

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Tributyl phosphine (TBP)

Version number: 3
 Issued: 2024-04-02
 Replaces SDS: 2019-08-22



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

1.1. Product identifier

Trade name

Tributyl phosphine (TBP)

CAS number

998-40-3

EC number

213-651-2

Synonyms

Cytop 340

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

Relevant identified uses

Research and development. Laboratory Chemicals. Manufacture of substances.

Not suitable for use in

Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,
 DL1 4XX Darlington
 United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

Contact person

Kevin Banks

Email

+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Hazardous to the aquatic environment — Chronic hazard category 2

Skin corrosion, hazard category 1A

Acute toxicity, oral, hazard category 4

Acute toxicity, dermal, hazard category 4

Pyrophoric liquids, hazard category 1

Flammable liquids, hazard category 3

Hazard statements

H226, H250, H302 + H312, H314, H411

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H226 Flammable liquid and vapour.

H250 Catches fire spontaneously if exposed to air.

H302 + H312 Harmful if swallowed or in contact with skin.

H314 Causes severe skin burns and eye damage.

H411 Toxic to aquatic life with long lasting effects.

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Precautionary statements

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.
 P223 Do not allow contact with water.
 P231 + P232 Handle and store contents under inert gas. Protect from moisture.
 P260 Do not breathe .
 P264 Wash thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
 P302 + P352 IF ON SKIN: Wash with plenty of water/.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.
 P310 Immediately call a POISON CENTER/doctor.
 P321 Specific treatment (see on this label).
 P391 Collect spillage.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.
 P501 Dispose of contents/container to local regulations.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

| Chemical name | CAS No. EC No. REACH No. Index No. | Concentration | Classification | H-phrase M factor acute M factor chronic | Note |
|--------------------------|---|---------------|--|--|------|
| Tributyl phosphine (TBP) | 998-40-3 213-651-2 - - | 100% | Flam. Liq. 3, Pyr. Liq. 1, Acute Tox. 4 - oral, Acute Tox. 4 - dermal, Skin Corr. 1A, Aquatic Chronic 2 | H226, H250, H302, H312, H314, H411 - - | - |

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Molecular weight

202.32

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

Skin contact

IF ON SKIN: Wash with plenty of soap and water. Continue to rinse for at least 15 minutes. Get medical advice/attention if you feel unwell.

Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

Ingestion

Rinse mouth. Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

Information for doctors

No data available.

4.2. Most important symptoms and effects, both acute and delayed

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

Inhalation

Single exposure may cause the following adverse effects: Upper respiratory irritation. Difficulty in breathing.

Skin contact

Single exposure may cause the following adverse effects: Severe skin irritation.

Eye contact

May cause temporary eye irritation.

Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. Nausea, vomiting.

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4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use alcohol resistant foam, carbon dioxide or dry powder to extinguish.

Unsuitable extinguishing media

No specific fire fighting procedure given.

5.2. Special hazards arising from the substance or mixture

Specific hazards: FLAMMABLE. Corrosive Combustible.

Containers can burst violently when heated, due to excess pressure build-up.

Vapours may form explosive mixture with air at room temperature.

Carbon monoxide (CO). Carbon dioxide (CO₂).

Oxides of phosphorus

Vapours are heavier than air and may travel along the floor and in the bottom of containers.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air on intense heating.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Prevent skin contact by maintaining a safe distance and by wearing suitable protective equipment/ clothing. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid inhalation of vapours and spray mist and contact with skin and eyes. For personal protection, see section 8. Provide adequate ventilation. Remove sources of ignition. Beware of the explosion danger. Take action to prevent static discharges.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Risk of explosion.

6.3. Methods and material for containment and cleaning up

Collect with absorbent, non-combustible material into suitable containers. Remove sources of ignition. Beware of the explosion danger. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Work under hood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take action to prevent static discharges. Use spark-proof tools and explosion-proof equipment. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Store at room temperature. Store in a dry place. Store in a closed container.
 Handle and store contents under inert gas. Air and moisture sensitive. Store under inert gas.

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No data available

8.2. Exposure controls

Personal Protective Equipment Symbols



Eye / face protection

Wear eye protection.

Hand protection

Wear protective gloves.

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

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Environmental exposure controls

Avoid discharge into drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

Colour

Colourless.

Odour

Unpleasant.

Melting point / freezing point

-65 °C

Boiling point or initial boiling point and boiling range

240 - 242 °C

Flammability

No data available

Lower and upper explosion limit

No data available

Flash point

37 °C

Auto-ignition temperature

199 °C

Decomposition temperature

> 220 °C

pH

No data available

Kinematic viscosity

No data available

Solubility

No data available

Partition coefficient n-octanol/water

No data available

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Vapour pressure

0.09 mbar

Density and/or relative density

0.81 g/cm³

Relative vapour density

No data available

Particle characteristics

No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

15 (approx) Kelvin below the flash point is to be rated as critical.

10.2. Chemical stability

Stable under normal temperature conditions. Stable under the prescribed storage conditions.

Air sensitive. Moisture Sensitive.

10.3. Possibility of hazardous reactions

Violent reactions possible with:

Strong oxidising agents.

Oxygen.

10.4. Conditions to avoid

Heat, sparks, flames.

Pyrophoric: Spontaneously flammable in air.

Moisture Sensitive.

10.5. Incompatible materials

Strong oxidising agents.

Oxygen.

10.6. Hazardous decomposition products

See section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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| Product / Substance name CAS / EC no. | Dose descriptor | Value / Dose | Exposure route | Test animals |
|--|-----------------|--------------|----------------|--------------|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | LD50 | 750 mg/kg | Oral | Rat |

Skin corrosion/irritation

| Product / Substance name CAS / EC no. | Result |
|--|----------------------|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | Causes severe burns. |

Serious eye damage/irritation

| Product / Substance name CAS / EC no. | Result |
|--|----------------------------|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | Causes serious eye damage. |

Germ cell mutagenicity

| Product / Substance name CAS / EC no. | Result | Metabolic activation / Exposure | Species | Method / Guideline |
|--|-----------|--|------------------------|--------------------|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | Negative. | with and without meta- bolic activation | Salmonella typhimurium | Ames test |

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

Acute fish toxicity

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| Product / Substance name CAS / EC no. | Measurement type | Value / Result | Duration of exposure | Species |
|--|------------------|----------------|----------------------|--------------------------------------|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | LC50 | 55 mg/l | 96 hours | Onchorhynchus mykiss (Rainbow trout) |

Acute algae toxicity

| Product / Substance name CAS / EC no. | Measurement type | Value / Result | Duration of exposure | Species |
|--|------------------|----------------|----------------------|---------------------------------|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | EC10 | 0.74 mg/l | 72 hours | Pseudokirchneriella subcapitata |
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | ErC50 | 0.74 mg/l | 72 hours | Pseudokirchneriella subcapitata |

Acute crustacean toxicity

| Product / Substance name CAS / EC no. | Measurement type | Value / Result | Duration of exposure | Species |
|--|------------------|----------------|----------------------|---------------|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | EC50 | 9.2 mg/l | 48 hours | Daphnia magna |

12.2. Persistence and degradability

Persistence and degradability

| Product / Substance name CAS / EC no. | Type of test | Duration | Result | Degradation |
|--|--------------|----------|--------|---|
| Tributyl phosphine (TBP) 998-40-3 / 213-651-2 | aerobic | 29 days | 20.3% | The product is not readily biodegradable. |

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

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12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

14.1. UN number

3254

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

TRIBUTYLPHOSPHANE

IMDG proper shipping name

TRIBUTYLPHOSPHANE

IATA proper shipping name

Tributylphosphane

14.3. Transport hazard class(es)

Label

ADR/RID/ADN



4.2



8

IMDG



4.2



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ADR / RID Class

4.2

ADR / RID Classification code

S1

ADR / RID hazard identification number

333

IMDG Class

4.2

IATA Class

4.2

ADN Class

4.2

ADN Class Code

S1

14.4. Packing group

ADR / RID / ADN: I

IMDG: I

14.5. Environmental hazards

Environmental hazards

Yes.

14.6. Special precautions for user

Special precautions for user

Tunnel restriction code: B/E

Transport category: 0

IMDG EmS

F-A, S-M

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

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National regulations

Directive: 2012/18/EU: P7 PYROPHORIC LIQUIDS AND SOLIDS

E2: ENVIRONMENTAL HAZARDS

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Phrase meaning

Aquatic Chronic 2 - Hazardous to the aquatic environment — Chronic hazard category 2

Skin Corr. 1A - Skin corrosion, hazard category 1A

Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4

Acute Tox. 4 - dermal - Acute toxicity, dermal, hazard category 4

Pyr. Liq. 1 - Pyrophoric liquids, hazard category 1

Flam. Liq. 3 - Flammable liquids, hazard category 3

H226 Flammable liquid and vapour.

H250 Catches fire spontaneously if exposed to air.

H302 Harmful if swallowed.

H302 + H312 Harmful if swallowed or in contact with skin.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H411 Toxic to aquatic life with long lasting effects.