SAFETY DATA SHEET

Creation Date 19-May-2011 **Revision Date** 15-Jan-2016 **Revision Number** 5

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

1.1. Product identification

Product Description: **Aqualine AG-H**
Cat No. : **K/2530/08**

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 Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom
E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 2

Health hazards

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity - (single exposure)	Category 1
Specific target organ toxicity - (repeated exposure)	Category 2

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

2.2. Label elements

Signal Word **Danger**

Hazard Statements

H225 - Highly flammable liquid and vapor
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H370 - Causes damage to organs
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/ physician
P308 + P313 - IF exposed or concerned: Get medical advice/ attention

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Methyl alcohol	67-56-1	200-659-6	40 - 60	Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370)
Amyl alcohol	71-41-0	EEC No. 200-752-1	10 - 20	Acute Tox. 4 (H332) Flam. Liq. 3 (H226) STOT SE 3 (H335) Skin Irrit. 2 (H315)
2-Amino-2-methyl-1-propanol	124-68-5	EEC No. 204-709-8	10 - 20	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Aquatic Chronic 3 (H412)
Pyridine, 2,4,6-trimethyl-	108-75-8	EEC No. 203-613-3	5 - 15	Flam Liq. 3 (H226) Acute Tox. 3 (H311) Acute Tox. 4 (H302) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335)
Sulfur dioxide	7446-09-5	EEC No. 231-195-2	5 - 10	Acute Tox. 3 (H331) Skin Corr. 1B (H314) Eye Dam. 1 (H318)
Iodine	7553-56-2	EEC No. 231-442-4	5 - 10	Met. Corr. 1 (H290)

				Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) STOT RE 1 (H372) Aquatic Acute 1 (H400)
Toluene-4-sulfonic acid monohydrate	6192-52-5		< 1	Skin Corr. 1C (H314) Eye Dam. 1 (H318)

Component	Reach Registration Number	
Methyl alcohol	01-2119433307-44	
Sulfur dioxide	01-2119485028-34	
Iodine	01-2119485285-30	

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

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 Move to fresh air. 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. If not breathing, give artificial respiration.

Protection of First-aiders 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

Breathing difficulties. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

Notes to Physician Ethanol may inhibit methanol metabolism. Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

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
Carbon monoxide (CO), Carbon dioxide (CO_2), Nitrogen oxides (NOx), Sulfur oxides, Hydrogen iodide, Formaldehyde.

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

Use personal protective equipment. 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

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Do not breathe vapors/dust. Do not ingest. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

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 before re-use. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat and sources of ignition. Corrosives area.

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 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Methyl alcohol	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. STEL / VLCT: 1300 mg/m³. Peau	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
Sulfur dioxide			TWA / VME: 2 ppm (8 heures). TWA / VME: 5 mg/m³ (8 heures). STEL / VLCT: 5 ppm. STEL / VLCT: 10 mg/m³.	TWA: 2 ppm 8 uren TWA: 5.3 mg/m³ 8 uren STEL: 5 ppm 15 minuten STEL: 13 mg/m³ 15 minuten	STEL / VLA-EC: 2 ppm (15 minutos). STEL / VLA-EC: 5.28 mg/m³ (15 minutos). TWA / VLA-ED: 0.5 ppm (8 horas) TWA / VLA-ED: 1.32 mg/m³ (8 horas)
Iodine		STEL: 0.1 ppm 15 min STEL: 1.1 mg/m³ 15 min	STEL / VLCT: 0.1 ppm. STEL / VLCT: 1 mg/m³.	TWA: 0.01 ppm 8 uren TWA: 0.1 mg/m³ 8 uren STEL: 0.1 ppm 15 minuten STEL: 1 mg/m³ 15 minuten	STEL / VLA-EC: 0.1 ppm (15 minutos). STEL / VLA-EC: 1 mg/m³ (15 minutos).

