

## **RBMR Chemical tanks cleaning**

### **Scope of work**

- Cleaning of vessels contaminated with chemicals.

### **Abbreviations**

CLIENT – ANGLO PLATINUM LIMITED

MAIN CONTRACTOR – INTERWASTE (PTY) LTD

SUB CONTRACTOR – ITD INDUSTECH TRANSPORT DIVISION t/a Industech

### **Method Statement**

- **Strict adherence to this method statement is critical to the health and safety of all engaged in the work.**
- **Any deviation must first be authorised by the Site Supervisor.**
- Vessels to be vented for a minimum of +/-24 hours prior to cleaning.
- Opening of all manholes and covers of the vessel.
- Decontamination chamber with chemical showers to be erected outside of vessels.
- Bund area and wash bay area to be created prior to cleaning of vessels.
- Cleaning technicians to enter vessels on compressed air, breathing apparatus, confined space entry and chemical suits as well as PPE.
- Internally cleaning of tanks with environmentally friendly degreasers and extension lances.
- Collapsible ladder to be placed into tanks should there be a height issue with reaching top of tanks (if necessary).
- Confined space entry into vessels to make it safe for decommissioning.
- Contents of tank to be pumped out with a 180 CFM compressor and diaphragm pump.
- Effluent water and waste to be handled by **INTERWASTE** for disposal.
- High pressure hot water cleaning of bund area upon completion of vessels.
- Hydro-carbon absorbent booms to be placed near drains to prevent run-off from entering storm water lines.

### **Location and Access**

Waterval Farm 303JQ, Old Main Road, Rustenburg, 0300, South Africa

### **Working Environment & Restrictions**

Work is restricted to daytime operations.

### **Protection of others**

- Exclusion/Danger zones identified and no personnel to have access to these areas during operations.
- Signage to be placed at entrances.

### **Emergency Procedures**

Normal evacuation procedure applies. Also see fall protection plan as per file.

If any personnel are injured, the supervisor on site does know where the nearest clinic/hospital is.

### **Rescue Plan**

Cleaning technician on standby with compressed air cylinders.

**Operative/Competence**

Operators to be skilled in use of equipment.

**Personal Protective Equipment**

- Safety Footwear
- Hard Hats
- General Protective Gloves
- Safety Goggles
- Full face respirators
- Chemical Suits, etc.

**Plant and Equipment**

- High pressure Cleaners, Drip trays, Fire Extinguishers
- 7.5m Extension lance
- 10m Extension pole
- Chemical Suits
- Compressed air cylinders
- Breathing apparatus
- Collapsible ladder
- 180 CFM Compressor
- Mops, rags, brooms, brushes, extension brushes
- Sign Boards
- Hydrocarbon booms & scatter
- Diaphragm pump
- Chemical shower
- Hotbox

**Materials Handling/Storage & Safety Information**

Flammable chemicals, High toxicity levels, acidic

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# INTERWASTE

ENVIRONMENTAL  
SOLUTIONS

# Material Safety Data Sheet - MSDS

## CAUSTIC SODA SOLUTION AT 50%

Product:  
MSDS No. : 002

Version: 04

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### 01 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

PRODUCT NAME CAUSTIC SODA LIQUID AT 50%  
SDS No. 002

### 02 - COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME OF THE SUBSTANCE SODIUM HYDROXIDE 50%  
AQUEOUS SOLUTION

Chemical Name	Synonyms	EC-NO.	CAS-No.	Concentration	Classification Directive 67/548/EEC	Classification Regulation (EC) No 1272/2008 (GHS)
Sodium hydroxide	Caustic soda	215-185-5	1310-73-2	> 49.5 - 50.0%	C; R35	Skin Corr. 1A; H314 Eye Dam. 1; H318 Met. Corr; H290

### 03 - HAZARDS IDENTIFICATION

MOST IMPORTANT HAZARDS  
HEALTH EFFECTS

PHYSICAL AND CHEMICAL HAZARDS  
SPECIFIC HAZARDS / EC  
LABEL ELEMENTS (REGULATION (EC) NO  
1272/2008) IN ACCORDANCE WITH GHS  
Name:

SAFETY INFORMATION : PLEASE READ THIS SHEET CAREFULLY  
Skin corrosion, 1A, H314  
Risk of serious damage to eyes, 1, H318  
CORROSIVE to metals, 1, H290  
At high temperature : forms flammable and explosive hydrogen through

Sodium hydroxide; caustic soda



Hazard pictograms:

Signal Word:

Hazard statements:

Precautionary statements:

Danger

Causes severe skin burns and eye damage.

May be corrosive to metals.

