

Safety Data Sheet

Product name: Phenol

CAS No.: 108-95-2

Prepared in accordance with GB/T 16483, GB/T 17519

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

>Product identifier

- Product name: Phenol
- CBnumber: CB4362168
- CAS: 108-95-2
- EINECS Number: 203-632-7
- Synonyms: phenol,PhOH

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

- Relevant identified uses: For R&D use only. Not for medicinal, household or other use.
- Uses advised against: none

>Company Identification

- Company: Linyi Tuohui New Materials Co., Ltd.
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SECTION 2: Hazards identification

>GHS Label elements, including precautionary statements

- Symbol(GHS) 
- Signal word Danger

Precautionary statements

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing.

Rinse SKIN with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

P310 Immediately call a POISON CENTER or doctor/physician.

P311 Call a POISON CENTER or doctor/physician.

P405 Store locked up.

P501 Dispose of contents/container to.....

Hazard statements

H225 Highly Flammable liquid and vapour

H227 Combustible liquid

H301 Toxic if swallowed

H302 Harmful if swallowed

H311 Toxic in contact with skin

H312 Harmful in contact with skin

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

H319 Causes serious eye irritation

H331 Toxic if inhaled

H332 Harmful if inhaled

H340 May cause genetic defects

H341 Suspected of causing genetic defects

H360 May damage fertility or the unborn child

H370 Causes damage to organs

H372 Causes damage to organs through prolonged or repeated exposure

H373 May cause damage to organs through prolonged or repeated exposure

H401 Toxic to aquatic life

H411 Toxic to aquatic life with long lasting effects

SECTION 3: Composition/information on ingredients

>Substance

- Product name: Phenol
- Synonyms: phenol, PhOH
- CAS: 108-95-2
- EC number: 203-632-7
- MF: C₆H₆O
- MW: 94.11

SECTION 4: First aid measures

>Description of first aid measures

General advice

First aider needs to protect himself. Show this material safety data sheet to the doctor in attendance.

If inhaled

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

In case of skin contact

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 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

>Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

>Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

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

>Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Vapors 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.

>Advice for firefighters

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

>Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

>NFPA 704

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SECTION 6: Accidental release measures

>Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

>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. Dispose of properly. Clean up affected area. Avoid generation of dusts.

>Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

>Precautions for safe handling

Work under hood. Do not inhale substance/mixture.

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

For precautions see section 2.2.

>Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Handle and store under inert gas. Light sensitive.

>Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

>control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

>Exposure controls

Appropriate engineering controls

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

Personal protective equipment

Eye/face protection

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

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact Material: Viton

Minimum layer thickness: 0,7 mm Break through time: 480 min

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

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact Material: Viton

Minimum layer thickness: 0,7 mm Break through time: 480 min

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

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when dusts/vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

Exposure limits

TLV-TWA skin 5 ppm (~ 19 mg/m³) (ACGIH, MSHA, and OSHA); 10-hour TWA 5.2 ppm (~ 20 mg/m³) (NIOSH); ceiling 60 mg (15 minutes) (NIOSH); IDLH 250 ppm (NIOSH).

SECTION 9: Physical and chemical properties

>Information on basic physicochemical properties

- Appearance solid
- Odourstinging
- Odour Threshold0,005 ppm
- pHca.5 at 50 g/l at 20 °C
- Melting point/freezing pointMelting point/range: 40 - 42 °C - lit.
- Initial boiling point and boiling range182 °C - lit.
- Flash point79,0 °C - closed cup
- Evaporation rateNo data available
- Flammability (solid, gas)No data available
- Upper/lower flammability or explosive limits Upper explosion limit: 9,5 %(V) Lower explosion limit: 1,3 %(V)
- Vapour pressure 0,53 hPa at 20,0 °C
- Vapour density 3,2 at 20 °C - (Air = 1.0)
- Relative density1,071 g/cm³ at 25 °C
- Water solubility87 g/l at 25 °C
- Partition coefficient: n-octanol/waterlog Pow: 1,47 at 30 °C - (ECHA), Bioaccumulation is not expected.
- Autoignition temperature715 °C at 1.013 hPa
- Decomposition temperatureNo data available
- ViscosityNo data available
- Explosive propertiesNo data available
- Oxidizing propertiesNo data available
- Henry's Law Constant1.09 at 5 °C (average derived from six field experiments, Lüttke and Levsen, 1997)

>Other safety information

Surface tension 38,2 mN/m at 50,0 °C

Relative vapor density

3,2 at 20 °C - (Air = 1.0)

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.