Component	Italy	Germany	Portugal	The Netherlands	Finland
Methyl alcohol	TWA: 200 ppm 8 ore. Media Ponderata nel Tempo TWA: 260 mg/m³ 8 ore. Media Ponderata nel Tempo Pelle	200 ppm TWA; 270 mg/m³ TWA Skin absorber	STEL: 250 ppm 15 minutos TWA: 200 ppm 8 horas TWA: 260 mg/m³ 8 horas Pele	huid TWA: 133 mg/m³ 8 uren TWA: 100 ppm 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
Amyl alcohol		TWA: 20 ppm (8 Stunden). MAK TWA: 73 mg/m³ (8 Stunden). MAK Höhepunkt: 20 ppm Höhepunkt: 146 mg/m³			TWA: 100 ppm 8 tunteina TWA: 370 mg/m³ 8 tunteina STEL: 150 ppm 15 minuutteina STEL: 550 mg/m³ 15 minuutteina
2-Amino-2-methyl-1-propanol		TWA: 1 ppm (8 Stunden). AGW - exposure factor 2 TWA: 4.6 mg/m³ (8 Stunden). AGW - exposure factor 2 TWA: 1 ppm (8 Stunden). MAK can occur as vapor and aerosol at the same time TWA: 3.7 mg/m³ (8 Stunden). MAK can occur as vapor and aerosol at the same time			

		Höhepunkt: 2 ppm Höhepunkt: 7.4 mg/m³ Haut			
Sulfur dioxide		TWA: 1 ppm TWA: 2.5 mg/m³	STEL: 5 ppm 15 minutos TWA: 2 ppm 8 horas	STEL: 0.7 mg/m³ MAC: 2 ppm MAC: 5 mg/m³	TWA: 1 ppm 8 tunteina TWA: 2.7 mg/m³ 8 tunteina STEL: 4 ppm 15 minuutteina STEL: 11 mg/m³ 15 minuutteina
Iodine		Haut			STEL: 0.1 ppm 15 minuutteina STEL: 1.1 mg/m³ 15 minuutteina Iho

Component	Austria	Denmark	Switzerland	Poland	Norway
Methyl alcohol	Haut MAK-KZW: 800 ppm 15 Minuten MAK-KZW: 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 Hud	Haut/Peau STEL: 800 ppm 15 Minuten STEL: 1040 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: 100 ppm 15 minutter. STEL: 130 mg/m³ 15 minutter. Hud
Amyl alcohol	MAK-KZW: 200 ppm 15 Minuten MAK-KZW: 720 mg/m³ 15 Minuten MAK-TMW: 100 ppm 8 Stunden MAK-TMW: 360 mg/m³ 8 Stunden	TWA: 100 ppm 8 timer TWA: 360 mg/m³ 8 timer	STEL: 80 ppm 15 Minuten STEL: 292 mg/m³ 15 Minuten TWA: 20 ppm 8 Stunden TWA: 73 mg/m³ 8 Stunden	STEL: 450 mg/m³ 15 minutach TWA: 100 mg/m³ 8 godzinach	
Sulfur dioxide	MAK-KZW: 4 ppm 15 Minuten MAK-KZW: 10 mg/m³ 15 Minuten MAK-TMW: 2 ppm 8 Stunden MAK-TMW: 5 mg/m³ 8 Stunden	TWA: 0.5 ppm 8 timer TWA: 1.3 mg/m³ 8 timer	STEL: 0.5 ppm 15 Minuten STEL: 1.3 mg/m³ 15 Minuten TWA: 0.5 ppm 8 Stunden TWA: 1.3 mg/m³ 8 Stunden	STEL: 2.7 mg/m³ 15 minutach TWA: 1.3 mg/m³ 8 godzinach	TWA: 0.8 ppm 8 timer TWA: 2 mg/m³ 8 timer STEL: 0.8 ppm 15 minutter. STEL: 2 mg/m³ 15 minutter.
Iodine	Haut MAK-KZW: 0.1 ppm 15 Minuten MAK-KZW: 1 mg/m³ 15 Minuten MAK-TMW: 0.1 ppm 8 Stunden MAK-TMW: 1 mg/m³ 8 Stunden Ceiling: 0.1 ppm Ceiling: 1 mg/m³	Ceiling: 0.1 ppm Ceiling: 1 mg/m³	Haut/Peau STEL: 0.1 ppm 15 Minuten STEL: 1 mg/m³ 15 Minuten TWA: 0.1 ppm 8 Stunden TWA: 1 mg/m³ 8 Stunden	STEL: 1 mg/m³ 15 minutach TWA: 0.5 mg/m³ 8 godzinach	Ceiling: 0.1 ppm Ceiling: 1 mg/m³