**Prevention:**

Do not breathe gas/mist/vapors/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

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OTHER HAZARDS	<p><b>Response:</b> IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. Absorb spillage to prevent material damage.</p> <p><b>Potential health effects:</b> Acute exposure: Corrosive liquid Inhalation: Severely irritating to respiratory system Ingestion: Risk of perforation of digestive system</p> <p><b>Physical and chemical hazards:</b> At high temperature: Forms flammable and explosive hydrogen through corrosion of metals. Decomposition products: See chapter 10</p> <p><b>Other:</b> Results of PBT and vPvB assessment : Not relevant</p>
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### 04 - FIRST AID MEASURES

GENERAL ADVICE	<p>Under the shower: Take off immediately all contaminated clothing, including shoes.</p>
INHALATION	<p>Inhalation of mists: Move to fresh air, Oxygen or artificial respiration if needed. Keep under medical surveillance In case of problems : Hospitalize</p>
SKIN CONTACT	<p>Wash immediately, abundantly and thoroughly with water If possible, rinse with Boric Acid Solution 5% Consult a doctor. In case of extensive burns, hospitalize</p>
EYE CONTACT	<p>Remove particles remaining under the eyelids Wash well open eyes immediately and abundantly with water for at least 15 min. Consult an ophthalmologist immediately.</p>
INGESTION	<p>Do not induce vomiting, rinse mouth and lips with plenty of water if the subject is conscious, then hospitalize immediately.</p>
PROTECTION OF FIRST-AIDERS	<p>Risk of Aerosol For any intervention, wear appropriate breathing apparatus, Protective suit Impermeable Gloves, Safety Glasses/Goggles</p>

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### 05 - FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA	<p><b>Suitable extinguishing media:</b> Use extinguishing measures that are appropriate to local circumstances and the Surrounding environment.</p>
SPECIFIC HAZARDS	<p>At high temperature : Forms flammable and explosive hydrogen through corrosion of metals</p>
ADVICE FOR FIREFIGHTERS	<p>Specific Methods: In case of fire nearby, remove exposed containers. Keep containers and surroundings cool with water spray. <b>Special protective actions for fire-fighters:</b> Wear self-contained breathing apparatus and protective suit.</p>

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### 06 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS,  
PROTECTIVE EQUIPMENT AND  
EMERGENCY PROCEDURES

Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Prohibit contact with skin and eyes and Inhalation of vapors.

ENVIRONMENTAL PRECAUTIONS

Should not be released into the environment  
Do not let the product enter into drains  
Contain by damming with sand or inert earth (Do not use combustible materials)

METHODS FOR CLEANING UP

**Recovery:**

Wash with water and recover it. Absorb on sand. Wash the remainder with water.

Absorb on : Sand, Loam

**Neutralization:**

Neutralize with an acid (diluted solutions : Hydrochloric acid)

Neutralization is exothermic

**Elimination:** See chapter 13

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### 07 - HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Technical measures/Precautions

Storage and handling precautions applicable to products: viscous liquid  
Corrosive. At high vapor/fog concentrations: Provide appropriate  
Exhaust ventilation at machinery. Provide showers, eye-baths. Provide  
water supplies near the point of use. Provide self-contained breathing  
apparatus nearby

Safe handling advice

Avoid splashing when handling. For personal protection see section 8.

Hygiene measures

Prohibit contact with skin and eyes and inhalation of vapors. When using, do not eat, drink or smoke.

Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

CONDITION FOR SAFE STORAGE

Technical measures/Storage conditions

Provide a catch-tank and an impermeable corrosion-resistant floor with drainage to a neutralization tank within a dyke area. Store protected From moisture. Provide waterproof electrical equipment.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Do not store below: 20 °C

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Incompatible products	Acids, Halogenated hydrocarbons
PACKAGING MATERIALS RECOMMENDED	Ordinary steel Stainless steel Vulcanite coated steel Epoxy resin lined tanks
To be avoided	Aluminum. Copper and alloys Zinc and alloys

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### 08 - EXPOSURE CONTROLS / PERSONAL PROTECTION

PROTECTIVE PROVISIONS	Ensure sufficient air exchange and/or exhaust in work areas
CONTROL PARAMETERS	
Exposure limits	FRANCE 1993 : VME= 2 mg/m <sup>3</sup> USA-ACGIH 2007 : Ceiling = 2 mg/m <sup>3</sup> (maximum value) EH40 WEL 2007; STEL 2 mg/m <sup>3</sup>
PERSONAL PROTECTION EQUIPMENT	<b>Respiratory protection:</b> In case of insufficient ventilation, wear suitable respiratory equipment. Recommended Filter type: P2 <b>Hand protection:</b> Splash contact, intermittent and prolonged PVC or other plastic material gloves Glove thickness: 1,2 mm <b>Eye/face protection:</b> Safety glasses/goggles and face-mask (during discharge) <b>Skin and body protection:</b> At the workplace: Safety shoes, Combination with delayed penetration Intervention at incident: Boots, overalls with hood, multi layered polyethylene

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### 09 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE (20°C)	liquid
FORM	cloudy
COLOUR	Colorless
ODOUR	None
OLFACTORY THRESHOLD	No data available
pH	pH 14
FREEZING POINT	12°C
BOILING POINT/RANGE	142 - 144 °C
FLASH POINT	Not applicable
EVAPORATION RATE	No data available
FLAMMABILITY	Not applicable
VAPOUR PRESSURE	(20°C) : 2 hPa (mbar)
VAPOUR DENSITY	No data available
DENSITY	liquid : (20°C) : 1520 kg/m <sup>3</sup>
SPECIFIC GRAVITY (water = 1)	(liquid) (*) : (20°C) : 1.52 (*)
WATER SOLUBILITY	20°C : Completely soluble
PARTITION COEFFICIENT: NOCTANOL/WATER:	Partition coefficient: n-octanol/water, Not relevant
MOLECULAR MASS :	40.01
AUTOIGNITION TEMPERATURE	Not applicable
VISCOSITY, DYNAMIC	Viscosity (20°C) : 78 mPa.s Viscosity (40 °C) : 23 mPa.s (cP)
OTHER DATA	
Solubility in other solvent	Water soluble solvents
Henry constant	Not applicable

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Explosive properties  
Oxidizing properties

Not relevant (due to chemical structure)  
Not relevant (due to chemical structure)

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### 10 - STABILITY AND REACTIVITY

REACTIVITY & CHEMICAL STABILITY  
CONDITION TO AVOID

The product is stable under normal handling and storage conditions.  
(To maintain the technical properties of the product). Store protected from moisture.

