



## SAFETY DATA SHEET

(according to (EC) 1907/2006)

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

#### 1.1. Product identifier

Tri-n-Butyl Citrate

##### Synonyms:

1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tributyl ester, TBC

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

Not provided.

#### 1.3. Details of the supplier of the safety data sheet

Vertellus LLC  
201 North Illinois Street, Suite 1800,  
Indianapolis, IN 46204  
336-292-1781

e-mail Address: [msds@vertellus.com](mailto:msds@vertellus.com)

#### 1.4. Emergency telephone number

Vertellus: 1-336-292-1781

CHEMTREC (USA): 1-800-424-9300 (collect calls accepted); (Int'l): 1-703-527-3887 (collect calls accepted; 011 prefix not needed)

### SECTION 2: Hazards identification

HMIS Rating	
HEALTH	0
FLAMMABILITY	1
REACTIVITY	0

#### 2.1. Classification of the substance or mixture

(According to Regulation (EC) No 1272/2008)

Not classified as hazardous under this directive.

(According to Directive 67/548/EEC)

Symbol: Not classified as hazardous under this directive.

Risk Phrases: Not classified as hazardous under this directive.

Safety Phrases: Not classified as hazardous under this directive.

#### 2.2. Label elements

Signal Word:

Not required.

Hazard Precautions:



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Not classified as hazardous under this directive.

### Prevention Precautionary Statements:

Note: These precautionary statements are not prescribed by directive 1272/2008 as this product is not classified as hazardous under this directive. Wash hands thoroughly after handling with soap and water. Wear protective gloves, protective clothing, eye protection and face protection. If swallowed, in eyes, on skin or inhaled call a poison center or doctor/physician if you feel unwell. If inhaled, remove victim to fresh air and keep at rest in a comfortable position for breathing. Take off contaminated clothing before reuse. Store in a well-ventilated place. Keep container tightly closed.

### First Aid Precautionary Statements:

Not required.

### Storage Precautionary Statements:

Not required.

### Disposal Precautionary Statements:

Not required.

## 2.3. Other hazards

**Signs and Symptoms of Potential Overexposure:** May be harmful if ingested in sufficient quantities. High gas, vapor, or mist concentrations may be harmful if inhaled. Contact with eyes may cause slight irritation. Contact with skin may cause slight irritation.

**Primary Route(s) of Exposure:** Skin contact and absorption, eye contact, ingestion, inhalation.

**Medical Conditions Aggravated by Exposure:** No data found

## SECTION 3: Composition/information on ingredients

### 3.1. Substances or 3.2. Mixtures

Ingredient	CAS Number	Concentration (%)	EINECS / ELINCS	CLP Inventory/ Annex VI	EU DSD Classification (67/548/EEC)	EU CLP Classification (1272/2008)
Tri-n-Butyl Citrate	77-94-1	~ 100	201-071-2	Not listed.	N/A Not applicable	Not applicable.

**NOTE:** See Section 8 of this MSDS for exposure limit data for these ingredients.  
See Section 15 of this MSDS for trade secret information (where applicable).  
See Section 16 of this MSDS for the full text of the R-phrases above.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Skin Contact:** Wash thoroughly after skin contact.

**Eye Contact:** Immediately flush the eyes with plenty of water for at least 15 minutes. Call a physician.

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**Inhalation:** Remove from exposure. If not breathing, give artificial respiration and call a physician.

**Ingestion:** If swallowed, do not induce vomiting. Get prompt medical attention.

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

**Acute:** May be harmful if ingested in sufficient quantities. High gas, vapor, or mist concentrations may be harmful if inhaled. Contact with eyes may cause slight irritation. Contact with skin may cause slight irritation.

**Delayed Effects:** None known.

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

**Thermal Exposure:** Not applicable.

**Note to Physician:** No specific indications. Treatment should be based on the judgment of the physician in response to the reactions of the patient.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Appropriate Extinguishing Media:** Foam Dry chemical Carbon dioxide Water spray

### 5.2. Special hazards arising from the substance or mixture

**Hazardous Products of Combustion:** As with other organic materials, combustion will produce carbon monoxide and carbon dioxide.

**Potential for Dust Explosion:** not available

**Special Flammability Hazards:** Not applicable.

### 5.3. Advice for firefighters

**Basic Fire Fighting Guidance:** Wear self-contained breathing apparatus and protective clothing. Normal firefighting procedures may be used.

**Flammability Classification (OSHA):** Combustible Liquid - Class III B

NFPA Rating



## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Evacuation Procedures:** Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

**Special Instructions:** Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded.



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### 6.2. Environmental precautions

Prevent releases to soils, drains, sewers, and waterways.

### 6.3. Methods and material for containment and cleaning up

#### Containment Techniques and Clean-up Procedures:

Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Remove all ignition sources. Ventilate the area of spill or leak. Wear protective equipment during clean-up. For small spills, use suitable absorbent material and collect for later disposal. For large spills, the area may require diking to contain the spill. Material can then be collected (eg., suction) for later disposal. After collection of material, flush area with water. Dispose of the material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws.

#### Special Reporting Requirements:

Not applicable.

### 6.4. Reference to other sections

Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Precautions for Unique Hazards:

Not applicable.

#### Practices to Minimize Risk:

Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material.

#### Special Handling Equipment:

Not applicable.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Storage Precautions & Recommendations:

This product should be stored at ambient temperature in a dry, well-ventilated location. Keep container closed when not in use.

#### Dangerous Incompatibility Reactions:

Oxidizing materials

#### Incompatibilities with Materials of Construction:

none known

### 7.3. Specific end use(s)

If a chemical safety assessment has been completed an exposure scenario is attached as an annex to this Safety Data Sheet. Refer to this annex for the specific exposure scenario control parameters for uses identified in subsection 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure Limits (United States):

OSHA PEL: Not established

ACGIH TLV: Not established

### 8.2. Exposure controls

Also see the annex to this SDS (if applicable) for specific exposure scenario controls.

#### Personal Protective Equipment:

Impervious gloves, boots, and clothing, chemical goggles or face shield where necessary, and a NIOSH approved chemical cartridge respirator or supplied air breathing apparatus.



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Respirator Caution:	Observe OSHA regulations for respirator use (29 CFR 1910.134). Air-purifying respirators must not be used in oxygen-deficient atmospheres.
Ventilation:	All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided.
Other Engineering Controls:	All appropriate engineering controls should be used to minimize exposure potential. Use exhaust ventilation to keep airborne concentrations below exposure limits.
Thermal Hazards:	Not applicable.
Additive or Synergistic Effects:	None known.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Appearance, State & Odor (ambient temperature):	Clear, oily liquid. Essentially odorless.		
Molecular Formula:	C18H32O7	Molecular Weight:	360.40
Vapor Pressure:	1.00 mm Hg @ 170°C	Evaporation Rate:	< 1 (Butyl Acetate = 1)
Specific Gravity or Density:	1.042	Vapor Density (air = 1):	12.4
Boiling Point:	325 °C 617 °F	Freezing / Melting Point:	-62 °C -80 °F
Solubility in Water:	< 0.1%	Octanol / Water Coefficient:	No data available.
pH:	Not available	Odor Threshold:	No data available.
Viscosity:	No data available.	Autoignition Temperature:	368 °C
Flash Point and Method:	365°F (185°C) COC	Flammable Limits:	Not available (LEL) – Not available (UEL)

#### 9.2. Other information

Not applicable.

### SECTION 10: Stability and reactivity

<u>10.1. Reactivity</u>	Not classified as dangerously reactive.
<u>10.2. Chemical stability</u>	Stable
<u>10.3. Possibility of hazardous reactions</u>	Will not occur.
<u>10.4. Conditions to avoid</u>	Avoid contact with strong oxidizers.
<u>10.5. Incompatible materials</u>	Oxidizing materials
<u>10.6. Hazardous decomposition products</u>	As with other organic materials, combustion will produce carbon monoxide and carbon dioxide.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects



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Acute Oral LD <sub>50</sub> :	Oral LD50 (rat) > 30 mL/kg Oral LD50 (cat) > 50 mL/kg	Tri-n-Butyl Citrate
Acute Dermal LD <sub>50</sub> :	No data available.	
Acute Inhalation LC <sub>50</sub> :	No data available.	
Other Toxicity Data:	Intraperitoneal LD50 (mouse) = 2900 mg/kg	
Skin Irritation:	May cause slight irritation.	
Skin Sensitization:	No data available.	
Eye Irritation:	May cause slight irritation.	
Target Organs:	TDLo (intraperitoneal, mouse) = 8120 mg/kg/14D-I	
Carcinogenicity:	This material is not listed by IARC, NTP or OSHA as a carcinogen. No test data is available that indicates this material is a carcinogen.	
Teratogenicity:	No data available.	
Reproduction:	No data available.	
Neurotoxicity:	No data available.	
Mutagenicity:	No data available.	