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Methyl alcohol	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
Amyl alcohol	TWA: 100 mg/m³				
Sulfur dioxide	TWA: 5.0 mg/m³ STEL : 10.0 mg/m³	TWA-GVI: 2 ppm 8 satima. TWA-GVI: 5 mg/m³ 8 satima. STEL-KGVI: 5 ppm 15 minutama. STEL-KGVI: 10 mg/m³	TWA: 0.5 ppm 8 hr. TWA: 1.3 mg/m³ 8 hr. STEL: 1 ppm 15 min STEL: 2.6 mg/m³ 15 min		TWA: 5 mg/m³ 8 hodinách. Ceiling: 5 mg/m³

		15 minutama.			
Iodine	TWA: 3.0 mg/m³	STEL-KGVI: 0.1 ppm 15 minutama. STEL-KGVI: 1.1 mg/m³ 15 minutama.	STEL: 0.1 ppm 15 min STEL: 1 mg/m³ 15 min		TWA: 0.1 mg/m³ 8 hodinách. Ceiling: 1 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Methyl alcohol	Nahk TWA: 200 ppm 8 tundides. TWA: 260 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 lehetséges borön keresztüli felszívódás	TWA: 200 ppm 8 klukkustundum. TWA: 260 mg/m³ 8 klukkustundum. Skin notation Ceiling: 400 ppm Ceiling: 520 mg/m³
Amyl alcohol					TWA: 100 ppm 8 klukkustundum. TWA: 360 mg/m³ 8 klukkustundum. Ceiling: 200 ppm Ceiling: 720 mg/m³
Sulfur dioxide	TWA: 2 ppm 8 tundides. TWA: 5 mg/m³ 8 tundides. Ceiling: 5 ppm Ceiling: 13 mg/m³		STEL: 5 ppm STEL: 13 mg/m³ TWA: 2 ppm TWA: 5 mg/m³	STEL: 5 mg/m³ 15 percekben. CK TWA: 5 mg/m³ 8 órában. AK	TWA: 0.5 ppm 8 klukkustundum. TWA: 1.3 mg/m³ 8 klukkustundum. Ceiling: 1 ppm Ceiling: 2.6 mg/m³
Iodine	Ceiling: 0.1 ppm Ceiling: 1 mg/m³		STEL: 0.1 ppm STEL: 1 mg/m³ TWA: 0.1 ppm TWA: 1 mg/m³	STEL: 1 mg/m³ 15 percekben. CK TWA: 1 mg/m³ 8 órában. AK lehetséges borön keresztüli felszívódás	STEL: 0.1 ppm STEL: 1 mg/m³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Methyl alcohol	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 STEL: 5 ppm 15 minute
Amyl alcohol	TWA: 10 mg/m³				
Sulfur dioxide	TWA: 6 mg/m³	Ceiling: 5 ppm Ceiling: 13 mg/m³ TWA: 2 ppm IPRD TWA: 5 mg/m³ IPRD			TWA: 2 ppm 8 ore TWA: 5 mg/m³ 8 ore STEL: 4 ppm 15 minute STEL: 10 mg/m³ 15 minute
Iodine	TWA: 1 mg/m³	Ceiling: 0.1 ppm Ceiling: 1 mg/m³			TWA: 0.09 ppm 8 ore TWA: 0.50 mg/m³ 8 ore STEL: 0.2 ppm 15 minute STEL: 1 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Methyl alcohol	TWA: 5 mg/m³ Skin notation STEL: 15 mg/m³ vapor	Potential for cutaneous absorption TWA: 200 ppm TWA: 260 mg/m³	TWA: 200 ppm 8 urah TWA: 260 mg/m³ 8 urah Koža	STV: 250 ppm 15 minuter STV: 350 mg/m³ 15 minuter LLV: 200 ppm 8 timmar. LLV: 250 mg/m³ 8 timmar. Hud	Deri TWA: 200 ppm 8 saat TWA: 260 mg/m³ 8 saat
Amyl alcohol	Skin notation MAC: 10 mg/m³		TWA: 360 mg/m³ 8 urah		
Sulfur dioxide	Skin notation MAC: 10 mg/m³	Ceiling: 2.7 mg/m³ TWA: 0.5 ppm	TWA: 0.5 ppm 8 urah TWA: 1.3 mg/m³ 8 urah	LLV: 2 ppm 8 timmar. LLV: 5 mg/m³ 8 timmar.	