INCOMPATIBLE MATERIALS TO AVOID

Water : Acids (Neutralization is exothermic)  
Metals : Zinc-Aluminum-Copper (formation of : Hydrogen)  
Alkaline metals : alkaline earth metals-exothermic reaction, formation of Hydrogen  
Acetaldehyde - Acrolein - Acrylonitrile - Allyl alcohol (Violent polymerization)  
Halogenated hydrocarbon-Maleic anhydride-Bromine-Nitro paraffin  
Nitro aromatics-Oleums-Tetrahydrofuran (Violent, even explosive, reaction)  
At high temperature : Forms flammable and explosive hydrogen through corrosion of metals

HAZARDOUS DECOMPOSITION  
PRODUCTS

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### 11 - TOXICOLOGICAL INFORMATION

#### TOXICOLOGICA INFORMATION

Acute toxicity

**Ingestion:**

Causes severe digestive tract burns., Risk of perforation of digestive system, State of shock

LOCAL EFFECTS (Corrosion /Irritation /

Serious eye damage)

Skin Contact

**Causes severe burns. Very corrosive to skin**

Recovery slow, Serious lesions with possible after-effects if not washed immediately. Scars may be retractile

Diluted solutions: Dermatitis possible through repeated contact

Eye Contact

**Corrosive to eyes**

Serious lesions with possible after-effects if not washed immediately, Affects all the tissues of the eye. Risk of loss of sight.

RESPIRATORY or SKIN SENSITIZATION

Inhalation

No data available

Skin Contact

**Not a skin sensitizer**

Negative epicutaneous tests reported in man

CMR EFFECTS

Mutagenicity

Results from in vitro and in vivo tests do not lead to considering the product as genotoxic.

**In vitro**

Ames test: negative

In vitro test for chromosomal abnormalities on CHO cells: positive

DNA repair test on rats hepatocytes: negative

**In vivo**

Micronucleus test in vivo mouse: negative

Tests for chromosome aberrations in vivo in germ cells: negative

Carcinogenicity

Based on the available data, the substance is not suspected of having carcinogenic potential

Reproductive toxicity

**Fertility:** Based on the available data, the substance is not suspected of having reprotoxic potential.

SPECIFIC TARGET ORGAN TOXICITY

Single exposure

Inhalation

Corrosive to respiratory system

Inhalation of mists , aerosol

Repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Local effects due to an irritant effect

ASPIRATION HAZARDS

No data available

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### 12 - ECOLOGICAL INFORMATION

#### ACUTE TOXICITY

Fish

LC50, 96 h (Freshwater fish) : 35 - 139 mg/l

Aquatic invertebrates

LC50 : 30 - 1.000 mg/l product not neutralized

Aquatic plants

No relevant data for technical reasons.

Microorganisms

No data available

#### PERSISTENCE & DEGRADABILITY

Biodegradation (In water):

Formation of salts in solution in the environment, not applicable

Photodegradation (In air):

Overall half-life time: 13 s, Neutralization by atmospheric carbon dioxide

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### BIOACCUMULATION POTENTIAL

Bioaccumulation:	Not applicable
	Partition coefficient: n-octanol/water, Not relevant
MOBILITY IN SOIL - Distribution among environmental compartments	<b>Distribution among environmental compartments</b> : not applicable
	<b>Henry constant</b> : not applicable,
	<b>Absorption / desorption</b> : Non absorbable
RESULTS OF PBT AND vPvB assessment:	Not relevant

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### 13 - DISPOSAL CONSIDERATIONS

DISPOSAL OF PRODUCT	Neutralize with an acid (diluted solutions : Hydrochloric acid)
DISPOSAL OF PACKAGING	Clean container with water
	Recover waste water for treatment later

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### 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME	SODIUM HYDROXIDE SOLUTION
UN Number	1824
LABEL	



ADR	Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;
ADNR	Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;
RID	Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;
IMDG	Class : 8; Label 8; Packing Group II; Environmentally hazardous: no; EmS Number: F-A, S-B
IATA Cargo	Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;
IATA Passenger	Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;

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### 15 - REGULATORY INFORMATION

SAFETY DATA SHEETS	Safety data sheets: according to Regulation (EC) No. 1907/2006
EC CLASSIFICATION / LABELLING	(EC) No 1272/2008 (GHS)
ADDITIONAL REGULATIONS (EU)	Hazardous Waste Regulations 2005 Applies
	Young workers 94/33/EC Banned and/or restricted
	UK REGULATION Chip3: Chemical (Hazard Information and Packaging for Supply) Regulations 2002
INVENTORIES	EINECS: Conforms to
	TSCA: Conforms to
	AICS: Conforms to
	DSL: All components of this product are on the Canadian DSL list.
	ENCS (JP): Conforms to
	KECI (KR): Conforms to
	PICCS (PH): Conforms to
	IECSC (CN): Conforms to

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### 16 - OTHER INFORMATION

Full text of R, H, EUH-phrases referred to under sections 2 and 3	R35 Causes severe burns.
	H290 May be corrosive to metals.
	H314 Causes severe skin burns and eye damage.
	H318 Causes serious eye damage.

