SAFETY DATA SHEET according to the OSHA Hazard Communication Standard

Version 6.18
Revision Date 07/13/2026
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SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Phenol – chloroform – isoamyl alcohol mixture

Product Number : 77617
Brand : Sigma

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

Identified uses : Laboratory chemicals, Synthesis of substances

Restrictions on use : Not Available

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 number

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

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Flammable liquids : Category 4

Acute toxicity (Oral) : Category 3

Acute toxicity : Category 3

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(Inhalation)

Acute toxicity (Dermal)	:	Category 4
Skin corrosion	:	Sub-category 1B
Serious eye damage	:	Category 1
Germ cell mutagenicity	:	Category 2
Carcinogenicity	:	Category 2
Reproductive toxicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)
Specific target organ toxicity - repeated exposure (Oral)	:	Category 1 (Liver, Kidney)
Specific target organ toxicity - repeated exposure	:	Category 2 (Nervous system, Kidney, Liver, Skin)
Short-term (acute) aquatic hazard	:	Category 2
Long-term (chronic) aquatic hazard	:	Category 2

Other hazards

None known.

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H227 Combustible liquid.
H301 + H331 Toxic if swallowed or if inhaled.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H336 May cause drowsiness or dizziness.
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 (Liver, Kidney) through

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prolonged or repeated exposure if swallowed.
H373 May cause damage to organs (Nervous system, Kidney, Liver, Skin) through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapours.
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.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331 + P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

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P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

CAS-No. : Not Assigned

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Phenol	108-95-2*	>= 30 - <= 60	TSC
Chloroform	67-66-3*	>= 30 - <= 60	TSC
Isoamyl alcohol	123-51-3*	>= 1 - <= 5	TSC

* Indicates that the identifier is a CAS No.
TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : First aiders need to protect themselves.
Show this 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 : After contact with skin: rinse out with polyethylene glycol 400 or a mixture of polyethylene glycol 300/ethanol 2:1 and wash with plenty of water. If neither is available wash with plenty of water.
Immediately take off contaminated clothing.
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 : If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In

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exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.
Do not attempt to neutralise.

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
Protection of first-aiders	:	For personal protection see section 8.
Notes to physician	:	No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Combustible. Vapours are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.
Hazardous combustion products	:	Carbon oxides Hydrogen chloride gas
Specific extinguishing methods	:	No data available

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Further information	:	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	:	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Advice for non-emergency personnel: Do not breathe vapours, 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. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	:	Do not let product enter drains.
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.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on protection against fire and explosion	:	Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
Advice on safe handling	:	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
Further information on storage conditions	:	Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to

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qualified or authorised persons.

Storage class	:	6.1A, Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials
Recommended storage temperature	:	36 - 46 °F / 2 - 8 °C
Further information on storage stability	:	Air and light sensitive. Store under inert gas.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Phenol	108-95-2	TWA	5 ppm	ACGIH
		TWA	5 ppm 19 mg/m3	NIOSH REL
		C	15.6 ppm 60 mg/m3	NIOSH REL
		TWA	5 ppm 19 mg/m3	OSHA Z-1
Chloroform	67-66-3	TWA	10 ppm	ACGIH
		ST	2 ppm 9.78 mg/m3	NIOSH REL
		C	50 ppm 240 mg/m3	OSHA Z-1
Isoamyl alcohol	123-51-3	TWA	100 ppm	ACGIH
		STEL	125 ppm	ACGIH
		ST	125 ppm 450 mg/m3	NIOSH REL
		TWA	100 ppm 360 mg/m3	NIOSH REL
		TWA	100 ppm 360 mg/m3	OSHA Z-1
		TWA	2 ppm	US WEEL
		STEL	5 ppm	US WEEL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Phenol	108-95-2	Phenol	Urine	End of shift (As soon as	250 mg/g creatinine	ACGIH BEI

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				possible after exposure ceases)		

Engineering measures : No data available

Personal protective equipment

Respiratory protection : 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.

Recommended Filter type: : Filter type ABEK

The entrepeneur 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.

