

SAFETY DATA SHEET

Version 10.0
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Anolyte K for Coulometry coulometric Karl Fischer reagent for aldehydes & ketones Aquastar®

Product Number : 1.88062
Catalogue No. : 188062
Brand : Millipore

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

Identified uses : Reagent for analysis
Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332

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Skin corrosion (Category 1C), H314
 Serious eye damage (Category 1), H318
 Carcinogenicity (Category 2), H351
 Reproductive toxicity (Category 1B), H360
 Specific target organ toxicity - single exposure (Category 1), Immune system, H370
 Specific target organ toxicity - repeated exposure, Oral (Category 1), Liver, Kidney, H372
 Specific target organ toxicity - repeated exposure (Category 2), thymus, H373
 Specific target organ toxicity - repeated exposure, Inhalation (Category 2), Blood, H373
 Short-term (acute) aquatic hazard (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard Statements

H226	Flammable liquid and vapor.
H302 + H332	Harmful if swallowed or if inhaled.
H314	Causes severe skin burns and eye damage.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H370	Causes damage to organs (Immune system).
H372	Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if swallowed.
H373	May cause damage to organs (thymus) through prolonged or repeated exposure.
H373	May cause damage to organs (Blood) through prolonged or repeated exposure if inhaled.
H402	Harmful to aquatic life.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe mist or vapors.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P301 + P330 + P331 P303 + P361 + P353	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	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/ doctor.
P307 + P311 P363	IF exposed: Call a POISON CENTER or doctor/ physician. Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Component		Classification	Concentration
2-Methoxyethanol			
CAS-No.	109-86-4	Flam. Liq. 3; Acute Tox. 4; Repr. 1B; STOT SE 1; STOT RE 2; H226, H302, H332, H312, H360, H370, H373	>= 20 - < 30 %
EC-No.	203-713-7		
Index-No.	603-011-00-4		
Registration number	01-2119494721-33-XXXX		
2,2,2-trifluoroethanol			
CAS-No.	75-89-8	Flam. Liq. 3; Eye Dam. 1; Repr. 1B; STOT RE 2; H226, H318, H360, H373	>= 20 - < 30 %
EC-No.	200-913-6		
Chloroform			
CAS-No.	67-66-3	Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; Repr. 2; STOT SE 3; STOT RE 1; Aquatic Acute 3; H302, H331, H315, H319, H351, H361, H336, H372, H402 Concentration limits: 20 %: STOT SE 3, H336;	>= 10 - < 20 %
EC-No.	200-663-8		
Index-No.	602-006-00-4		
Registration number	01-2119486657-20-XXXX		
Imidazole			
CAS-No.	288-32-4	Acute Tox. 4; Skin Corr. 1C; Eye Dam. 1; Repr. 1B;	>= 5 - < 10 %
EC-No.	206-019-2		

Index-No. Registration number	613-319-00-0 01-2119485825-24- XXXX	H302, H314, H318, H360	
1H-Imidazole, monohydrobromide			
CAS-No. EC-No.	101023-55-6 483-310-2	Repr. 2; Aquatic Acute 2; H361, H401	>= 5 - < 10 %
1H-Imidazole, monohydroiodide			
CAS-No. EC-No.	68007-08-9 684-693-0	Repr. 2; Aquatic Acute 2; H361, H401	>= 5 - < 10 %
Sulphur dioxide			
CAS-No. EC-No. Index-No.	7446-09-5 231-195-2 016-011-00-9	Press. Gas Liquefied gas; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; H280, H331, H314, H318	>= 1 - < 5 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Nitrogen oxides (NO_x)

Sulfur oxides

Hydrogen chloride gas

Hydrogen bromide gas

Hydrogen fluoride

Hydrogen cyanide (hydrocyanic acid)

Combustible.

Fire may cause evolution of:

Hydrogen fluoride, Phosgene, Hydrogen chloride gas

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

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

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Recommended storage temperature see product label.

Storage class

Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
2-Methoxyethanol	109-86-4	TWA	0.1 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Danger of cutaneous absorption		
		TWA	25 ppm 80 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	25 ppm 80 mg/m ³	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		Skin notation		

		TWA	0.1 ppm 0.3 mg/m ³	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		PEL	5 ppm 16 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		
2,2,2-trifluoroethanol	75-89-8	TWA	0.3 ppm	USA. Workplace Environmental Exposure Levels (WEEL)
Chloroform	67-66-3	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		ST	2 ppm 9.78 mg/m ³	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen		
		C	50 ppm 240 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	2 ppm 9.78 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Sulphur dioxide	7446-09-5	STEL	0.25 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen		
		TWA	2 ppm 5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		ST	5 ppm 13 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 13 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	2 ppm 5 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	5 ppm 10 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
2-Methoxyethanol	109-86-4	2-Methoxyacetic acid	1mg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)

8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: 120 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

Recommended Filter type: Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|-------------------|-------------------------------|
| a) Appearance | Form: liquid
Color: yellow |
| b) Odor | No data available |
| c) Odor Threshold | No data available |
| d) pH | No data available |

e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	30 °C (86 °F) - closed cup - (for a component of this mixture)
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Density	No data available
Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Autoignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	Not classified as explosive.
t) Oxidizing properties	none

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with:

Aluminum
Magnesium
Bases
Zinc

Risk of explosion with:
Oxidizing agents
Air
Ammonia
Amines
nitrogen oxides
Bases
Oxygen
alkali amides
organic nitro compounds
strong alkalis
Fluorine
peroxi compounds
Alkaline earth metals
Alkali metals
Powdered metals
Methanol
with
alcoholates
Methanol
with
strong alkalis
Iron
in powder form
various alloys
sensitive to shock
Methanol
with
Sodium hydroxide
Magnesium
in powder form
Oxygen
with
alkali compounds
Aluminum
in powder form
Acetone
with
alkali compounds
Potassium
sensitive to shock
sodium
sensitive to shock
hydrides
Possible formation of:
Peroxides
Risk of ignition or formation of inflammable gases or vapours with:
acetylidene
Peroxides
azides
chlorates
Carbides

Exothermic reaction with:
Acetylene
Acrolein
Amines
Ammonia
halogen-halogen compounds
butadiene
Chlorine
organic nitro compounds
Ethylene oxide
Potassium
sodium
Strong oxidizing agents
nitrogen dioxide
zinc diethyl
Violent reactions possible with:
Strong oxidizing agents
strong alkalis
phosphines
bis(dimethylamino)dimethyl tin
nonmetallic hydrogen compounds
Powdered metals
Light metals
Ketones
mineral acids
semimetallic hydrogen compounds
Acid chlorides
Acid anhydrides
Acids

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

Aluminum, various plastics, Rubber, various metals

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity

Acute toxicity estimate Oral - 1,510 mg/kg
(Calculation method)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute toxicity estimate Inhalation - 4 h - 11 mg/l - vapor(Calculation method)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute toxicity estimate Dermal - 3,108 mg/kg
(Calculation method)

Skin corrosion/irritation

Remarks: Mixture causes burns.

Serious eye damage/eye irritation

Remarks: Mixture causes serious eye damage.
Risk of blindness!

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Evidence of a carcinogenic effect.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chloroform)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Chloroform)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

May harm the unborn child.

May impair fertility.

Specific target organ toxicity - single exposure

Mixture causes damage to organs. - Immune system

Specific target organ toxicity - repeated exposure

Mixture causes damage to organs through prolonged or repeated exposure.

- Liver, Kidney

Mixture may cause damage to organs through prolonged or repeated exposure.

- thymus

Mixture may cause damage to organs through prolonged or repeated exposure.

- Blood

Aspiration hazard

No data available

11.2 Additional Information

No data available

Components

2-Methoxyethanol

Acute toxicity

LD50 Oral - Rabbit - 890 mg/kg

Remarks: Behavioral:General anesthetic.

Blood:Other hemolysis with or without anemia.

(RTECS)

Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.

Acute toxicity estimate Inhalation - Expert judgment - 4 h - 11 mg/l - vapor

LD50 Dermal - Rabbit - 1,280 mg/kg

Remarks: (RTECS)

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(Directive 67/548/EEC, Annex V, B.4.)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: slight irritation

(OECD Test Guideline 405)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Result: negative

Method: OECD Test Guideline 475

Species: Mouse - male

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

May damage the unborn child.

May damage fertility.

Specific target organ toxicity - single exposure

Causes damage to organs. - Immune system

Acute oral toxicity - Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.

Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

- thymus

Oral - Testes, thymus

Aspiration hazard

No data available

2,2,2-trifluoroethanol

Acute toxicity

Oral: No data available

Inhalation: No data available

LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye
(OECD Test Guideline 405)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

May damage fertility.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Inhalation - May cause damage to organs through prolonged or repeated exposure.
- Blood

Aspiration hazard

No data available

Chloroform

Acute toxicity

LD50 Oral - Rat - male - 908 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - 6 h - 9.17 mg/l - vapor

Acute toxicity estimate Inhalation - Expert judgment - 4 h - 3.1 mg/l - vapor

Dermal: No data available

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin. - 24 h

Remarks: (ECHA)

Remarks: Drying-out effect resulting in rough and chapped skin.

Skin - Rabbit

Result: slight irritation

Remarks: (IUCLID)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes.

Remarks: (ECHA)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Result: negative

Remarks: (ECHA)

Test Type: unscheduled DNA synthesis assay

Test system: Liver

Result: negative

Remarks: (ECHA)

Method: OECD Test Guideline 474

Species: Rat - male and female - Red blood cells (erythrocytes)

Result: negative

Method: OECD Test Guideline 486

Species: Rat - male - Liver cells

Result: negative

Species: Mouse - female

Result: negative

Remarks: (ECHA)

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

Oral - Causes damage to organs through prolonged or repeated exposure.

- Liver, Kidney

Aspiration hazard

No data available

Imidazole

Acute toxicity

LD50 Oral - Rat - 970 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit
Result: Corrosive after 1 to 4 hours of exposure - 4 h
(OECD Test Guideline 404)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Serious eye damage/eye irritation

Eyes - Rabbit
Result: Causes serious eye damage.
(OECD Test Guideline 405)
Remarks: Causes serious eye damage.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity

IARC:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

May damage the unborn child.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Oral - Liver, Kidney

Aspiration hazard

No data available

1H-Imidazole, monohydrobromide**Acute toxicity**

LD50 Oral - Rat - female - > 2,000 mg/kg

(OECD Test Guideline 423)

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE)

Result: No skin irritation - 1 h

(OECD Test Guideline 439)

Serious eye damage/eye irritation

Eyes - Bovine cornea

Result: No eye irritation - 4 h

(OECD Test Guideline 437)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

Remarks: The value is given in analogy to the following substances: 1H-Imidazole, monohydroiodide

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Result: negative

Remarks: The value is given in analogy to the following substances: 1H-Imidazole, monohydroiodide

Carcinogenicity

No data available

Reproductive toxicity

Suspected of damaging fertility.

Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

1H-Imidazole, monohydroiodide**Acute toxicity**

Oral: No data available

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

Eyes - Bovine cornea

Result: No eye irritation

(OECD Test Guideline 437)

Remarks: The value is given in analogy to the following substances: 1H-Imidazole, monohydrobromide

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

Suspected of damaging fertility.

Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Sulphur dioxide**Acute toxicity**

Oral: No data available

Acute toxicity estimate Inhalation - 4 h - 701 ppm - gas

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Dermal: No data available

Skin corrosion/irritation

Remarks: Causes skin burns.

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

SECTION 12: Ecological information

12.1 Toxicity

Mixture

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

Components

2-Methoxyethanol

Toxicity to fish

static test LC50 - Lepomis macrochirus (Bluegill sunfish) - > 10,000 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia

semi-static test EC50 - Daphnia magna (Water flea) - 27,000

Millipore - 1.88062

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and other aquatic invertebrates	mg/l - 48 h (ISO 6341)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 25,500 mg/l - 72 h (ISO 8692)
Toxicity to bacteria	static test EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - > 500 mg/l - 21 d (OECD Test Guideline 211)

2,2,2-trifluoroethanol

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 119 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 974 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

Chloroform

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Crassostrea gigas - 152.5 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Chlamydomonas reinhardtii (green algae) - 13.3 mg/l - 72 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 6.3 mg/l - 21 d Remarks: (ECHA)

Imidazole

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 341.5 mg/l - 48 h (Regulation (EC) No. 440/2008, Annex, C.2)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 133 mg/l - 72 h