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### RECOMMENDED USES

Chemical Industry  
Textiles  
Metallurgy  
(Aluminum) Paper  
making Soap industry  
Detergents

### BIBLIOGRAPHY REFERENCES

Fiche toxicologique INRS : N° 20 : Soude Caustique et Solutions Aqueuses

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This information applies to the PRODUCT AS SUCH and conforming to specifications of QVC.

In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear.

The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. However the revision of some data is in progress.

Users are advised of possible additional hazards when the product is used in applications for which it was not intended.

This sheet shall only be used and reproduced for prevention and security purposes.

The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive.

It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product.

It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

The highlighted text indicates the changes made with respect to the previous version.

# FORMALIN

## Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 4/15/2016  
Version: 1.0

Revision date: 4/15/2018

Supersedes: 4/21/2015



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

#### 1.1. Product identifier

Product form : Mixture  
Name : FORMALIN

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

##### 1.2.1. Relevant identified uses

Main use category : Industrial use

##### 1.2.2. Uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

ChemSystems (Pty) Ltd  
1 Wharhurst Road, AECI Industrial Complex  
4120 Umbogintwini - South Africa  
T (031)9049404 031 904 9404  
[www.chemsystems.co.za](http://www.chemsystems.co.za)

#### 1.4. Emergency telephone number

Emergency number : 031 904 9400

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Acute toxicity (oral), Category 3	H301	Calculation method
Acute toxicity (dermal), Category 3	H311	Calculation method
Acute toxicity (inhalation:dust,mist), Category 3	H331	Calculation method
Skin corrosion/irritation, Category 1B	H314	Calculation method
Sensitisation — Skin, Category 1	H317	Calculation method
Germ cell mutagenicity, Category 2	H341	Calculation method
Carcinogenicity, Category 1B	H350	Calculation method
Specific target organ toxicity — Single exposure, Category 2	H371	Calculation method
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335	Calculation method

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

##### Adverse physicochemical, human health and environmental effects

May cause cancer (inhalation, ingestion, skin absorption). Suspected of causing genetic defects (inhalation, ingestion, skin absorption). May cause damage to organs (liver, kidneys, lungs) (inhalation, ingestion, skin absorption). Toxic in contact with skin. Toxic if inhaled. Toxic if swallowed. May cause respiratory irritation. Causes severe skin burns and eye damage. May cause an allergic skin reaction.

# FORMALIN

## Safety Data Sheet

according to Regulation (EU) 2015/830

### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

GHS06

GHS08

Signal word (CLP) :

Danger

Hazardous ingredients :

FORMALDEHYDE; METHANOL

Hazard statements (CLP) :

H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled  
H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H335 - May cause respiratory irritation  
H341 - Suspected of causing genetic defects (inhalation, skin absorption, ingestion)  
H350 - May cause cancer (inhalation)  
H371 - May cause damage to organs (kidneys, liver, central nervous system, lungs) (inhalation, skin absorption, ingestion.)

Precautionary statements (CLP) :

P201 - Obtain special instructions before use  
P280 - Wear goggles, gloves, clothing and respiratory protection  
P301+P310 - IF SWALLOWED: Immediately call medical centre or doctor  
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
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

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
FORMALDEHYDE (Note B)(Note D)	(CAS No) 50-00-0 (EC no) 200-001-8 (EC index no) 605-001-00-5 (REACH-no) 01-2119488953-20	30 - 50	Carc. 1B, H350 Muta. 2, H341 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1B, H314 Skin Sens. 1, H317
METHANOL	(CAS No) 67-56-1 (EC no) 200-659-6 (EC index no) 603-001-00-X (REACH-no) 01-2119433307-44	0.5 - 10	Flam. Liq. 2, H225 Acute Tox. 3 (Inhalation), H331 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Oral), H301 STOT SE 1, H370

#### Specific concentration limits:

Name	Product identifier	Specific concentration limits
FORMALDEHYDE	(CAS No) 50-00-0 (EC no) 200-001-8 (EC index no) 605-001-00-5 (REACH-no) 01-2119488953-20	(C >= 0.2) Skin Sens. 1, H317 (C >= 5) STOT SE 3, H335 (5 =<C < 25) Eye Irrit. 2, H319 (5 =<C < 25) Skin Irrit. 2, H315 (C >= 25) Skin Corr. 1B, H314
METHANOL	(CAS No) 67-56-1 (EC no) 200-659-6 (EC index no) 603-001-00-X (REACH-no) 01-2119433307-44	(3 =<C < 10) STOT SE 2, H371 (C >= 10) STOT SE 1, H370

Note B : Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid ... %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

Note D : Certain substances which are susceptible to spontaneous polymerisation or decomposition are generally placed on the market in a stabilised form. It is in this form that they are listed in Part 3. However, such substances are sometimes placed on the market in a non-stabilised form. In this case, the supplier must state on the label the name of the substance followed by the words 'non-stabilised'.

# FORMALIN

## Safety Data Sheet

according to Regulation (EU) 2015/830

Full text of H-statements: see section 16

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a doctor.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth with water. Give water to drink. Do not induce vomiting. Get immediate medical advice/attention.

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

Symptoms/injuries after inhalation	: Irritation of the nasal mucous membranes. Respiratory difficulties. Headache. Dizziness. Nausea.
Symptoms/injuries after skin contact	: Burns. Redness, pain. ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: May cause an allergic skin reaction.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Irritation of the gastric/intestinal mucosa. Abdominal pain. Nausea. Vomiting.

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

Treat symptomatically.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

#### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: Combustible liquid. Under fire conditions closed containers may rupture or explode.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

#### 5.3. Advice for firefighters

Firefighting instructions	: If exposed to fire cool the closed containers by spraying with water.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Limit access only to the necessary cleaning personnel. No open flames. No smoking. Remove ignition sources. Ventilate area.

##### 6.1.1. For non-emergency personnel

Protective equipment	: Corrosion-proof suit. Gloves. Protective apron. Protective goggles. Compressed air/oxygen apparatus.
Emergency procedures	: Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe vapour.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

#### 6.3. Methods and material for containment and cleaning up

For containment	: Dam up the liquid spill. Collect spillage.
Methods for cleaning up	: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
Other information	: Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

# FORMALIN

## Safety Data Sheet

according to Regulation (EU) 2015/830

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Do not breathe vapour. Do not get in eyes, on skin, or on clothing.
- Hygiene measures : Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Facilities: shower, eye shower. Comply with applicable regulations.
- Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Incompatible products : Oxidizing agent. Strong acids. Strong bases. Acid chlorides. amines. alkali metals. aniline. Phenol. Isocyanates.
- Incompatible materials : Heat sources. Sources of ignition.
- Prohibitions on mixed storage : oxidizing agents. (strong) acids. (strong) bases.
- Special rules on packaging : Keep only in original container. Store in a closed container. correctly labelled.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

FORMALDEHYDE (50-00-0)		
United Kingdom	Local name	Formaldehyde
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	2.5 mg/m <sup>3</sup>
United Kingdom	WEL TWA (ppm)	2 ppm
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	2.5 mg/m <sup>3</sup>
United Kingdom	WEL STEL (ppm)	2 ppm
METHANOL (67-56-1)		
United Kingdom	Local name	Methanol
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	266 mg/m <sup>3</sup>
United Kingdom	WEL TWA (ppm)	200 ppm
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	333 mg/m <sup>3</sup>
United Kingdom	WEL STEL (ppm)	250 ppm
United Kingdom	Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)

#### 8.2. Exposure controls

- Appropriate engineering controls : Ensure good ventilation of the work station. Eyewash and shower in work area.
- Personal protective equipment : Gas mask at exposure level >1mg/m3 formaldehyde. High gas/vapour concentration: gas mask. Gloves. Protective goggles. Corrosionproof clothing.
- Hand protection : Protective gloves
- Eye protection : Chemical goggles or safety glasses
- Skin and body protection : Wear suitable protective clothing
- Respiratory protection : Wear respiratory protection



Environmental exposure controls : Avoid release to the environment.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state : Liquid

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Appearance	: Clear, colorless liquid.
Colour	: Colourless.
Odour	: Pungent.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: ≈ 97 °C
Flash point	: > 61 °C
Auto-ignition temperature	: ≈ 430 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.1 - 1.3 g/cm <sup>3</sup>
Solubility	: Miscible with water.
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 7 vol % 73 vol %

### 9.2. Other information

Formic acid content	: 50-500ppm
Silver content	: <0.01ppm

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Unstable, polymerizes.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Avoid extreme heat. No flames, no sparks. Eliminate all sources of ignition.

### 10.5. Incompatible materials

Oxidizing agent. Strong acids. Strong bases. amines. alkaline metals and acid chlorides. aniline. Phenol. Isocyanates.

### 10.6. Hazardous decomposition products

When heated to decomposition, emits toxic fumes.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin. Inhalation:dust,mist: Toxic if inhaled.

ATE CLP (oral)	200.000 mg/kg bodyweight
ATE CLP (dermal)	600.000 mg/kg bodyweight
ATE CLP (dust,mist)	1.000 mg/l/4h

#### FORMALDEHYDE (50-00-0)

LD50 oral	100 mg/kg bodyweight
LD50 dermal	270 mg/kg bodyweight
LC50 inhalation rat (Dust/Mist - mg/l/4h)	497 mg/m <sup>3</sup>

#### METHANOL (67-56-1)

LD50 oral	5628 mg/kg bodyweight
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<b>METHANOL (67-56-1)</b>	
LD50 dermal	15800 mg/kg bodyweight
LC50 inhalation rat (Dust/Mist - mg/l/4h)	85000 mg/m <sup>3</sup>
Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Serious eye damage, category 1, implicit
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Suspected of causing genetic defects (inhalation, skin absorption, ingestion).
Carcinogenicity	: Nasal cavity carcinomas developed at formaldehyde levels >15ppm. This level would not be tolerated by humans voluntarily. If exposure levels are below recommended levels, the health of workers will be unaffected
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: May cause damage to organs (kidneys, liver, central nervous system, lungs) (inhalation, skin absorption, ingestion.). May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

<b>FORMALDEHYDE (50-00-0)</b>	
LC50 fish 1	6.7 mg/l
EC50 other aquatic organisms 1	5.8 mg/l EC50 waterflea (48 h)
EC50 other aquatic organisms 2	3.48 mg/l IC50 algea (72 h) mg/l

<b>METHANOL (67-56-1)</b>	
LC50 fish 1	10800 mg/l
EC50 other aquatic organisms 1	10000 mg/l EC50 waterflea (48 h)
EC50 other aquatic organisms 2	12000 mg/l IC50 algea (72 h) mg/l

### 12.2. Persistence and degradability

<b>FORMALIN</b>	
Persistence and degradability	Biodegradable in water.

