SECTION 1. IDENTIFICATION

Product name : LEWATIT TP 272
Material number : 56849886
Recommended use : Ion exchange, resins and catalysts

Manufacturer or supplier’s details
Supplier : LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh PA 15275-1112
USA
Telephone : +1800LANXESS
+14128091000 (international)
Emergency telephone : CHEMTREC (800) 424 9300
International (703) 527 3887
Lanxess Emergency Phone (800) 410-3063

SECTION 2. HAZARDS IDENTIFICATION

Eye irritation : Category 2A

GHS label elements
Hazard pictograms : ![Exclamation Mark]

Signal Word : Warning
Hazard Statements : Causes serious eye irritation.
Precautionary Statements : Prevention:
Wash skin thoroughly after handling.
Wear eye protection/ face protection.

Response:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
Hazard Not Otherwise Classified (HNOC)
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS
Substance / Mixture : Mixture
Chemical nature : styrene-divinylbenzene copolymer, Contains:, isododecane

Hazardous ingredients

<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>Isododecane</td>
<td>93685-81-5</td>
<td>&gt;= 20 - &lt; 30</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

SECTION 4. FIRST AID MEASURES

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
If unconscious, place in recovery position and get medical attention immediately.
Maintain open airway.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

In case of skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. Get medical attention if symptoms occur.

In case of eye contact : Get medical attention immediately.
In case of contact, flush eyes with plenty of water for at least 30 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated.
Remove contact lenses, if present and easy to do. Continue rinsing.

If swallowed : Rinse mouth with water.
Do not induce vomiting unless directed to do by medical personnel.
Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

Symptoms : Eye: Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

Effects : See Section 11 for more detailed information on health effects and symptoms.
Causes serious eye irritation.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training.

Notes to physician: See Section 11 for more detailed information on health effects and symptoms.
Treat symptomatically.

SECTION 5. FIRE-FIGHTING 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 fire fighting: 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

Further information: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: No action shall be taken involving any personal risk or without suitable training.
Put on appropriate personal protection equipment.
Do not touch or walk through spilled material.
Evacuate personnel to safe areas.
Keep unnecessary and unprotected personnel from entering.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
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.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling: Avoid formation of respirable particles. Do not breathe vapors/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.

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: -4 - 104 °F (-20 - 40 °C)

Further information on storage stability: It is recommended to store ion exchange resins at temperatures above the freezing point of water. If the resin should become frozen, the resin should not be mechanically handled and should be left to thaw out gradually at ambient temperature. It must be completely thawed before handling or use. No attempt should be made to accelerate the thawing process. No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters: Contains no substances with occupational exposure limit values.

Engineering measures: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment
Respiratory protection: Dust-protection mask if there is a risk of dust formation.
Filter type: P1 filter
Hand protection
- Material: Polyvinyl chloride - PVC
- Wearing time: < 60 min
- Material: Fluorinated rubber - FKM
- Wearing time: < 60 min
- Material: Nitrile rubber - NBR
- 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: Tightly fitting safety goggles

Skin and body protection: Wear suitable protective clothing.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Appropriate techniques should be used to remove potentially contaminated clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state: solid
- Appearance: beads
- Color: white, opaque
- Odor: characteristic
- Odor Threshold: No data available
- pH: No data available
- Melting point/freezing point: No data available
- Boiling point/boiling range: No data available
Flash point : No data available
Evaporation rate : No data available
Flammability (solid, gas) : No data available
Burning number : 5 (68 °F (20 °C))
      Method: VDI 2263-1
      5 (212 °F (100 °C))
      Method: VDI 2263-1
Upper explosion limit / Upper flammability limit : No data available
Lower explosion limit : No data available
Vapor pressure : No data available
Relative vapor density : No data available
Relative density : No data available
Density : 0.97 g/cm³ (68 °F (20 °C))
Bulk density : 500 - 550 kg/m³
Solubility(ies)
      Water solubility : insoluble
Partition coefficient: n-octanol/water : No data available
Ignition temperature : No data available
Decomposition temperature : No data available
Viscosity : No data available
Explosive properties : No data available
Oxidizing properties : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.
Chemical stability : The product is chemically stable.
Possibility of hazardous reactions : No dangerous reaction known under conditions of normal use.
Conditions to avoid: Take measures to prevent the build up of electrostatic charge.