		TWA: 1.3 mg/m³		CLV: 5 ppm CLV: 13 mg/m³	
Iodine	Skin notation MAC: 1 mg/m³	Ceiling: 1.1 mg/m³ TWA: 0.1 ppm TWA: 1.1 mg/m³	TWA: 0.1 ppm 8 urah TWA: 1.1 mg/m³ 8 urah Kože STEL: 0.1 ppm 15 minutah STEL: 1.1 mg/m³ 15 minutah	CLV: 0.1 ppm CLV: 1 mg/m³	

Biological limit values
List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
Methyl alcohol			Methanol: 15 mg/L urine end of shift	Methanol: 15 mg/L urine end of shift	Methanol: 30 mg/L urine (end of shift) Methanol: 30 mg/L urine (end of several shifts for long-term exposures)

Component	Italy	Finland	Denmark	Bulgaria	Romania
Methyl alcohol					Methanol: 6 mg/L urine end of shift

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

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) No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.
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 Goggles (European standard - EN 166)
Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Viton (R)	See manufacturers recommendations	-	EN 374	(minimum requirement)

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure 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.
Remove 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: low boiling organic solvent Type AX Brown conforming to EN371 or Organic gases and vapours filter Type A Brown conforming to EN14387

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:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
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

Appearance	No information available	
Physical State	Liquid	
Odor	No information available	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	12 °C / 53.6 °F	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	No data available	
Bulk Density	Not applicable	Liquid
Water Solubility	Miscible	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	log Pow
Methyl alcohol	-0.74
Amyl alcohol	1.4
2-Amino-2-methyl-1-propanol	-0.63
Iodine	2.49

Autoignition Temperature	No data available
Decomposition Temperature	No data available

Viscosity	No data available	
Explosive Properties	No information available	Vapors may form explosive mixtures with air
Oxidizing Properties	No information available	

9.2. Other information

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	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Powdered metals.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2). Nitrogen oxides (NOx). Sulfur oxides. Hydrogen iodide. Formaldehyde.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral	Category 3
Dermal	Category 3
Inhalation	Category 3

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl alcohol	**Calc. ATE 60 mg/kg** LD50 > 1187 – 2769 mg/kg (Rat)	**Calc. ATE 60 mg/kg** LD50 = 17100 mg/kg (Rabbit)	**Calc. ATE 0.6 mg/L (vapours) or 0.5 mg/L (mists)** LC50 = 128.2 mg/L (Rat) 4 h
Amyl alcohol	LD50 = 5660 µL/kg (Rat)	LD50 = 2000 mg/kg (Rabbit)	
2-Amino-2-methyl-1-propanol	LD50 = 2900 mg/kg (Rat)	>2000 mg/kg (Rabbit)	
Pyridine, 2,4,6-trimethyl-	400 mg/kg (Rat)	1000 mg/kg (Guinea Pig)	
Sulfur dioxide			Per CGA P-20: 2500 ppm/1hr (Rat)
Iodine	315 mg/kg (Rat)	1425 mg/kg (Rabbit)	4.588 mg/L 4h (Rat)
Toluene-4-sulfonic acid monohydrate	2570 mg/kg (Rat)		

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 1

(i) STOT-repeated exposure; Category 2

Target Organs Liver, kidney, and respiratory system, Optic nerve, Central nervous system (CNS).

