

1 Identification

- **Product identifier**
 - **Trade name: Phenol non-stabilized : Chloroform : Isoamyl Alcohol 25 : 24 : 1 + separate Tris solution**
 - **Article number:** A2489
 - **Application of the substance / the mixture**
Biochemistry
Laboratory chemical
 - **Details of the supplier of the safety data sheet**
 - **Manufacturer/Supplier:**
AppliChem GmbH
Ottoweg 4
D-64291 Darmstadt
 - **Information department:** Dept. Compliance
 - **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)
- Tel.: +49 (0)6151 93570
Fax.: +49 (0)6151 935711
msds@applichem.com

2 Hazard(s) identification

- **Classification of the substance or mixture**
Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.
Muta. 2 H341 Suspected of causing genetic defects.
Carc. 2 H351 Suspected of causing cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

- **Label elements**

- **GHS label elements**

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

- **Hazard pictograms**



GHS05 GHS06 GHS08

- **Signal word** Danger

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

Phenol crystalline
trichloromethane
3-methylbutan-1-ol

- **Hazard statements**

H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.

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- H361 Suspected of damaging fertility or the unborn child.
- H372 Causes damage to organs through prolonged or repeated exposure.
- **Precautionary statements**
- P280 Wear protective gloves / eye protection.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P309+P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



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

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture: consisting of the following components.

- **Dangerous components:**

67-66-3	trichloromethane	>40-≤50%
108-95-2	Phenol crystalline	>40-≤50%
123-51-3	3-methylbutan-1-ol	>1-≤2.5%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
Involve doctor immediately.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- **After skin contact:**
Call a doctor immediately.
Wash with polyethylene glycol 400 and then rinse with copious amounts of water.
Immediately remove any clothing soiled by the product.
- **After eye contact:**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.

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- **After swallowing:**
Do not induce vomiting; immediately call for medical help.
Call a doctor immediately.
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- **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:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
Hydrogen chloride (HCl)
CO, CO₂
Non-combustible.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Contain escaping vapours with water.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Avoid substance contact.
Do not inhale steams/aerosols.
Ensure adequate ventilation
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (AppliSorb).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Clean up affected area.
- **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.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

67-66-3	trichloromethane	2 ppm
108-95-2	Phenol crystalline	15 ppm
123-51-3	3-methylbutan-1-ol	125 ppm

· **PAC-2:**

67-66-3	trichloromethane	64 ppm
108-95-2	Phenol crystalline	23 ppm

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123-51-3	3-methylbutan-1-ol	1700* ppm
· PAC-3:		
67-66-3	trichloromethane	3,200 ppm
108-95-2	Phenol crystalline	200 ppm
123-51-3	3-methylbutan-1-ol	10000** ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Protect from light.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep respiratory protective device available.
The product is not flammable.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Open receptacle only under localized extractor facilities.
Store receptacle in a well ventilated area.
Store under lock and key and with access restricted to technical experts or their assistants only.
- **Recommended storage temperature:** 2-8°C
- **Storage class:** 6.1 B
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

· Components with limit values that require monitoring at the workplace:

67-66-3 trichloromethane

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: 49 mg/m ³ , 10 ppm

108-95-2 Phenol crystalline

PEL	Long-term value: 19 mg/m ³ , 5 ppm Skin
REL	Long-term value: 19 mg/m ³ , 5 ppm Ceiling limit value: 60* mg/m ³ , 15.6* ppm *15-min; Skin
TLV	Long-term value: 19 mg/m ³ , 5 ppm Skin; BEI

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123-51-3 3-methylbutan-1-ol

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: 452 mg/m ³ , 125 ppm Long-term value: 361 mg/m ³ , 100 ppm

Ingredients with biological limit values:

108-95-2 Phenol crystalline

BEI	250 mg/g creatinine Medium: urine Time: end of shift Parameter: Phenol with hydrolysis (background, nonspecific)
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• **Additional information:** The lists that were valid during the creation 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.
- Avoid contact with the eyes and skin.

• **Breathing equipment:**

- Short term filter device:
Combination filter A-P3
- In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

• **Protection of hands:**



Protective gloves

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

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. 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 gloves made of the following materials are suitable:**

- Recommended thickness of the material: ≥ 0.70 mm
- Fluorocarbon rubber (Viton)
- Value for the permeation: Level ≥ 480 min

• **As protection from splashes gloves made of the following materials are suitable:**

- Recommended thickness of the material: ≥ 0.70 mm
- Fluorocarbon rubber (Viton)
- Value for the permeation: Level ≥ 480 min

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· Eye protection:



Tightly sealed goggles

· Body protection:

Use protective suit.

Full head, face and neck protection

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Fluid

Color: different

· Odor: Characteristic

· Odor threshold: Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 595 °C (1,103 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower: 1.8 Vol %

Upper: 8.6 Vol %

· Vapor pressure at 20 °C (68 °F): 211 hPa (158.3 mm Hg)

· Density: Not determined.

