában. AK TWA: 200 ppm 8 órában. AK lehetséges borön keresztüli felszívódás	TWA: 200 ppm 8 klukkustundum. TWA: 260 mg/m³ 8 klukkustundum. Skin notation Ceiling: 400 ppm Ceiling: 520 mg/m³
Acetone	TWA: 500 ppm 8 tundides. TWA: 1210 mg/m³ 8 tundides.	TWA: 500 ppm 8 hr TWA: 1210 mg/m³ 8 hr	STEL: 3560 mg/m³ TWA: 1780 mg/m³	TWA: 500 ppm 8 órában. AK TWA: 1210 mg/m³ 8 órában. AK	TWA: 250 ppm 8 klukkustundum. TWA: 600 mg/m³ 8 klukkustundum. Ceiling: 500 ppm Ceiling: 1200 mg/m³
Hydrogen peroxide	TWA: 1 ppm 8 tundides. TWA: 1.4 mg/m³ 8 tundides. STEL: 2 ppm 15 minutites. STEL: 3 mg/m³ 15 minutites.		STEL: 3 mg/m³ TWA: 1 ppm TWA: 1.4 mg/m³		TWA: 1 ppm 8 klukkustundum. TWA: 1.4 mg/m³ 8 klukkustundum. Ceiling: 2 ppm Ceiling: 2.8 mg/m³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Methanol	skin - potential for cutaneous exposure TWA: 200 ppm TWA: 260 mg/m³	TWA: 200 ppm IPRD TWA: 260 mg/m³ IPRD Oda	Possibility of significant uptake through the skin TWA: 200 ppm 8 Stunden TWA: 260 mg/m³ 8 Stunden	possibility of significant uptake through the skin TWA: 200 ppm TWA: 260 mg/m³	Skin notation TWA: 200 ppm 8 ore TWA: 260 mg/m³ 8 ore
Acetone	TWA: 500 ppm TWA: 1210 mg/m³	TWA: 500 ppm IPRD TWA: 1210 mg/m³ IPRD STEL: 1000 ppm STEL: 2420 mg/m³	TWA: 500 ppm 8 Stunden TWA: 1210 mg/m³ 8 Stunden	TWA: 500 ppm TWA: 1210 mg/m³	TWA: 500 ppm 8 ore TWA: 1210 mg/m³ 8 ore
Hydrogen peroxide		Ceiling: 2 ppm Ceiling: 3 mg/m³ TWA: 1 ppm IPRD TWA: 1.4 mg/m³ IPRD			

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Methanol	TWA: 5 mg/m³ 1250 Skin notation MAC: 15 mg/m³	Potential for cutaneous absorption TWA: 200 ppm TWA: 260 mg/m³	TWA: 200 ppm 8 urah TWA: 260 mg/m³ 8 urah Kožа STEL: 800 ppm 15 minutah STEL: 1040 mg/m³ 15 minutah	Indicative STEL: 250 ppm 15 minuter Indicative STEL: 350 mg/m³ 15 minuter TLV: 200 ppm 8 timmar. NGV TLV: 250 mg/m³ 8 timmar. NGV Hud	Deri TWA: 200 ppm 8 saat TWA: 260 mg/m³ 8 saat
Acetone	TWA: 200 mg/m³ 1763 MAC: 800 mg/m³	TWA: 500 ppm TWA: 1210 mg/m³	TWA: 500 ppm 8 urah TWA: 1210 mg/m³ 8 urah STEL: 2420 mg/m³ 15 minutah STEL: 1000 ppm 15 minutah	Indicative STEL: 500 ppm 15 minuter Indicative STEL: 1200 mg/m³ 15 minuter TLV: 250 ppm 8 timmar. NGV TLV: 600 mg/m³ 8 timmar. NGV	TWA: 500 ppm 8 saat TWA: 1210 mg/m³ 8 saat
Hydrogen peroxide		Ceiling: 2.8 mg/m³ TWA: 1 ppm TWA: 1.4 mg/m³		Binding STEL: 2 ppm 15 minuter Binding STEL: 3 mg/m³ 15 minuter TLV: 1 ppm 8 timmar. NGV TLV: 1.4 mg/m³ 8 timmar. NGV	

Biological limit values
List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
Methanol			Methanol: urine end of shift	Methanol: 15 mg/L urine end of shift	Methanol: 15 mg/L urine (end of shift) Methanol: 15 mg/L urine (for long-term exposures: at the end of the shift after several shifts)
Acetone			Acetone: urine end of shift	Acetone: 50 mg/L urine end of shift	Acetone: 50 mg/L urine (end of shift)

Component	Italy	Finland	Denmark	Bulgaria	Romania
Methanol					Methanol: 6 mg/L urine end of shift
Acetone				Acetone: 80 mg/L urine at the end of exposure or end of work shift	Acetone: 50 mg/L urine end of shift

Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
Methanol			Methanol: 30 mg/L urine end of exposure or work shift Methanol: 30 mg/L urine after all work shifts for long-term exposure		
Acetone			Acetone: 80 mg/L urine end of exposure or work shift		

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS70 General methods for sampling airborne gases and vapours
MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)
See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Methanol 67-56-1 (20)		DNEL = 20mg/kg bw/day		DNEL = 20mg/kg bw/day
Acetone 67-64-1 (8)				DNEL = 186mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Methanol 67-56-1 (20)	DNEL = 130mg/m^3	DNEL = 130mg/m^3	DNEL = 130mg/m^3	DNEL = 130mg/m^3
Acetone 67-64-1 (8)	DNEL = 2420mg/m^3			DNEL = 1210mg/m^3
Hydrogen peroxide 7722-84-1 (0.1)	DNEL = 3mg/m^3		DNEL = 1.4mg/m^3	

Predicted No Effect Concentration (PNEC)
See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Methanol 67-56-1 (20)	PNEC = 20.8mg/L	PNEC = 77mg/kg sediment dw	PNEC = 1540mg/L	PNEC = 100mg/L	PNEC = 100mg/kg soil dw
Acetone 67-64-1 (8)	PNEC = 10.6mg/L	PNEC = 30.4mg/kg sediment dw	PNEC = 21mg/L	PNEC = 100mg/L	PNEC = 29.5mg/kg soil dw
Hydrogen peroxide 7722-84-1 (0.1)	PNEC = 0.0126mg/L	PNEC = 0.047mg/kg sediment dw	PNEC = 0.0138mg/L	PNEC = 4.66mg/L	PNEC = 0.0023mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water Intermittent	Food chain	Air
Methanol 67-56-1 (20)	PNEC = 2.08mg/L	PNEC = 7.7mg/kg sediment dw			
Acetone 67-64-1 (8)	PNEC = 1.06mg/L	PNEC = 3.04mg/kg sediment dw			
Hydrogen peroxide 7722-84-1 (0.1)	PNEC = 0.0126mg/L	PNEC = 0.047mg/kg sediment dw			

8.2. Exposure controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber Nitrile rubber Neoprene PVC	See manufacturers recommendations	-	EN 374	(minimum requirement)

Skin and body protection Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Particle filtering: EN149:2001
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls No information available.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance		
Odor	No information available	
Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flammability (liquid)	Flammable	Estimated
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	No information available	**Method -** No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	No data available	
Water Solubility	Miscible	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	log Pow
Methanol	-0.74
Acetone	-0.24
Hydrogen peroxide	-1.1

Vapor Pressure	No data available
Density / Specific Gravity	No data available

Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C16 H20 N2
Molecular Weight	240.35
Explosive Properties	explosive air/vapour mixtures possible

Section 10: Stability and reactivity

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx).

Section 11: Toxicological information

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

Product Information

(a) acute toxicity;

Oral	Category 4
Dermal	Category 4
Inhalation	Category 3

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Methanol	LD50 = 1187 – 2769 mg/kg (Rat)	LD50 = 17100 mg/kg (Rabbit)	LC50 = 128.2 mg/L (Rat) 4 h
Acetone	5800 mg/kg (Rat)	> 15800 mg/kg (rabbit) > 7400 mg/kg (rat)	76 mg/l, 4 h, (rat)
Hydrogen peroxide	376 mg/kg (Rat) (90%) 910 mg/kg (Rat) (20-60%) 1518 mg/kg (Rat) (8-20% sol)	>2000 mg/kg (Rabbit)	LC50 = 2000 mg/m³ (Rat) 4 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory No data available
Skin No data available

Component	Test method	Test species	Study result
Methanol 67-56-1 (20)	OECD Test Guideline 406 Guinea Pig Maximisation Test (GPMT)	guinea pig	non-sensitising
Acetone 67-64-1 (8)	Guinea Pig Maximisation Test (GPMT)	guinea pig	non-sensitising

(e) germ cell mutagenicity; No data available

Component	Test method	Test species	Study result
Acetone 67-64-1 (8)	OECD Test Guideline 471 AMES test	in vivo	negative
	OECD Test Guideline 476 Mammalian Gene cell mutation	in vitro	negative

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

Component	Test method	Test species / Duration	Study result
Methanol 67-56-1 (20)	OECD Test Guideline 416	Rat / Inhalation 2 Generation	NOAEC = 1.3 mg/l (air)

(h) STOT-single exposure; Category 1

Results / Target organs Central nervous system (CNS), Optic nerve.

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity effects .

Component	Freshwater Fish	Water Flea	Freshwater Algae
Methanol	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 > 10000 mg/L 24h	
Acetone	Oncorhynchus mykiss: LC50 = 5540 mg/l 96h Alburnus alburnus: LC50 = 11000 mg/l 96h Leuciscus idus: LC50 = 11300 mg/L/48h Salmo gairdneri: LC50 = 6100 mg/L/24h	EC50 = 8800 mg/L/48h EC50 = 12700 mg/L/48h EC50 = 12600 mg/L/48h	NOEC = 430 mg/l (algae; 96 h)
Hydrogen peroxide	LC50: 16.4 mg/L/96h (P.promelas)	EC50 7.7 mg/L/24h	EC50 2.5 mg/L/72h

Component	Microtox	M-Factor
Methanol	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	
Acetone	EC50 = 14500 mg/L/15 min	

12.2. Persistence and degradability

Persistence Miscible with water, Persistence is unlikely, based on information available.