### 12.3. Bioaccumulative potential

<b>FORMALDEHYDE (50-00-0)</b>	
Log Pow	0.35

<b>METHANOL (67-56-1)</b>	
Log Pow	-0.8 - -0.6

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.  
Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

UN-No. (ADR) : 2209  
UN-No. (IMDG) : 2209  
UN-No. (IATA) : 2209

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### 14.2. UN proper shipping name

Proper Shipping Name (ADR)	: FORMALDEHYDE SOLUTION
Proper Shipping Name (IMDG)	: FORMALDEHYDE SOLUTION
Proper Shipping Name (IATA)	: Formaldehyde solution
Transport document description (ADR)	: UN 2209 FORMALDEHYDE SOLUTION, 8, III, (E)
Transport document description (IMDG)	: UN 2209 FORMALDEHYDE SOLUTION, 8, III
Transport document description (IATA)	: UN 2209 Formaldehyde solution, 8, III

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR)	: 8
Danger labels (ADR)	: 8

:



#### IMDG

Transport hazard class(es) (IMDG)	: 8
Danger labels (IMDG)	: 8

:



#### IATA

Transport hazard class(es) (IATA)	: 8
Hazard labels (IATA)	: 8

:



### 14.4. Packing group

Packing group (ADR)	: III
Packing group (IMDG)	: III
Packing group (IATA)	: III

### 14.5. Environmental hazards

Dangerous for the environment	: No
Marine pollutant	: No
Other information	: No supplementary information available

### 14.6. Special precautions for user

#### - Overland transport

Classification code (ADR)	: C9
Special provisions (ADR)	: 533
Limited quantities (ADR)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T4

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Portable tank and bulk container special provisions (ADR) : TP1  
Tank code (ADR) : L4BN  
Vehicle for tank carriage : AT  
Transport category (ADR) : 3  
Special provisions for carriage - Packages (ADR) : V12  
Hazard identification number (Kemler No.) : 80  
Orange plates :



Tunnel restriction code (ADR) : E  
EAC code : •2X

### - Transport by sea

Limited quantities (IMDG) : 5 L  
Excepted quantities (IMDG) : E1  
Packing instructions (IMDG) : P001, LP01  
IBC packing instructions (IMDG) : IBC03  
Tank instructions (IMDG) : T4  
Tank special provisions (IMDG) : TP1  
EmS-No. (Fire) : F-A  
EmS-No. (Spillage) : S-B  
Stowage category (IMDG) : A  
Properties and observations (IMDG) : Colourless, clear liquid, with a suffocating pungent odour. Usually stabilized with methyl alcohol. Miscible with water. Causes burns to skin, eyes and mucous membranes.

### - Air transport

PCA Excepted quantities (IATA) : E1  
PCA Limited quantities (IATA) : Y841  
PCA limited quantity max net quantity (IATA) : 1L  
PCA packing instructions (IATA) : 852  
PCA max net quantity (IATA) : 5L  
CAO packing instructions (IATA) : 856  
CAO max net quantity (IATA) : 60L  
ERG code (IATA) : 8i

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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

Contains no REACH substances with Annex XVII restrictions  
Contains no substance on the REACH candidate list  
Contains no REACH Annex XIV substances

#### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

Full text of H- and EUH-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3

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Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Carc. 1B	Carcinogenicity, Category 1B
Flam. Liq. 2	Flammable liquids, Category 2
Muta. 2	Germ cell mutagenicity, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Sens. 1	Sensitisation — Skin, Category 1
STOT SE 1	Specific target organ toxicity — single exposure, Category 1
STOT SE 2	Specific target organ toxicity — Single exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H225	Highly flammable liquid and vapour
H301	Toxic if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H331	Toxic if inhaled
H335	May cause respiratory irritation
H341	Suspected of causing genetic defects
H350	May cause cancer
H370	Causes damage to organs
H371	May cause damage to organs

SDS EU AECI Chemsystems

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# SULPHURIC ACID, 98%

Date of issue: 2017/02/22

Revision No.: 1.0

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY.

### 1.1 Product Identifier

Product form	: Liquid
Substance Name	: SULPHURIC ACID, 98%
EC Index No.	: 016-020-00-8
EC No.	: 231-639-5
CAS No.	: 7664-93-9
REACH Registration No.	: 01-2119458838-20
Type of product	: Inorganic acid

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

#### 1.2.1 Relevant identified uses:

Materials for use in industrial applications. Refer to supplier for additional information.

#### 1.2.2 Uses advised against:

No additional information available.

### 1.3 Details of the supplier of the safety data sheet.

#### 1.4 AECI Industrial Chemicals, a division of AECI Limited

AECI Chem Park  
1<sup>st</sup> Floor, Block 2  
200 Bergrivier Drive  
Chlookop Ext 24  
Kempton Park.