Hand protection

Material	:	Fluorinated rubber
Break through time	:	480 min
Glove thickness	:	0.7 mm
Protective index	:	Full contact
Manufacturer	:	Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Material	:	Fluorinated rubber
Break through time	:	480 min
Glove thickness	:	0.7 mm
Protective index	:	Splash contact
Manufacturer	:	Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Manufacturer : data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

Remarks : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good

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		laboratory practices. Wash and dry hands. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Eye 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 and body protection	:	protective clothing
Hygiene measures	:	Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	yellow
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	7.20 - 8.34
Melting point	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	174 °F / 79 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Flammability (liquids)	:	No data available
Burning rate	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available

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Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	1.28 g/cm3 (68 °F / 20 °C)
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	Not classified as explosive.
Oxidizing properties	:	none
Particle characteristics Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.
Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	:	Risk of explosion with: Ammonia Amines nitrogen oxides bases

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Oxygen
alkali amides
organic nitro compounds
strong alkalis
Fluorine
peroxi compounds
Alkaline earth metals
Alkali metals
Powdered metals
salts of oxyhalogenic acids
nitrites
nitrates
Peroxides
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
Aluminium
in powder form
Acetone
with
alkali compounds
Potassium
sensitive to shock
sodium
sensitive to shock
Violent reactions possible with:
phosphines
bis(dimethylamino)dimethyl tin
nonmetallic hydrogen compounds
Powdered metals
Light metals
Ketones
mineral acids
Strong oxidizing agents
semimetallic hydrogen compounds
Aluminium
Aldehydes

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		Halogens hydrogen peroxide iron(III) compounds Oxidizing agents Strong acids Strong bases formaldehyde
Conditions to avoid	:	Strong heating.
Incompatible materials	:	No data available
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 - 181.04 mg/kg
(Calculation method)
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
Acute toxicity estimate Inhalation - 4 h - 3 mg/l - vapour(Calculation method)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Acute toxicity estimate Dermal - 1,320 mg/kg
(Calculation method)

Skin corrosion/irritation
No data available

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

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
No data available

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Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Stomach - Irregularities - Based on Human Evidence

Components

Phenol

Acute toxicity
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l - dust/mist
(Expert judgement)
Symptoms: Irritation, Lung oedema
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
LD50 Dermal - Rat - female - 660 mg/kg
(OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Skin - In vitro study
Result: Causes burns.
(OECD Test Guideline 431)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Corrosive
(OECD Test Guideline 405)
Remarks: Causes serious eye damage.
Risk of blindness!

Respiratory or skin sensitization
Sensitisation test: - Guinea pig
Result: negative
Remarks: (IUCLID)

Germ cell mutagenicity
Suspected of causing genetic defects.

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Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: positive
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: Chinese hamster ovary cells
Result: positive

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Acute inhalation toxicity - Irritation, Lung oedema

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
- Nervous system, Kidney, Liver, Skin
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

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 - vapour
Acute toxicity estimate Inhalation - Expert judgement - 4 h - 3.1 mg/l - vapour
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
Maximisation Test - Guinea pig

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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
Causes damage to organs through prolonged or repeated exposure.
- Liver, Kidney

Aspiration hazard
No data available

Isoamyl alcohol

Acute toxicity
Oral: No data available
Acute toxicity estimate Inhalation - 11.1 mg/l - vapour
(Expert judgement)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Inhalation: No data available
Dermal: No data available
Dermal: Repeated exposure may cause skin dryness or cracking.
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 24 h
Remarks: (RTECS)

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Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
Remarks: (External MSDS)

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
May cause respiratory irritation. - Respiratory system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Phenol:

Toxicity to fish	:	LC50 (Onchorhynchus clarki): 8.9 mg/l Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: US-EPA
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia (water flea)): 3.1 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: US-EPA
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (algae)): 61.1 mg/l Exposure time: 96 h Test Type: static test Method: US-EPA
Toxicity to fish (Chronic	:	NOEC (Fish): 0.077 mg/l

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toxicity)		Exposure time: 60 d Test Type: semi-static test Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.16 mg/l End point: Growth inhibition Exposure time: 16 d Test Type: semi-static test Remarks: (ECHA)
Toxicity to microorganisms	:	IC50 (microorganisms): 21 mg/l Exposure time: 24 h Test Type: static test Remarks: (ECHA)

Chloroform:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Crassostrea gigas): 152.5 mg/l Exposure time: 48 h Test Type: static test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to algae/aquatic plants	:	ErC50 (Chlamydomonas reinhardtii (green algae)): 13.3 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 6.3 mg/l End point: reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Remarks: (ECHA)

Ecotoxicology Assessment

Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

Isoamyl alcohol:

Toxicity to fish	:	LC50 (Salmo gairdneri): > 200 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 72 h Remarks: (ECHA)
Toxicity to algae/aquatic	:	EC50: > 320 mg/l

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plants		Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: (ECHA)
Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio; Oncorhynchus mykiss): 10 mg/l Exposure time: 35 d Method: OECD Test Guideline 210 Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC10: 0.3 mg/l Exposure time: 21 d Method: OECD Test Guideline 211 Remarks: (ECHA)
Toxicity to microorganisms	:	EC10: 370 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: (ECHA)

Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Persistence and degradability

Components:

Phenol:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 100 mg/l Result: Readily biodegradable. Biodegradation: 62 % Exposure time: 100 h Method: OECD Test Guideline 301C

Chloroform:

Biodegradability	:	Remarks: No data available

Isoamyl alcohol:

Biodegradability	:	Remarks: No data available
BOD/COD	:	BOD/COD: 63 % Remarks: (IUCLID)
ThOD	:	2,740 mg/g Remarks: (Lit.)
BOD/ThOD	:	55 % Remarks: (Lit.)