Component	Degradability
Methanol 67-56-1 (20)	DT50 ~ 17.2d >94% after 20d
Acetone 67-64-1 (8)	91 % (28 d) (OECD 301 B)

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Methanol	-0.74	<10 dimensionless
Acetone	-0.24	0.69 dimensionless
Hydrogen peroxide	-1.1	No data available

12.4. Mobility in soil The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment No data available for assessment.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

Section 13: Disposal considerations

13.1. Waste treatment methods

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers

	retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations.
Switzerland - Waste Ordinance	Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600 https://www.fedlex.admin.ch/eli/cc/2015/891/en

Section 14: Transport information

IMDG/IMO

14.1. UN number	UN2810
14.2. UN proper shipping name	Toxic liquid, organic, n.o.s.
Technical Shipping Name	(METHANOL)
14.3. Transport hazard class(es)	6.1
14.4. Packing group	III

ADR

14.1. UN number	UN2810
14.2. UN proper shipping name	Toxic liquid, organic, n.o.s.
Technical Shipping Name	(METHANOL)
14.3. Transport hazard class(es)	6.1
14.4. Packing group	III

IATA

14.1. UN number	UN2810
14.2. UN proper shipping name	TOXIC LIQUID, ORGANIC, N.O.S.*
Technical Shipping Name	(METHANOL)
14.3. Transport hazard class(es)	6.1
14.4. Packing group	III

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

Section 15: Regulatory information

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL

Water	7732-18-5	231-791-2	-	-	X	X	KE-35400	X	-
Methanol	67-56-1	200-659-6	-	-	X	X	KE-23193	X	X
Acetone	67-64-1	200-662-2	-	-	X	X	KE-29367	X	X
[1,1-Biphenyl]-4,4-diamine, 3,3,5,5-tetramethyl-, dihydrochloride	64285-73-0	264-769-6	-	-	-	X	-	-	-
Hydrogen peroxide	7722-84-1	231-765-0	-	-	X	X	KE-20204	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Water	7732-18-5	X	ACTIVE	X	-	X	X	X
Methanol	67-56-1	X	ACTIVE	X	-	X	X	X
Acetone	67-64-1	X	ACTIVE	X	-	X	X	X
[1,1-Biphenyl]-4,4-diamine, 3,3,5,5-tetramethyl-, dihydrochloride	64285-73-0	X	ACTIVE	-	X	-	X	-
Hydrogen peroxide	7722-84-1	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Methanol	67-56-1	-	Use restricted. See entry 69. (see link for restriction details) Use restricted. See entry 75. (see link for restriction details)	-
Acetone	67-64-1	-	Use restricted. See entry 75. (see link for restriction details)	-
[1,1-Biphenyl]-4,4-diamine, 3,3,5,5-tetramethyl-, dihydrochloride	64285-73-0	-	-	-
Hydrogen peroxide	7722-84-1	-	Use restricted. See entry 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Water	7732-18-5	Not applicable	Not applicable
Methanol	67-56-1	500 tonne	5000 tonne
Acetone	67-64-1	Not applicable	Not applicable
[1,1-Biphenyl]-4,4-diamine, 3,3,5,5-tetramethyl-, dihydrochloride	64285-73-0	Not applicable	Not applicable
Hydrogen peroxide	7722-84-1	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and

import of dangerous chemicals
Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification Water endangering class = 2 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Methanol	WGK 2	Class I : 20 mg/m³ (Massenkonzentration)
Acetone	WGK1	
Hydrogen peroxide	WGK1	

Component	France - INRS (Tables of occupational diseases)
Methanol	Tableaux des maladies professionnelles (TMP) - RG 84
Acetone	Tableaux des maladies professionnelles (TMP) - RG 84

Swiss Regulations
Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).
Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Methanol 67-56-1 (20)	Prohibited and Restricted Substances	Group I	
Acetone 67-64-1 (8)		Group I	

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

Section 16: Other information

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H331 - Toxic if inhaled
H370 - Causes damage to organs
EUH066 - Repeated exposure may cause skin dryness or cracking
H225 - Highly flammable liquid and vapor
H271 - May cause fire or explosion; strong oxidizer
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H336 - May cause drowsiness or dizziness

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - (volatile organic compound)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards	On basis of test data
Health Hazards	Calculation method
Environmental hazards	Calculation method

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

Prepared By	Health, Safety and Environmental Department
Revision Date	30-Nov-2024
Revision Summary	Not applicable.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 .

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information

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End of Safety Data Sheet