#### 1.5 Emergency telephone number

0800 114445

## SECTION 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### Classification Regulation (EC) No 1272/2008 (CLP):

Skin corrosion/irritation, Category 1A, H314  
STOT (SE), Category 3, (Resp system), H335

For the full text of the H statements mentioned in this section, see Section 16.

#### Classification According to Directive 67/548/EEC or 1999/45/EC:

C; R35, R37

For the full text of the R phrases mentioned in this section, see Section 16.

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**Adverse physicochemical, human health and environmental effects:**

Causes severe skin burns and eye damage. Inhalation of fumes at high concentration may be fatal and may cause lung oedema. May react with organic compounds to cause fires and explosions.

**2.2 Label Elements**

Labelling (Regulation (EC) No 1272/2008)

**Hazard pictograms**



**Signal word: DANGER**

**Hazard Statements**

H314 - Causes severe skin burns and eye damage.

H335 – May cause respiratory irritation.

**Precautionary Statements**

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.  
Rinse skin with water/shower

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing

P304+P340+P314 – IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if you feel unwell.

P310 - Immediately call doctor.

P220 – Keep away from combustible materials, clothing, wood, paper.

P223 - Keep away from water because of violent reaction and possible flash fire.

P321 - Specific treatment see section 4 of SDS.

**2.3 Other Hazards:**

***Other hazards not contributing to the classification***

Reacts violently on contact with water. Contact with combustible material may cause fire.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substance

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
SULPHURIC ACID	(CAS No) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8 (REACH-no) 01-2119458838-20	68 - 98	Sk. Corr 1A, H314 STOT-SE 3, H335 C, R35, R37

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

#### 3.2 Mixture

Not applicable

### SECTION 4. FIRST AID MEASURES

#### 4.1 Description of First Aid Measures

##### First-aid measures general:

Call for immediate medical assistance

##### First aid measures after inhalation:

Remove person to fresh air and keep comfortable for breathing. If breathing has stopped, perform artificial respiration. If breathing is difficult, give oxygen. Obtain immediate medical attention.

##### First aid measures after skin contact:

Immediately remove all contaminated clothing. Wash skin with water for at least 20 minutes. Obtain immediate medical attention.

##### First aid measures after eye contact:

Rinse cautiously with water for at least 20 minutes whilst holding eyes apart. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain immediate medical attention.

##### First aid measures after ingestion:

If the person is conscious and has no trouble breathing, wash out mouth with water and give 200-300 ml of water to drink. Do not induce vomiting. Lay person on side with head lower than waist to prevent aspiration of the swallowed product. Obtain immediate medical attention.

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

##### Symptoms/injuries after inhalation:

Severe irritant to respiratory organs if mist or vapour is inhaled. May cause burns to respiratory system. Inhalation of high concentration of mist or vapour may cause pulmonary oedema.

##### Symptoms/injuries after skin contact:

CAUSES SEVERE SKIN BURNS

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**Symptoms/injuries after eye contact:**

CAUSES SERIOUS EYE DAMAGE

**Symptoms/injuries after ingestion:**

Causes burns to the gastric/intestinal mucosa.

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

Symptomatic treatment and supportive therapy as indicated. Following inhalation of high concentration of mist, the patient should be kept under medical review for at least 24 hours as delayed lung oedema may develop.

**SECTION 5. FIRE FIGHTING MEASURES**

**5.1 Extinguishing media**

**Suitable extinguishing media:**

Dry powder. Foam. Carbon dioxide.

**Not suitable:**

Use water spray with caution, heat release and splattering may occur.

**5.2 Special hazards arising from the substance or mixture**

**Hazardous decomposition products in case of fire:**

Toxic fumes may be released (oxides of sulphur)

**5.3 Advise for firefighters**

Protection during firefighting:

Do not attempt to take action without suitable protective equipment. Suitable protective equipment includes self-contained breathing apparatus with full face- piece and complete acid resistant protective clothing.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions, protective equipment and emergency procedures**

**6.1.1 For non-emergency personnel:**

Emergency procedures:

Ventilate spillage area. Isolate area. Prevent access to unnecessary and unprotected personnel. Downwind evacuation may be necessary. Avoid contact with skin and eyes.

Do not breathe mist or vapour.

**6.1.2 For emergency responders:**

Personal protective equipment:

As a minimum, use acid resistant gloves, and clothing, eye/face and breathing protection. Refer to Section 8.

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**6.2 Environmental precautions:**

Do not flush to drain. Avoid release to the environment. Dispose of as a hazardous waste.

**6.3 Methods and materials for containment and cleaning up:**

**Methods for cleaning up:**

Dike spill with inert material and recover as much as possible. Neutralise with soda ash or lime. Cover spill with non-combustible material, e.g. sand, earth, vermiculite. Sweep and shovel into containers for disposal. Do not use combustible materials such as sawdust.

**Other information:**

Dispose of materials or solid residues at an authorized site.

**6.4 Reference to other sections:**

For further information refer to section 13.

## SECTION 7. HANDLING AND STORAGE

**7.1 Precautions for safe handling**

Avoid contact of substance with water. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour and mist. Ensure good ventilation of the work station. Wear recommended personal protective equipment. See section 8.

When diluting, always add acid to water, NEVER ADD WATER TO ACID.

