

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/23/2023

Reviewed on 06/23/2023

1 Identification

· Product identifier

· Trade name: Chloroform: Isoamyl alcohol 24:1

· Article number: 39554

· Application of the substance / the mixture: Laboratory chemicals

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de

· Information department: Product Safety department Tel.: +49 6221 13840-35

· Emergency telephone number:

Medical Emergency Information in case of poisoning:
Poison Information Center Mainz - Phone: +49 (0) 6131 19240
(advisory service in German or English language)



2 Hazard(s) identification

· Classification of the substance or mixture



GHS06

Acute Toxicity - Inhalation 3

H331 Toxic if inhaled.



GHS08

Carcinogenicity 2

H351 Suspected of causing cancer.

Toxic to Reproduction 2

H361 Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity - Repeated Exposure 1 H372 Causes damage to organs through prolonged or repeated exposure.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Skin Irritation 2

H315 Causes skin irritation.

Eye Irritation 2A

H319 Causes serious eye irritation.

· Label elements

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms: GHS06, GHS07, GHS08

· Signal word: Danger

· Hazard-determining components of labeling:

trichloromethane
3-methylbutan-1-ol

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· **Hazard statements:**

Harmful if swallowed.

Toxic if inhaled.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Wash thoroughly after handling.

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

If swallowed: Call a poison center/doctor if you feel unwell.

If on skin: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 2

Fire = 0

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment:**

· **PBT:** PBT - assessment not available.

· **vPvB:** vPvB - assessment not available.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:**

· **Empirical formula:**

67-66-3	trichloromethane	$CHCl_3$
123-51-3	3-methylbutan-1-ol	$C_5H_{12}O$
64-17-5	ethanol	C_2H_6O

· **Dangerous components:**

67-66-3	trichloromethane	70-100%
123-51-3	3-methylbutan-1-ol	2.5-7%
64-17-5	ethanol	1-3%

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

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:** Supply fresh air and to be sure call for a doctor.

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- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
- **After eye contact:**
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- **After swallowing:** Wash out mouth. Call a doctor immediately.
- **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 extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Hydrogen chloride (HCl)
Phosgene gas
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Ensure adequate ventilation
Avoid contact with the eyes and skin.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**
Dispose contaminated material as waste according to item 13.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

· PAC-1:

67-66-3	trichloromethane	2 ppm
123-51-3	3-methylbutan-1-ol	125 ppm
64-17-5	ethanol	1,800 ppm

· PAC-2:

67-66-3	trichloromethane	64 ppm
123-51-3	3-methylbutan-1-ol	1700* ppm
64-17-5	ethanol	3300* ppm

· PAC-3:

67-66-3	trichloromethane	3,200 ppm
123-51-3	3-methylbutan-1-ol	10000** ppm
64-17-5	ethanol	15000* ppm

· 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

- **Precautions for safe handling:**
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
Store under lock and key and with access restricted to technical experts or their assistants only.
Protect from exposure to the light.
Keep receptacle tightly sealed and store in dry conditions.
- **Specific end use(s):** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

67-66-3 trichloromethane (80-100%)

PEL	Ceiling limit value: 240 mg/m ³ , 50 ppm
REL	Short-term value: 9.78* mg/m ³ , 2* ppm *60-min; See Pocket Guide App. A
TLV	Long-term value: 10 ppm A3

123-51-3 3-methylbutan-1-ol (2.5-7%)

PEL	Long-term value: 360 mg/m ³ , 100 ppm primary and secondary
REL	Short-term value: 450 mg/m ³ , 125 ppm Long-term value: 360 mg/m ³ , 100 ppm primary and secondary
TLV	Short-term value: 125 ppm Long-term value: 100 ppm

64-17-5 ethanol (1-3%)

PEL	Long-term value: 1900 mg/m ³ , 1000 ppm
REL	Long-term value: 1900 mg/m ³ , 1000 ppm
TLV	Short-term value: 1000 ppm A3

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**

- **Additional information about design of technical systems:** No further data; see item 7.

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Store protective clothing separately.
Immediately remove all soiled and contaminated clothing.
Avoid contact with the eyes and skin.
Wash hands before breaks and at the end of work.

- **Breathing equipment:**

Short term filter device:
Filter ABEK

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- **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material:**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Fluorocarbon rubber (Viton)

- **As protection from splashes gloves made of the following materials are suitable:** Butyl rubber, BR

- **Eye protection:** Tightly sealed goggles

- **Body protection:** Protective work clothing

9 Physical and chemical properties

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

- **General Information:**

- **Color:**

Colorless

- **Odor:**

Characteristic

- **Odor threshold:**

Not determined.

- **Melting point/Melting range:**

no information available

- **Boiling point/Boiling range:**

no information available

- **Flammability (solid, gaseous):**

Based on available data, the classification criteria of flammable liquids are not met.

- **Explosion limits:**

- **Lower:**

no information available

- **Upper:**

no information available

- **Flash point:**

no information available

- **Ignition temperature:**

no information available

- **Decomposition temperature:**

no information available

- **pH-value:**

Mixture is non-polar/aprotic.

