Safety Data Sheet
according to P.U.(A) 310/2013

Printing date 19.05.2025 Revision: 19.05.2025

1 Identification of the hazardous chemical and of the supplier

· **Product identifier**

· **Trade name: Benzene Standard - 2600ug/mL (1mL)**

· **Part number:** CUS-00005913
· **Recommended use of the chemical and restrictions on use**
Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

· **Further information obtainable from:**
Telephone: 0800 603 1000
pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: +(60) 3-9212 5794

2 Hazard identification

· **Classification of the substance or mixture**


flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.


skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.


health hazard

Muta. 1B H340 May cause genetic defects.
Carc. 1A H350 May cause cancer.
STOT SE 1 H370 Causes damage to the central nervous system and the visual organs.

· **Label elements**
· **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
· **Hazard pictograms**


GHS02 GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labelling:**
methanol
benzene

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· **Hazard statements**
H225 Highly flammable liquid and vapour.
H331 Toxic if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H370 Causes damage to the central nervous system and the visual organs.
· **Precautionary statements**

P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking.
P260	Do not breathe vapours.
P241	Use explosion-proof electrical/ ventilating/lighting equipment.
P280	Wear protective gloves / protective clothing.
P240	Ground/bond container and receiving equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P321	Specific treatment (see on this label).
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P303+P361+P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P370+P378	In case of fire: Use CO2, powder or water spray for extinction.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition and information of the ingredients of the hazardous chemical

· **Chemical characterisation: Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
67-56-1	methanol Flam. Liq. 2, H225; Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; STOT SE 1, H370	99.6713%
71-43-2	benzene Flam. Liq. 2, H225; Acute Tox. 1, H310; Muta. 1B, H340; Carc. 1A, H350; STOT RE 1, H372; Asp. Haz., H304; Skin Irrit. 2, H315; Eye Irrit. 2, H319	0.3287%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

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4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Remove breathing equipment only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

· **Additional information about design of technical facilities:** No further data; see section 7.

· **Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
67-56-1 methanol	
PEL (Malaysia)	Long-term value: 262 mg/m³, 200 ppm (kulit)
71-43-2 benzene	
PEL (Malaysia)	Long-term value: 1.6 mg/m³, 0.5 ppm

· **Additional information:** The lists valid during the making were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Do not inhale gases / fumes / aerosols.
· **Respiratory protection:**
When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.
· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times

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exceeding 4 hrs. Supplier recommendations should be followed.

· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness

· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours

· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Colour:	Colourless
· **Odour:**	Alcohol-like
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/freezing point	-98 °C
Initial boiling point and boiling range	64.7 °C
· **Flash point:**	9 °C
· **Flammability (solid, gas)**	Highly flammable.
· **Auto-ignition temperature**	455 °C
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
Lower:	5.5 Vol %
Upper:	44 Vol %
· **Vapour pressure at 20 °C:**	100 hPa
· **Density at 20 °C:**	0.80026 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Fully miscible.

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· **Partition coefficient: n-octanol/water**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	100.0 %
VOC (EC)	100.00 %
Solids content:	0.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity**

· **LD/LC50 values relevant for classification:**		
ATE (Acute Toxicity Estimates)		
Dermal	LD50	14,603 mg/kg (mouse)
Inhalative	LC50/4 h	3.01 mg/L

67-56-1 methanol		
Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)

71-43-2 benzene		
Oral	LD50	3,340 mg/kg (rat)
Dermal	LD50	48 mg/kg (mouse)
		>8,260 mg/kg (rabbit)
Inhalative	LC50/4 h	9,980 mg/L (mouse)

· **Primary irritant effect:**
· **Skin corrosion or irritation** No irritant effect.
· **Serious eye damage or eye irritation** No irritating effect.
· **Respiratory / skin sensitization** No sensitising effects known.
· **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

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Toxic
The product can cause inheritable damage.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
Muta. 1B, Carc. 1A

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behaviour in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal information

· **Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transportation information

· **Not Regulated, De minimus Quantities**	-
· **UN-Number**	
· **ADR, IMDG, IATA**	UN1230
· **UN proper shipping name**	
· **ADR**	1230 METHANOL
· **IMDG, IATA**	METHANOL

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· **Transport hazard class(es)**

· **ADR**

· **Class**	3 Flammable liquids.
· **Label**	3+6.1

· **IMDG**

· **Class**	3 Flammable liquids.
· **Label**	3/6.1

· **IATA**

· **Class**	3 Flammable liquids.
· **Label**	3 (6.1)
· **Packing group**	
· **ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids.
· **Hazard identification number (Kemler code):**	336
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2
· **Tunnel restriction code**	D/E
· **IMDG**	
· **Limited quantities (LQ)**	1L

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· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1230 METHANOL, 3 (6.1), II

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **EHS reference list**

All ingredients are listed.

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Seveso category**
H2 ACUTE TOXIC
P5c FLAMMABLE LIQUIDS
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
Exceptions can be made by the authorities in certain cases.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation.
No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Contact:**
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity - oral – Category 3
Acute Tox. 1: Acute toxicity - oral – Category 1
Skin Irrit. 2: Skin corrosion or irritation – Category 2
Eye Irrit. 2: Serious eye damage or eye irritation – Category 2
Muta. 1B: Germ cell mutagenicity – Category 1B
Carc. 1A: Carcinogenicity – Category 1A
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Asp. Haz.: Aspiration hazard – Category 1