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

>Chemical stability

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

>Possibility of hazardous reactions

No data available

>Conditions to avoid

Strong heating.

>Incompatible materials

rubber, various plastics, various alloys, various metals, Strong oxidizing agents

>Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

>Information on toxicological effects

Acute toxicity

No data available

LD50 Dermal - Rat - female - 660 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation**Serious eye damage/eye irritation**

Eyes - Rabbit Result: Corrosive

(OECD Test Guideline 405)

Causes serious eye damage. Risk of blindness!

Respiratory or skin sensitization

Remarks: (IUCLID)

Germ cell mutagenicity

Suspected of causing genetic defects.

Mutagenicity (mammal cell test): chromosome aberration. Chinese hamster ovary cells

Result: positive

Mutagenicity (mammal cell test): micronucleus. 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.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure**Specific target organ toxicity - repeated exposure**

May cause damage to organs through prolonged or repeated exposure. - Nervous system, Kidney, Liver, Skin

Aspiration hazard**Additional Information**

RTECS: SJ3325000

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, Vomiting, Circulatory collapse, tachypnea, paralysis, Convulsions, Coma., necrosis of mouth and G.I. Tract, Jaundice, respiratory failure, cardiac arrest To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Toxicity

LD50 orally in rats: 530 mg/kg (Deichmann, Witherup)

SECTION 12: Ecological information

>Toxicity

Toxicity to fish

flow-through test LC50 - *Onchorhynchus clarki* - 8,9 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - *Ceriodaphnia dubia* (water flea) - 3,1 mg/l - 48 h (US-EPA)

Toxicity to algae

static test EC50 - *Pseudokirchneriella subcapitata* (algae) - 61,1 mg/l

- 96 h (US-EPA)

Toxicity to bacteria

static test IC50 - microorganisms - 21 mg/l - 24 h

Remarks: (ECHA)

>Persistence and degradability

Biodegradability aerobic - Exposure time 100 h

Result: 62 % - Readily biodegradable. (OECD Test Guideline 301C)

>Bioaccumulative potential

Bioaccumulation *Danio rerio* (zebra fish) - 5 h

at 25 °C - 2 mg/l(Phenol)

Bioconcentration factor (BCF): 17,5 (OECD Test Guideline 305)

Remarks: Does not bioaccumulate.

>Mobility in soil

No data available

>Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

>Toxics Screening Level

The initial threshold screening level (ITSL) for phenol is 190 µg/m³ based on an 8-hour averaging time.

>Other adverse effects

No data available

SECTION 13: Disposal considerations

>Waste treatment methods

Incompatibilities

Phenol is incompatible with strong oxidizing agents, calcium hypochlorite, halogens, halogenated compounds, aluminum chloride, and nitrobenzene. Hot phenol can attack aluminum, lead, magnesium and zinc.

Waste Disposal

Consult with environmental regulatory agencies for guidance on acceptable disposal practices. Generators of waste containing this contaminant (≥ 100 kg/mo) must conform with EPA regulations governing storage, transportation, treatment, and waste disposal. Incineration.

SECTION 14: Transport information

>UN number

ADR/RID: 1671 IMDG: 1671

SECTION 15: Regulatory information

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

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

Measures for Environmental Management of New Chemical Substances

EC Inventory:Listed.

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Korea Existing Chemicals List (KECL): Listed. website: <http://ncis.nier.go.kr>

SECTION 16: Other information

>Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

>References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

>Other Information

Other UN numbers: 2312 (molten); 2821 (solution). Depending on the degree of exposure, periodic medical examination is suggested. The symptoms of lung oedema often do not become manifest

until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.