- **Viscosity:**

- **Kinematic viscosity:**

no information available

- **Dynamic viscosity:**

no information available

- **Solubility in / Miscibility with:**

- **Water:**

no information available

- **Partition coefficient (n-octanol/water):**

no information available

- **Vapor pressure:**

no information available

- **Density:**

no information available

- **Relative density:**

no information available

- **Other information**

There are no more data available.

- **Appearance:**

- **Form:**

Liquid

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- **Important information on protection of health and environment, and on safety:**
- **Danger of explosion:** Product does not present an explosion hazard.
- **Solvent content:**
- **Organic solvents:** 4.0 %
- **VOC %:**
- **VOC content:** 4.00 %

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 further relevant informations available.
- **Conditions to avoid:**
avoid contact with:
light
moisture
- **Incompatible materials:**
Avoid contact with:
Strong oxidizers
alkalis
- **Hazardous decomposition products:** In case of fire: See Section 5

11 Toxicological information

- **Information on toxicological effects**
 - **Acute toxicity:**
Harmful if swallowed.
Toxic if inhaled.
 - **LD/LC50 values that are relevant for classification:**
- | 67-66-3 trichloromethane | | |
|--------------------------|----------|------------------------|
| Oral | LD50 | 300 mg/kg (rat) |
| Dermal | LD50 | >20,000 mg/kg (rabbit) |
| | | 75 mg/kg (rat) |
| Inhalative | LC50/4h | 47.7 mg/l (rat) |
| | LC50/96h | 18 mg/l (trout) |
- **on the skin:** Causes skin irritation.
 - **on the eye:** Causes serious eye irritation.
 - **Carcinogenicity:** Suspected of causing cancer.
 - **Reproductive toxicity:** Suspected of damaging fertility or the unborn child.
 - **Specific target organ toxicity - repeated exposure:**
Causes damage to organs through prolonged or repeated exposure.
 - **Additional toxicological information:**
 - **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

67-66-3	trichloromethane	2B
64-17-5	ethanol	I

· NTP (National Toxicology Program)

67-66-3	trichloromethane	R
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· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

· **Toxicity:**· **Aquatic toxicity:****67-66-3 trichloromethane**EC50/48h 29 mg/l (*Daphnia magna*)· **Persistence and degradability:** No further relevant information available.· **Bioaccumulative potential:** No further relevant information available.· **Mobility in soil:** No further relevant information available.· **Results of PBT and vPvB assessment:**· **PBT:** Not applicable.· **vPvB:** Not applicable.· **Other adverse effects:**· **Additional ecological information:**· **General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Water hazard class 3 (Self-assessment): extremely hazardous for water

13 Disposal considerations

· **Waste treatment methods**· **Recommendation:**

Disposal must be made according to official regulations.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**· **Recommendation:**

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

14 Transport information

· **UN-Number**· **DOT, ADR, IMDG, IATA**

UN1888

· **UN proper shipping name**· **DOT**

Chloroform solution

· **ADR**

1888 CHLOROFORM solution

· **IMDG, IATA**

CHLOROFORM solution

· **Transport hazard class(es)**· **DOT**· **Class**

6.1 Toxic substances

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· Label	6.1
· ADR, IMDG, IATA	
	
· Class:	6.1 Toxic substances
· Label:	6.1
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards	
· Marine pollutant:	No
· Special precautions for user	Warning: Toxic substances
· Hazard identification number (Kemler code):	60
· EMS Number:	F-A,S-A
· Segregation groups	(SGG10) Liquid halogenated hydrocarbons
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 1888 CHLOROFORM SOLUTION, 6.1, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

· **Section 355 (extremely hazardous substances):**

67-66-3 trichloromethane

· **Section 313 (Specific toxic chemical listings):**

67-66-3 trichloromethane

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

67-66-3 trichloromethane

· **Proposition 65**

None of the ingredients is listed.

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· **Chemicals known to cause cancer:**

67-66-3 trichloromethane

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

67-66-3 trichloromethane

64-17-5 ethanol

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

67-66-3 trichloromethane

B2, L, NL

· **TLV (Threshold Limit Value)**

67-66-3 trichloromethane

A3

64-17-5 ethanol

A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

67-66-3 trichloromethane

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms** GHS06, GHS07, GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

trichloromethane

3-methylbutan-1-ol

· **Hazard statements**

Harmful if swallowed.

Toxic if inhaled.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Wash thoroughly after handling.

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

If swallowed: Call a poison center/doctor if you feel unwell.

If on skin: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Product safety department

· **Contact:** +49 6221 13840-35

· **Date of preparation / last revision** 06/23/2023

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

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ICAO: International Civil Aviation Organisation

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

bw: body weight

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

DOT: US Department of Transportation

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

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

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Toxicity - Oral 4: Acute toxicity – Category 4

Acute Toxicity - Inhalation 3: Acute toxicity – Category 3

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Carcinogenicity 2: Carcinogenicity – Category 2

Toxic to Reproduction 2: Reproductive toxicity – Category 2

Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1

US