Incompatible materials: Strong oxidants, e.g. nitric acid, can cause violent reactions if they come into contact with ion exchange resins.

Hazardous decomposition products: No decomposition if stored normally.

SECTION 11. TOXICOLOGICAL INFORMATION

The most important known symptoms and effects are described in Section 2 and/or Section 4.

Acute toxicity
Not classified based on available information.

Product:

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

Acute inhalation toxicity: Acute toxicity estimate: 26.25 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
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

Isododecane:

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: vapor  
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

Isododecane:
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.

Isododecane:
Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitization
Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:

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

Isododecane:
Routes of exposure: Skin contact
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: Did not cause sensitization on laboratory animals.  
GLP: yes

**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

**Isododecane:**
- 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

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

  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:

Isododecane:
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

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.

OSHA
No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
Not classified based on available information.

Components:

Isododecane:
Effects on fetal 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:

Isododecane:
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: vapor
Exposure time: 13 Weeks
Number of exposures: 6 hours/day
Method: OECD Test Guideline 413
GLP: yes
Remarks: Subchronic toxicity

Aspiration toxicity
Not classified based on available information.

Components:

Isododecane:
May be fatal if swallowed and enters airways.

Further information

Product:
Remarks: Solvents may degrease the skin.

SECTION 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 aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.9 mg/l
Exposure time: 48 h
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

NOAEL (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

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOAEL (No observed adverse effect level) (Daphnia magna (Water flea)): 1 mg/l
   Exposure time: 21 Days
   Method: OECD Test Guideline 211
   GLP: yes
   Remarks: Fresh water
   No toxicity at the limit of solubility.

NOEC (Daphnia magna (Water flea)): 0.011 mg/l
   Exposure time: 21 Days
   Method: OECD Test Guideline 211
   Remarks: Fresh water

Persistence and degradability

Components:

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

Isododecane:
   Biodegradability: aerobic
   Result: Not readily biodegradable.
   Biodegradation: 31.3 %
   Exposure time: 28 d
Bioaccumulative potential

Components:

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

Isododecane:
Partition coefficient: n-octanol/water: \( \log \text{Pow} : 6.96 \)  
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.

SECTION 13. DISPOSAL CONSIDERATIONS

RCRA - Resource Conservation and Recovery Authorization Act:
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

Disposal methods:
The generation of waste should be avoided or minimized wherever possible. Dispose of wastes in an approved waste disposal facility. This material and its container must be disposed of in a safe way. The product should not be allowed to enter drains, water courses or the soil. Waste disposal should be in accordance with existing federal, state, provincial and/or local environmental controls.

SECTION 14. TRANSPORT INFORMATION

Domestic regulation

DOT
UN/ID/NA 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

Further information for transport : The U.S. DOT regulations in 49 CFR 172.102 permit this material to ship as an Environmentally Hazardous Substance, Class 9, using Special Provision 146.

International Regulations

IATA-DGR
UN/ID No. : 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

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.

SECTION 15. REGULATORY INFORMATION

CERCLA
None

Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Serious eye damage or eye irritation

SARA 313
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know
Benzene, diethyl-, polymer with ethenylbenzene 9052-95-3 > 1
and ethenylethylbenzene
bis(2,4,4-trimethylpentyl)phosphinic acid 83411-71-6 30 - 50
Isododecane 93685-81-5 20 - 30

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

TSCA inventory
TSCA : On 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**

Further information

**NFPA:**

Flammability

Health

Instability

Special hazard

**HMIS® IV:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEALTH</td>
<td>2</td>
</tr>
<tr>
<td>FLAMMABILITY</td>
<td>1</td>
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<tr>
<td>PHYSICAL HAZARD</td>
<td>0</td>
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</table>

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "***" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

LANXESS’ method of hazard communication is comprised of Product Labels and Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS as a customer service.

Revision Date : 06/03/2020

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