(DIN 38412)

Toxicity to bacteria static test EC50 - activated sludge - > 1,000 mg/l - 30 min
(OECD Test Guideline 209)

1H-Imidazole, monohydrobromide

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 1.4 mg/l - 48 h
(OECD Test Guideline 202)
Remarks: The value is given in analogy to the following substances: 1H-Imidazole, monohydroiodide

Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - 34 mg/l - 72 h
(OECD Test Guideline 201)
Remarks: The value is given in analogy to the following substances: 1H-Imidazole, monohydroiodide

Toxicity to bacteria static test NOEC - Pseudomonas fluorescens - 3,200 mg/l - 8 h
Remarks: (ECHA)
The value is given in analogy to the following substances: sodium bromide

1H-Imidazole, monohydroiodide

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 1.4 mg/l - 48 h
(OECD Test Guideline 202)

static test NOEC - Daphnia magna (Water flea) - 0.46 mg/l - 48 h
(OECD Test Guideline 202)

static test EC100 - Daphnia magna (Water flea) - 4.6 mg/l - 48 h
(OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - 34 mg/l - 72 h
(OECD Test Guideline 201)
static test EC10 - Desmodesmus subspicatus (green algae) - 3.5 mg/l - 72 h
(OECD Test Guideline 201)

Sulphur dioxide

No data available

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information**DOT (US)**

UN number: 2924 Class: 3 (8) Packing group: III
Proper shipping name: Flammable liquids, corrosive, n.o.s. (2-Methoxyethanol, Imidazole)
Reportable Quantity (RQ): 55 lbs
Reportable Quantity (RQ): 10 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 2924 Class: 3 (8) Packing group: III EMS-No: F-E, S-C
Proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-Methoxyethanol, Imidazole)

IATA

UN number: 2924 Class: 3 (8) Packing group: III
Proper shipping name: Flammable liquid, corrosive, n.o.s. (2-Methoxyethanol, Imidazole)

SECTION 15: Regulatory information**CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chloroform	67-66-3	10	55
Chloroform	67-66-3	10	10 (D022)

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chloroform	67-66-3	10	55

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Chloroform	67-66-3	10000
Sulphur dioxide	7446-09-5	500

SARA 313

: The following components are subject to reporting levels established by SARA Title III, Section 313:

2-Methoxyethanol	109-86-4	>= 20 - < 30 %
Chloroform	67-66-3	>= 10 - < 20 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

Chloroform	67-66-3	>= 10 - < 20 %
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The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

Chloroform	67-66-3	>= 10 - < 20 %
Sulphur dioxide	7446-09-5	>= 1 - < 5 %

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

2-Methoxyethanol	109-86-4	>= 20 - < 30 %
Chloroform	67-66-3	>= 10 - < 20 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Chloroform	67-66-3	>= 10 - < 20 %
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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Chloroform	67-66-3	>= 10 - < 20 %
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This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Chloroform	67-66-3	>= 10 - < 20 %
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This product contains the following priority pollutants related to the U.S. Clean Water Act:

Chloroform	67-66-3	>= 10 - < 20 %
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US State Regulations**Massachusetts Right To Know**

2-Methoxyethanol	109-86-4
Chloroform	67-66-3
Imidazole	288-32-4
Sulphur dioxide	7446-09-5

Pennsylvania Right To Know

2-Methoxyethanol	109-86-4
Chloroform	67-66-3
Sulphur dioxide	7446-09-5

Maine Chemicals of High Concern

Imidazole	288-32-4
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Vermont Chemicals of High Concern

2-Methoxyethanol	109-86-4
Imidazole	288-32-4

Washington Chemicals of High Concern

2-Methoxyethanol	109-86-4
Imidazole	288-32-4

California Prop. 65

WARNING: This product can expose you to chemicals including Chloroform, which is/are known to the State of California to cause cancer, and 2-Methoxyethanol, Chloroform, Sulphur dioxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

2-Methoxyethanol	109-86-4	See 40 CFR § 721.10001; Final Rule
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The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

2-Methoxyethanol	109-86-4
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SECTION 16: Other information

Relevant changes since previous version

9. Physical and chemical properties

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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