(j) aspiration hazard; No data available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects .

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Methyl alcohol	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 > 10000 mg/L 24h		EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min
Amyl alcohol	LC50: 370 - 490 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 650 mg/L, 96h static (Lepomis macrochirus) LC50: = 530 mg/L, 96h static (Brachydanio rerio) LC50: 437 - 511 mg/L, 96h flow-through (Pimephales promelas)	EC50: = 341 mg/L, 48h (Daphnia magna)	EC50: = 1100 mg/L, 24h (Desmodesmus subspicatus)	
2-Amino-2-methyl-1-propanol	LC50: = 190 mg/L, 96h static (Lepomis macrochirus)	EC50: = 193 mg/L, 48h (Daphnia magna)	EC50: = 520 mg/L, 72h (Desmodesmus subspicatus)	
Iodine	LC50 = 1.67 mg/L 96h	EC50 = 0.55 mg/L 48h		

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

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Methyl alcohol	-0.74	10 (fish)

Amyl alcohol	1.4	No data available
2-Amino-2-methyl-1-propanol	-0.63	<1
Iodine	2.49	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. Other adverse effects

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors
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 Catalogue, 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 dispose of waste into sewer. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1992
14.2. UN proper shipping name FLAMMABLE LIQUID, TOXIC, N.O.S
14.3. Transport hazard class(es) 3
Subsidiary Hazard Class 6.1
14.4. Packing group II

ADR

14.1. UN number UN1992
14.2. UN proper shipping name FLAMMABLE LIQUID, TOXIC, N.O.S
14.3. Transport hazard class(es) 3
Subsidiary Hazard Class 6.1
14.4. Packing group II

IATA

14.1. UN number UN1992
14.2. UN proper shipping name FLAMMABLE LIQUID, TOXIC, N.O.S
14.3. Transport hazard class(es) 3
Subsidiary Hazard Class 6.1
14.4. Packing group II

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Methyl alcohol	200-659-6	-		X	X	-	X	X	X	X	X
Amyl alcohol	200-752-1	-		X	X	-	X	X	X	X	X
2-Amino-2-methyl-1-propanol	204-709-8	-		X	X	-	X	X	X	X	X
Pyridine, 2,4,6-trimethyl-	203-613-3	-		X	X	-	X	X	X	X	-
Sulfur dioxide	231-195-2	-		X	X	-	X	X	X	X	X
Iodine	231-442-4	-		X	X	-	X	-	X	X	X
Toluene-4-sulfonic acid monohydrate	-	-		-	-	-	X	-	X	X	-

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Methyl alcohol	500 tonne	5000 tonne

National Regulations

WGK Classification Water endangering class = 1

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Methyl alcohol	WGK 1 WGK 2	
Amyl alcohol	WGK 1	
2-Amino-2-methyl-1-propanol	WGK 1	
Sulfur dioxide	WGK 1	
Iodine	WGK 1 WGK 2	

Component	France - INRS (Tables of occupational diseases)
Methyl alcohol	Tableaux des maladies professionnelles (TMP) - RG 84
Amyl alcohol	Tableaux des maladies professionnelles (TMP) - RG 84

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.
Take note of Dir 94/33/EC on the protection of young people at work
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

15.2. Chemical safety assessment

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

SECTION 16: OTHER INFORMATION

Full Text of H-/EUH-Statements Referred to Under Section 3
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H370 - Causes damage to organs
H373 - May cause damage to organs through prolonged or repeated exposure
H225 - Highly flammable liquid and vapor
H226 - Flammable liquid and vapor

H290 - May be corrosive to metals
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

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
PNEC - Predicted No Effect Concentration
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 Compounds

Key literature references and sources for data
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.
Chemical incident response training.
Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

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This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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 relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet