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Hefei TNJ Chemical Industry Co.,Ltd.

D1508 Xincheng Business Center,  
Qianshan Road, Hefei 230022 China

Tel : (0086) 551 65418678

Fax: (0086) 551 65418697

Email: info@tnjchem.com

Site: www.tnjchem.com

## Material Safety Data Sheet

### Acetyl Tributyl Citrate

#### Section 1: Chemical Product and Company Identification

**Molecular formula:** C<sub>20</sub>H<sub>34</sub>O<sub>8</sub>

**CAS Nr:** 77-90-7

**EINECS:** 201-067-0

**Molecular weight:** 402.48 g/mol

**Customs Tariff No:** 2918.15

**Synonyms:** 2-acetyltributylcitrate Acetylcitric Acid, Tributyl Ester; 2-acetyltributylcitrate

**Contact Information for Emergency:** (0086) 551 65418678

**Hefei TNJ Chemical Industry Co.,Ltd.**

B911 Xincheng Business Center

Qianshan Road, Hefei

230004Anhui

China

Tel : (0086) 551 5418678

Fax: (0086) 551 5418697

Email: info@tnjchem.com

Site: www.tnjchem.com

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	By Weight
Acetyl Tributyl Citrate	77-90-7	≥ 99.0%

**Toxicological Data on Ingredients:** Not applicable.

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

**Inhalation:** Data suggests that the product should be considered to be irritating and toxic by inhalation.

**Ingestion:** Data suggests that the product should be considered to be toxic by ingestion.

**Skin Contact:** Data suggests that the product should be classified as possibly irritating to the skin.

**Eye Contact:** Data suggests that the product should be classified as possibly irritating to the eyes.

**Potential Chronic Health Effects:**

**Chronic toxicity:** Chronic exposure may cause nausea and vomiting, higher exposure causes unconsciousness.

**Local effects:** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Special effects:** May include moderate to severe erythema(redness) and moderate edema(raised skin), nausea, vomiting.

**Carcinogenic Effects:** No information found

**Mutagenic Effects:** No information found

**Developmental Toxicity:** No information found

**Teratogenic Effects:** No information found

**Repeated or prolonged exposure is not known to aggravate medical condition.**

**Section 4: First Aid Measures**

**Eye Contact:**

Check for and remove any contact lenses.

Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open.

Cold water may be used. Do not use an eye ointment. Seek a medical attention.

**Skin Contact:**

In case of contact, flush skin with plenty of water while removing contaminated clothing and shoes.

Wash clothing before reuse. Seek a medical attention.

**Serious Skin Contact:** No information found

**Ingestion:**

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband.

If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek a medical attention.

**Advice to doctor:** Treat symptomatically. Not the nature of this product.

**Serious Ingestion:** No information found

**Inhalation:**

If mists, dusts or combustion products are inhaled, remove to fresh air.

Lay victim down & keep warm and rested.

If breathing is shallow, or has stopped ensure clear airway and apply resuscitation or oxygen

if available, seek a medical attention.

**Serious Inhalation:** No information found

**Section 5: Fire and Explosion Data**

**Flammability of the Product:** Flammable liquid.

**Auto-Ignition Temperature:** No information found

**Flash Points:** 204 (open cup)

**Flammable Limits:** No information found

**Products of Combustion:**

These products are carbon oxides (CO, CO<sub>2</sub>) and water(H<sub>2</sub>O).

**Fire Hazards in Presence of Various Substances:**

Flammable in presence of open flames and sparks, of heat, of oxidizing materials, of combustible materials.

**Explosion Hazards in Presence of Various Substances:**

**Risks of explosion of the product in presence of mechanical impact:** No information found

**Risks of explosion of the product in presence of static discharge:** No information found

**Fire Fighting Media and Instructions:**

**SMALL FIRE:** Use DRY chemical powder.

**LARGE FIRE:** Use water spray, fog or foam.

**Special Remarks on Fire Hazards:** No information found

**Special Remarks on Explosion Hazards:** No information found

## Section 6: Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled liquid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Prevent spillage from entering drains or water courses. Wear full protective clothing including face mask, face shield and gauntlets. Stop leak if safe to do so, and contain spill. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage. Recycle containers wherever possible. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. If material enters drains, advise emergency services. This material may be suitable for approved landfill. Dispose of only in compliance with local regulations. Launder all contaminated clothing before re-use.

## Section 7: Handling and Storage

**Precautions:**

Contained in an approved segregation device.

**Storage:**

Not a scheduled Poison. Containers should be closed in order to minimise contamination.

Keep away from extreme heat and open flames. Keep away from sources of ignition and make sure the material does not come into contact with products listed under "Materials to avoid" below. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:**

Splash goggles. Lab coat. Dust respirator. Gloves.

Be sure to use an approved/certified respirator or equivalent.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves.

A self contained breathing apparatus should be used to avoid inhalation of the product.

Suggested protective clothing might not be sufficient; consult a specialist before handling this product.

**Exposure Limits:** No information found

## Section 9: Physical and Chemical Properties

<b>Physical state and appearance:</b>	clear viscous liquid
<b>Molecular Weight:</b>	402.48 g/mole
<b>Odor:</b>	Mild
<b>Melting Point:</b>	-80
<b>Boiling Point:</b>	173 at 1mmHg
<b>Flash Point:</b>	204 (open cup).
<b>Specific Gravity:</b>	1.050 at 25
<b>Refractive Index:</b>	1.441 at 25
<b>Vapor Pressure:</b>	0.8mmHg@170 .
<b>Vapor Density (Air=1):</b>	14.1
<b>Odor Threshold:</b>	No information found
<b>Water/Oil Dist. Coeff.:</b>	No information found
<b>Solubility:</b>	Insoluble in water.
<b>Evaporation Rate (BuAc=1):</b>	Less than water.
<b>Ionicity (in Water):</b>	No information found

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** No information found.

**Conditions of Instability:** No information found.

**Incompatibility with various substances:** Reactive with oxidizing agents.

**Conditions to Avoid:** Dust generation, moisture, excess heat. strong oxidizing agents.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** No information found.

**Special Remarks on Corrosivity:** No information found.

**Polymerization:** May polymerise spontaneously. If uncontrolled, this may lead to dangerous situations.

## Section 11: Toxicological Information

**Routes of Entry:** Eye contact .

**Toxicity to Animals:**

LD50: >30ml/kg oral rat, >50ml/kg oral cat;

LC50: Not available.

**Other Toxic Effects on Humans:** Slightly hazardous in case of skin contact (irritant, permeator), of inhalation.

**Special Remarks on Chronic Effects on Humans:** No information found

**Special Remarks on other Toxic Effects on Humans:** No information found

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:** No information found.  
**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.  
**Special Remarks on the Products of Biodegradation:** Not available.  
**Aquatic Toxicity:** May cause long-term adverse effects in the aquatic environment.

### Section 13: Disposal Considerations

**Waste Disposal:**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

### Section 14: Transport Information

**DOT Classification:** N/A Keep away from children.

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

### Section 15: Other Regulatory Information

**Other Regulations:** Not available.

**Other Classifications:**

**WHMIS (Canada):** Not available. (Canada).

**DSCL (EEC):** Not available.

**HMIS (U.S.A.):**

Health Hazard:1

Fire Hazard:1

Reactivity: 0

Personal Protection: G

**National Fire Protection Association (U.S.A.):**

Health: 0

Flammability: 1

Reactivity: 0

**Specific hazard:** Not available.

### Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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