**Hygiene measures:**

Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

**7.2 Conditions for safe storage, including any incompatibilities:**

**Storage conditions:**

Store in a cool, dry, well ventilated area with acid resistant floors and good drainage. Keep away from direct sunlight, heat, water and incompatible materials.

**Incompatible products:**

Strong bases, reducing agents, organic compounds.

**Incompatible materials:**

Keep away from any possible contact with water, because of violent reaction and possible flash fire. Keep separate from combustible materials.

**Suitable packaging materials:**

Polypropylene

**7.3 Specific end users:**  
No additional information available

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

SULPHURIC ACID, 98% (7664-93-9)		
EU	Local name	Sulphuric acid (mist)
EU	IOELV TWA (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup>
OHSA (SA)	OEL-RL TWA (mg/m <sup>3</sup> )	1.0 mg/m <sup>3</sup>

**8.2 Exposure controls**

**Appropriate engineering controls:**

Provide eye wash and shower in work area. Ensure good ventilation of the work station.

**Personal protective equipment:**

Hand protection	Protective gloves
Eye protection	Safety glasses
Skin and body protection	Wear suitable protective clothing
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.



**Environmental exposure controls:** Avoid release to the environment.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties**

Product form:	Liquid
Appearance	Colorless hygroscopic viscous liquid
Odour	Odourless
Odour threshold	No data available
pH	<1 (1% solution)
Relative evaporation rate (butylacetate=1)	No data available

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Molecular weight	98.08 g/mol
Melting point	10.31°C
Freezing point	-1 to -30°C
Boiling point	276°C
Flash point	No data available
Auto-ignition temperature	No data available
Flammability (solid, gas)	Not applicable
Vapour pressure	< 0 Pa at 25°C
Vapour density	3.38 (Air = 1)
Relative vapour density @20°C	No data available
Relative density	1.83 @ 20°C
Solubility	Miscible with water. Water: 1000000 mg/l
Log Pow	-2.2
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	No data available
Explosive limits	No data available
Oxidising properties	No data available
Molecular mass	98.08 g/mol
Molecular formula	H <sub>2</sub> SO <sub>4</sub>

## SECTION 10. STABILITY AND REACTIVITY

### 10.1 Reactivity:

The product is non-reactive under recommended conditions of use, storage and transport.  
Reacts violently with water. Hygroscopic.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

None under recommended processing conditions.

**10.4 Conditions to avoid**

Incompatible products, excess heat, exposure to moist air or water.

**10.5 Incompatible materials**

Water, strong bases, organic compounds, base metals, combustible materials.

**10.6 Hazardous decomposition products**

Oxides of sulphur (SO<sub>2</sub>, SO<sub>3</sub>), hydrogen

**SECTION 11. TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects:**

Acute toxicity :Not classified

SULPHURIC ACID, 98% (7664-93-9)	
LD50 oral	2140 mg/kg bodyweight
LC50 inhalation rat (Mist - mg/l/4h)	375 mg/m <sup>3</sup>

Skin corrosion/irritation	Causes severe skin burns and eye damage. pH: < 1 1% solution
Serious eye damage/irritation	Causes serious eye damage (implicit) pH: < 1 1% solution
Respiratory or skin sensitisation	Not classified.
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	May cause respiratory irritation
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Not classified

## SECTION 12. ECOLOGICAL INFORMATION

**12.1 Ecology – general:** Before neutralisation, the product may represent a danger to aquatic organisms.

SULPHURIC ACID, 98% (7664-93-9)	
LC50 fish 1	> 16 mg/l
EC50 other aquatic organisms 1	> 100 mg/l EC50 waterflea (48 h)
EC50 other aquatic organisms 2	> 100 mg/l IC50 algea (72 h) mg/l

**12.2 Persistence amnd degradability**  
No additional information available.

**12.3 Bioaccumulative potential**  
No additional information available.

SULPHURIC ACID, 98% (7664-93-9)	
Log Pow	-2.2

**12.4 Mobility**  
No additional information available

**12.5 Results of PBT and vPvB assessment**  
No additional information available

**12.6 Other adverse effects**  
No additional information available

## SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods: Dispose of waste in consultation with licensed waste disposal company in accordance with local legal requirements.

## SECTION 14. TRANSPORT INFORMATION

In accordance with ADR / IMDG / IATA

	ADR	IMDG	IATA	Class Diamond
UN Number	1830	1830	1830	 
Proper Shipping Name	Sulphuric Acid	Sulphuric Acid	Sulphuric Acid	
Hazard Class	8	8	8	
Packing Group	II	II	II	
Dangerous for the environment	No	No	No	
Marine pollutant	No	No	No	

## SECTION 15. REGULATORY INFORMATION

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

#### 15.1.1 EU Regulations

No REACH Annex XVII restrictions  
SULPHURIC ACID, 98% is not on the REACH Candidate List  
SULPHURIC ACID, 98% is not on the REACH Annex XIV List

#### 15.1.2 National Regulations:

No additional information available

### 15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out.

## SECTION 16. OTHER INFORMATION

Full text of R-, H- and EUH-statements:

Skin Corr. 1A	Skin corrosion/irritation, Category 1A
STOT (SE) Resp. System, Cat 3	Specific Target Organ Toxicity – (Single Exposure) Respiratory system, Category 3
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
R35	Causes severe burns
R37	Irritating to respiratory system
C	Corrosive

SDS EU Chemical Initiatives

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