1. PRODUCT AND COMPANY IDENTIFICATION

Product name : LEWATIT TP 272

Product code : 56849886

Other names : None

Recommended use : Ion exchange, resins and catalysts

Manufacturer or supplier’s details

Supplier : 朗盛化學(中國)有限公司
           中國上海市黃浦區湖濱路 150 號企業天地 5 號樓 6 樓 200021，
           People's Republic of China

Telephone : +862161096666

Emergency telephone number : +86 532 83889090

Supplier : LANXESS Chemical (China) Co., Ltd.
           6 F, 5 Corporate Avenue, No. 150
           Huangpu District, Shanghai, 200021, People's Republic of China

Telephone : +862161096666

Emergency telephone : +86 532 83889090

2. HAZARDS IDENTIFICATION

GHS Classification

Serious eye damage/eye irritation : Category 2A

Aspiration hazard : Category 1

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 2

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H304 May be fatal if swallowed and enters airways.
Precautionary statements:

Prevention:
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear eye protection/face protection.

Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331 Do NOT induce vomiting.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P391 Collect spillage.

Storage:
P405 Store locked up.

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

Other hazards which do not result in classification
None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

Chemical nature: styrene-divinylbenzene copolymer, Contains:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis(2,4,4-trimethylpentyl)phosphinic acid</td>
<td>83411-71-6</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated</td>
<td>93685-81-5</td>
<td>&gt;= 20 - &lt; 25</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice: Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Do not leave the victim unattended.

First aid measures for different exposure routes
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If not breathing, if breathing is irregular or if respiratory arrest
occurs, provide artificial respiration or oxygen by trained personnel.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
Get medical attention if adverse health effects persist or are severe.
If unconscious, place in recovery position and get medical attention immediately.
Maintain open airway.
Loosen tight clothing such as a collar, tie, belt or waistband.

In case of skin contact:
Wash skin thoroughly with soap and water or use recognized skin cleanser.
Remove contaminated clothing and shoes.
Get medical attention if symptoms occur.
Wash contaminated clothing before re-use.
Thoroughly clean shoes before reuse.

In case of eye contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed:
Call a physician immediately.
If swallowed, call a poison control centre or doctor immediately.
Take victim immediately to hospital.
Rinse mouth with water.
Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If conscious, make the victim drink the following:
Give small amounts of water to drink.
Stop if the exposed person feels sick as vomiting may be dangerous.
Aspiration hazard if swallowed - can enter lungs and cause damage.
Do NOT induce vomiting.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
If unconscious, place in recovery position and get medical attention immediately.
Never give anything by mouth to an unconscious person.
Keep respiratory tract clear.
Loosen tight clothing such as a collar, tie, belt or waistband.
If symptoms persist, call a physician.
Immediately give large quantities of water to drink.

Most important symptoms and effects, both acute and delayed:
See Section 11 for more detailed information on health effects and symptoms.
May be fatal if swallowed and enters airways.
Causes serious eye irritation.

Notes to physician:
See Section 11 for more detailed information on health effects and symptoms.
5. FIREFIGHTING MEASURES

Suitable extinguishing media : In case of fire, use water spray (fog), foam, dry chemical or CO₂.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Carbon dioxide (CO2)
Carbon monoxide
Oxides of phosphorus

Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Ensure adequate ventilation.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Move containers from spill area.
Use a suitable vacuum cleaner.
High efficiency particulate air filter (HEPA filter)
Keep in suitable, closed containers for disposal.
Dispose of wastes in an approved waste disposal facility.
Do not dry sweep.

7. HANDLING AND STORAGE

Handling

Advice on protection against fire and explosion : Avoid dust formation.
Provide appropriate exhaust ventilation at places where dust is formed.

Advice on safe handling : Avoid formation of respirable particles.
Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

**Storage**

Conditions for safe storage: Take action to prevent static discharges. Keep away from direct sunlight or strong incandescent light. Do not allow to dry. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Recommended storage temperature: -20 - 40 °C

Further information on storage stability: No decomposition if stored and applied as directed.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Components with workplace control parameters**
Contains no substances with occupational exposure limit values.

**Personal protective equipment**

Respiratory protection: Dust-protection mask if there is a risk of dust formation.

Filter type: P1 filter

Hand protection

Material: Fluorinated rubber - FKM
Wearing time: < 60 min

Material: Polyvinyl chloride - PVC
Wearing time: < 60 min

Material: Polychloroprene - CR
Wearing time: < 60 min

Remarks: After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection: Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Wear protective clothing.
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>beads</td>
</tr>
<tr>
<td>Colour</td>
<td>white, opaque</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odour Threshold</td>
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</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
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<tr>
<td>Boiling point/boiling range</td>
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<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Burning number</td>
<td>5 (20 °C)</td>
</tr>
<tr>
<td>Method: VDI 2263-1</td>
<td></td>
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<tr>
<td></td>
<td>5 (100 °C)</td>
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<tr>
<td>Method: VDI 2263-1</td>
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<tr>
<td>flammability limit</td>
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<td>Lower explosion limit</td>
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<td>Vapour pressure</td>
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<tr>
<td>Relative vapour density</td>
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</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.97 g/cm³ (20 °C)</td>
</tr>
<tr>
<td>Bulk density</td>
<td>500 - 550 kg/m³</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
: No decomposition if stored and applied as directed.

Chemical stability
: No decomposition if stored and applied as directed.

Possibility of hazardous reactions
: No decomposition if stored and applied as directed.

Conditions to avoid
: Take measures to prevent the build up of electrostatic charge.

Incompatible materials
: Strong oxidizing agents

Hazardous decomposition products
: No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Symptoms of Overexposure
: None known.

Acute toxicity
Not classified based on available information.

Product:

Acute oral toxicity
: Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Acute dermal toxicity
: Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Components:

bis(2,4,4-trimethylpentyl)phosphinic acid:

Acute oral toxicity
: LD50 (Rat): > 3,500 mg/kg
Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg

**Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:**

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): > 4.951 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: yes
Remarks: Dosage caused no mortality
Highest producible concentration.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402

**Skin corrosion/irritation**
Not classified based on available information.

**Product:**
Remarks: May cause skin irritation in susceptible persons.
Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

**Components:**

**bis(2,4,4-trimethylpentyl)phosphinic acid:**
Species: Rabbit
Exposure time: 24 h
Remarks: Mild skin irritation

**Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:**
Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: No skin irritation
GLP: yes

**Serious eye damage/eye irritation**
Causes serious eye irritation.

**Product:**
Remarks: May cause irreversible eye damage.

**Components:**

**bis(2,4,4-trimethylpentyl)phosphinic acid:**
Species: Rabbit
Result: Irritating to eyes.
Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitisation

Skin sensitisation
Not classified based on available information.

Respiratory sensitisation
Not classified based on available information.

Components:

bis(2,4,4-trimethylpentyl)phosphinic acid:
Remarks: No known sensitising effect.

Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Did not cause sensitisation on laboratory animals.
GLP: yes

Chronic toxicity

Germ cell mutagenicity
Not classified based on available information.

Components:

bis(2,4,4-trimethylpentyl)phosphinic acid:
Genotoxicity in vitro :
Test system: Bacteria
Method: OECD Test Guideline 471
Result: negative

Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
Genotoxicity in vitro :
Test system: Bacteria
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test system: Mammalian-Animal
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Test system: Mammalian-Animal
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test system: Mammalian-Animal
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

Genotoxicity in vivo:
Species: Mammalian-Animal
Application Route: Inhalation
Method: OECD Test Guideline 478
Result: negative

Species: Mammalian-Animal
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Carcinogenicity
Not classified based on available information.

Components:
Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
Species: Mouse, (male)
Application Route: Inhalation
Exposure time: 105 weeks
Frequency of Treatment: 6 hours/day
NOAEL: >= 2,200 mg/m³
Method: OECD Test Guideline 453
Result: negative

Species: Mouse, (female)
Application Route: Inhalation
Exposure time: 105 weeks
Frequency of Treatment: 6 hours/day
NOAEL: 1,100 mg/m³
Method: OECD Test Guideline 453
Result: negative

Reproductive toxicity
Not classified based on available information.

Components:
Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
Effects on foetal development:
Species: Rat, female
Application Route: Inhalation
Duration of Single Treatment: 15 d
Frequency of Treatment: 6 hours/day
General Toxicity Maternal: NOAEL: >= 5,220 mg/m³
Developmental Toxicity: NOAEL: >= 5,220 mg/m³
Method: OECD Test Guideline 414
Result: No adverse effects

STOT - single exposure
Not classified based on available information.
STOT - repeated exposure
Not classified based on available information.

Repeated dose toxicity

Components:

Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
Species: Rat, male and female
NOAEL: >= 5,000 mg/kg
Application Route: Oral
Exposure time: 3 Months
Number of exposures: 7 days/week
Method: OECD Test Guideline 408
GLP: yes
Remarks: Subchronic toxicity

Species: Rat, male and female
NOAEL: >= 1.16 mg/l
Application Route: Inhalation
Test atmosphere: vapour
Exposure time: 13 Weeks
Number of exposures: 6 hours/day
Method: OECD Test Guideline 413
GLP: yes
Remarks: Subchronic toxicity

Aspiration toxicity
May be fatal if swallowed and enters airways.

Product:
May be fatal if swallowed and enters airways.

Components:

Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
May be fatal if swallowed and enters airways.

Further information

Product:
Remarks: Solvents may degrease the skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

bis(2,4,4-trimethylpentyl)phosphinic acid:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 22 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 2.9 mg/l
aquatic invertebrates Exposure time: 48 h

**Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:**

**Toxicity to fish**
- LC50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l
- Exposure time: 96 h
- Method: OECD Test Guideline 203
- GLP: yes
- Remarks: Fresh water

**Toxicity to daphnia and other aquatic invertebrates**
- EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
- Exposure time: 48 h
- Method: OECD Test Guideline 202
- GLP: yes
- Remarks: Fresh water

**Toxicity to algae**
- EC50 (Pseudokirchneriella subcapitata (microalgae)): > 1,000 mg/l
- Exposure time: 72 h
- Method: OECD Test Guideline 201
- GLP: yes
- Remarks: Fresh water

No observed adverse effect level (Pseudokirchneriella subcapitata (microalgae)): 1,000 mg/l
- Exposure time: 72 h
- Method: OECD Test Guideline 201
- GLP: yes
- Remarks: Fresh water

No toxicity at the limit of solubility

**Persistence and degradability**

**Components:**

**bis(2,4,4-trimethylpentyl)phosphinic acid:**
- Biodegradability: Result: Not readily biodegradable.
  - Biodegradation: 5.9%
  - Exposure time: 28 d

**Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:**
- Biodegradability: aerobic
  - Result: Not readily biodegradable.
Biodegradation: 31.3 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: no

Bioaccumulative potential

Components:

bis(2,4,4-trimethylpentyl)phosphinic acid:
Partition coefficient: n-octanol/water: log Pow: 5.9

Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated:
Partition coefficient: n-octanol/water: log Pow: 6.96
Method: calculated

Mobility in soil
No data available

Other adverse effects

Product:
Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging: Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

14. TRANSPORT INFORMATION

Special precautions for user
Not applicable

International Regulations

IATA-DGR
UN/ID No.: UN 3077
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (BIS(2,4,4-TRIMETHYL-PENTYL)PHOSPHINIC ACID)
Class: 9
Packing group: III
Labels: 9

Packing instruction (cargo aircraft): 956: 400.00 KG
Packing instruction (passenger aircraft): 956: 400.00 KG
Environmentally hazardous: yes

IMDG-Code
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (BIS(2,4,4-TRIMETHYLPENTYL)PHOSPINIC ACID)
Class: 9
Packing group: III
Labels: 9

Marine pollutant: yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Hazard statements: Environmentally hazardous substance. Irritating to skin and eyes. Keep separated from foodstuffs.

15. REGULATORY INFORMATION

National regulatory information
International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors: Not applicable
Taiwan. Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals: Neither banned nor restricted
Further information:
1. Labor Safety and Health Act
2. Regulation of Labelling and Hazard Communication of Dangerous and Harmful Materials
3. Rules of Road Traffic Safety
4. Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste
5. Waste Disposal Act
6. Toxic Chemical Substances Control Act
7. Rules for Labor Safety and Health Installations
8. Criterion for Preventing the Hazard of Specific Chemical Substance
9. Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace
10. Public Hazardous Substances & Flammable Pressurized Gases Establishment Standards & Safety Control

Other international regulations:

16. OTHER INFORMATION

Full text of other abbreviations:
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals

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Tel: +86 21 6109 6666

Prepared by: LXAEK(Regulatory Affair &Product Safety manager).

Revision Date: 2019/04/18

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