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Bioaccumulative potential

Components:

Phenol:

Bioaccumulation	:	Species: Danio rerio (zebra fish) Bioconcentration factor (BCF): 17.5 Exposure time: 5 h Temperature: 77 °F / 25 °C Concentration: 2 mg/l Method: OECD Test Guideline 305 Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: 1.47 (86 °F / 30 °C) pH: 3 - 8 Remarks: (ECHA) Bioaccumulation is not expected.

Chloroform:

Bioaccumulation	:	Remarks: No data available

Isoamyl alcohol:

Partition coefficient: n-octanol/water	:	log Pow: 1.35 (73 °F / 23 °C) pH: 6.5 Method: OECD Test Guideline 107 Remarks: Bioaccumulation is not expected.

Mobility in soil

Components:

Chloroform:

Distribution among environmental compartments	:	Adsorption/Soil Koc: 52.5, log Koc: 1.72 Method: (experimental) Remarks: Mobile in soils

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: 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).

Components:

Phenol:

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Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Chloroform:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Isoamyl alcohol:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Endocrine disrupting properties

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	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

International Regulations

IATA-DGR

UN/ID No.	:	UN 2922
Proper shipping name	:	Corrosive liquid, toxic, n.o.s. (Isoamyl alcohol, Phenol, Chloroform)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	Class 8 - Corrosive substances, Division 6.1 - Toxic substances
Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851

IMDG-Code

UN number	:	UN 2922
Proper shipping name	:	CORROSIVE LIQUID, TOXIC, N.O.S. (Isoamyl alcohol, Phenol, Chloroform)
Class	:	8
Subsidiary risk	:	6.1

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Packing group	:	II
Labels	:	8 (6.1)
EmS Code	:	F-A, S-B
Marine pollutant	:	yes

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number	:	UN 2922
Proper shipping name	:	Corrosive liquids, toxic, n.o.s. (Chloroform, Isoamyl alcohol, Phenol)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	Class 8 - Corrosive substances, Division 6.1 - Toxic substances
ERG Code	:	154
Marine pollutant	:	no
Poison Inhalation Hazard	:	No

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chloroform	67-66-3	10	20
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	20

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Phenol	108-95-2	10000
Phenol	108-95-2	500*
Chloroform	67-66-3	10000

*: Solid in the molten or powdered form (particles < 100 microns), in solution, or meeting the NFPA reactivity criteria

SARA 311/312 : Fire Hazard

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Hazards		Acute Health Hazard Chronic Health Hazard
SARA 313	:	The following components are subject to reporting levels established by SARA Title III, Section 313:

Phenol	108-95-2	>= 50 - < 70 %
Chloroform	67-66-3	>= 30 - < 50 %

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):

Phenol	108-95-2	>= 50 - < 70 %
Chloroform	67-66-3	>= 30 - < 50 %

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	>= 30 - < 50 %

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

Phenol	108-95-2	>= 50 - < 70 %
Chloroform	67-66-3	>= 30 - < 50 %
Isoamyl alcohol	123-51-3	>= 1 - < 5 %

Clean Water Act

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

Phenol	108-95-2	>= 50 - < 70 %
Chloroform	67-66-3	>= 30 - < 50 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Phenol	108-95-2	>= 50 - < 70 %
Chloroform	67-66-3	>= 30 - < 50 %

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Phenol	108-95-2	>= 50 - < 70 %
Chloroform	67-66-3	>= 30 - < 50 %

This product contains the following priority pollutants related to the U.S. Clean Water Act:

Phenol	108-95-2	>= 50 - < 70 %
Chloroform	67-66-3	>= 30 - < 50 %

US State Regulations

Massachusetts Right To Know

Phenol	108-95-2
Chloroform	67-66-3
Isoamyl alcohol	123-51-3

Pennsylvania Right To Know

Phenol	108-95-2

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Chloroform	67-66-3
Isoamyl alcohol	123-51-3

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Phenol	108-95-2

Washington Chemicals of High Concern

Phenol	108-95-2

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 birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. **The components of this product are reported in the following inventories:**

US TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-1 / C	:	Ceiling
US WEEL / TWA	:	8-hr TWA
US WEEL / STEL	:	Short-Term TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation;

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DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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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