### SECTION 12: Ecological information

<u>12.1. Toxicity</u>	No data available.
<u>12.2. Persistence and degradability</u>	No data
<u>12.3. Bioaccumulative potential</u>	No data
<u>12.4. Mobility in soil</u>	No data
<u>12.5. Results of PBT and vPvB assessment</u>	No data available.
<u>12.6. Other adverse effects</u>	No data available.

German Water Hazard Classification: ID Number 2213, hazard class 1 - low hazard to waters

Component Name:

Tributylcitrat

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

US EPA Waste Number: Non-Hazardous

**Waste Disposal:** Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.



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### SECTION 14: Transport information

<u>14.1. UN number</u>	Not applicable
<u>14.2. UN proper shipping name</u>	Chemicals, n.o.s. (Tri-n-Butyl Citrate)
<u>14.3. Transport hazard class(es)</u>	Not applicable
<u>14.4. Packing group</u>	Not applicable
<u>14.5. Environmental hazards</u>	Not applicable
<u>14.6. Special precautions for user</u>	No data available.
NA Emergency Guidebook Numbers:	Not applicable
	<b>IMDG EMS:</b> Not applicable
<u>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</u>	Not applicable.

### SECTION 15: Regulatory information

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

OSHA Hazards:            Health: Not applicable.            Physical: Not applicable.

WHMIS Classification:            Not Controlled

Chemical Inventory Lists:	Status
TSCA:	Present
EINECS:	201-071-2
Canada(DSL/NDL):	DSL
Japan:	(2)-1320; (2)-1318
Korea:	KE-34032
Australia:	Present
New Zealand:	Present
China:	Present
Philippines:	Present
Switzerland:	G-3149

New Zealand GHS Classification:            Not classified by this country.

Japan GHS Classification:            Not classified by this country.

Korea (MOL) GHS Classification:            Not classified by this country.

Australia GHS Classification:            Not classified by this country.

Taiwan GHS Classification:            Not classified by this country.



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Indonesia GHS Classification: Not classified by this country.

SARA 313: Not listed.  
Reportable Quantities: Not applicable

Component Name:  
Not listed.

### 15.2. Chemical safety assessment

Not applicable.

## SECTION 16: Other information

Full text of R phrases in Section 3: Not applicable

Legend of abbreviations:

- ACGIH = American Conference on Governmental Industrial Hygienists.
- CAS = Chemical Abstracts Service.
- CERCLA = Comprehensive Environmental, Response, Compensation and Liability Act (1990).
- CFR = Code of Federal Regulations.
- DSL/NDSL = Domestic Substances List/Non-Domestic Substances List.
- EC = European Community.
- EEC = European Economic Community.
- EINECS = European Inventory of Existing Commercial chemical Substances.
- ELINCS = European List of Notified Chemical Substances.
- EU = European Union.
- GHS = Globally Harmonized System.
- LC = Lethal concentration.
- LD = Lethal dose.
- MOL = Ministry of Labor.
- NEMA = National Emergency Management Agency.
- NFPA = National Fire Protection Association.
- NIOSH = National Institute of Occupational Safety and Health.
- NTP = National Toxicological Program.
- OSHA = Occupational Safety and Health Administration
- PEL = Permissible exposure limit.
- RQ = Reportable quantity.
- SARA = Superfund Amendments and Reauthorization Act of 1986.
- TLV = Threshold limit value.
- WHMIS = Workplace Hazardous Materials Information System.

**Important Note:** Please note that the information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. The information contained herein may change without prior notice. THIS SAFETY DATA SHEET SUPERSEDES ALL PREVIOUS EDITIONS.





## SAFETY DATA SHEET

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