· Relative density Not determined.

· Vapor density Not determined.

· Evaporation rate Not determined.

· Solubility in / Miscibility with

Water: No data available

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic: Not determined.

Kinematic: Not determined.

· Solvent content:

Organic solvents: 47.0 %

VOC content: 47.00 %

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· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No dangerous reactions known.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Heating
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
oxidizing agent
acids
bases
- **Hazardous decomposition products:** In the event of fire: See chapter 5

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

· Components		Type	Value	Species
67-66-3 trichloromethane				
Oral	LD50		695 mg/kg (rat)	
Dermal	LD50		3,980 mg/kg (rabbit)	
108-95-2 Phenol crystalline				
Oral	LD50		317 mg/kg (rat)	
Dermal	LD50		669 mg/kg (rat)	
			850 mg/kg (rabbit)	
Inhalative	LC50		316 mg/l (rat)	

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)			
67-66-3	trichloromethane		2B
108-95-2	Phenol crystalline		3

· NTP (National Toxicology Program)			
67-66-3	trichloromethane		R

· OSHA-Ca (Occupational Safety & Health Administration)			
None of the ingredients is listed.			

US

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12 Ecological information

- **Toxicity**
- **Aquatic toxicity:**

Type of test	Effective concentration	Method	Assessment
67-66-3 trichloromethane			
EC50/48 h	79 mg/l	(daphnia magna)	
LC50/96 h	18 mg/l	(fish)	
108-95-2 Phenol crystalline			
EC50	25 mg/l	(Bakterien)	
	100 mg/l	(daphnia magna)	
	44.5 mg/l	(fish)	

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Water hazard class 3 (Self-assessment): extremely hazardous for water
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 considerations

- **Waste treatment methods**
- **Recommendation:**
Chemicals must be disposed of in compliance with the respective national regulations.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.

14 Transport information

· UN-Number	
· DOT, ADR, IMDG, IATA	UN2810
· UN proper shipping name	
· DOT	Toxic, liquids, organic, n.o.s. (Phenol, Chloroform)
· ADR	Toxic, liquids, organic, n.o.s. (Phenol, Chloroform), ENVIRONMENTALLY HAZARDOUS
· IMDG, IATA	TOXIC LIQUID, ORGANIC, N.O.S. (PHENOL, CHLOROFORM)

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· **Transport hazard class(es)**

· **DOT**



· **Class** 6.1 Toxic substances
· **Label** 6.1

· **ADR**



· **Class** 6.1 (T1) Toxic substances
· **Label** 6.1

· **IMDG, IATA**



· **Class** 6.1 Toxic substances
· **Label** 6.1

· **Packing group**

· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards:**

· **Marine pollutant:** No
· **Special marking (ADR):** Symbol (fish and tree)

· **Special precautions for user**

· **Danger code (Kemler):** Warning: Toxic substances
60
· **EMS Number:** F-A,S-A
· **Segregation groups** 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: E4
Maximum net quantity per inner packaging: 1 ml
Maximum net quantity per outer packaging: 500 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

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Trade name: Phenol non-stabilized : Chloroform : Isoamyl Alcohol 25 : 24 : 1 + separate Tris solution

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- **UN "Model Regulation":** UN 2810 TOXIC, LIQUIDS, ORGANIC, N.O.S. (PHENOL, CHLOROFORM), 6.1, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):

67-66-3	trichloromethane
108-95-2	Phenol crystalline

· Section 313 (Specific toxic chemical listings):

67-66-3	trichloromethane
108-95-2	Phenol crystalline

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

67-66-3	trichloromethane
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· 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
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· Cancerogenity categories

· EPA (Environmental Protection Agency)

67-66-3	trichloromethane	B2, L, NL
108-95-2	Phenol crystalline	D, I

· TLV (Threshold Limit Value established by ACGIH)

67-66-3	trichloromethane	A3
108-95-2	Phenol crystalline	A4

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

67-66-3	trichloromethane
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· GHS label elements

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

· Hazard pictograms



GHS05 GHS06 GHS08

· Signal word Danger

· Hazard-determining components of labeling:

Phenol crystalline
trichloromethane
3-methylbutan-1-ol

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Trade name: Phenol non-stabilized : Chloroform : Isoamyl Alcohol 25 : 24 : 1 + separate Tris solution

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• **Hazard statements**

- H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
- H314 Causes severe skin burns and eye damage.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H361 Suspected of damaging fertility or the unborn child.
- H372 Causes damage to organs through prolonged or repeated exposure.

• **Precautionary statements**

- P280 Wear protective gloves / eye protection.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P309+P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

• **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:** Dept. Compliance
- **Date of preparation / last revision** 12/05/2017 / 4
- **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)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport 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
ACGIH: American Conference of Governmental Industrial Hygienists
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
BEI: Biological Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Muta. 2: Germ cell mutagenicity – Category 2
Carc. 2: Carcinogenicity – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

• * **Data compared to the previous version altered.**