

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Jungbunzlauer

CITROFOL®BII

Version 1.1

Revision Date 11.03.2014

Print Date 25.09.2014

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : CITROFOL®BII
Substance name : Tributyl O-acetylcitrate
Molecular formula : C₂₀H₃₄O₈
Chemical identity : Tributyl 2-acetoxypropane-1,2,3-tricarboxylate
CAS-No. : 77-90-7
REACH No. : 01-2119457265-36

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

Use of the Sub- : Industrial use, Cosmetic additive, Pharmaceutical, Raw mate-
stance/Mixture : rials for paint, Medical aids, Plasticiser
Recommended restrictions : None known.
on use

1.3 Details of the supplier of the safety data sheet

Company : Jungbunzlauer Ladenburg GmbH
Dr. Albert Reimann-Strasse 18
68526 Ladenburg
Germany
www.jungbunzlauer.com
Telephone : +49 6203 104-0
Telefax : +49 6203 104-210
E-mail address : msds@jungbunzlauer.com

1.4 Emergency telephone number

Telephone : +49 6203 104-0

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a dangerous substance according to GHS.

Classification (67/548/EEC, 1999/45/EC)

Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

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2.3 Other hazards

3. Composition/information on ingredients

3.1 Substances

Chemical nature : Substance

Substance name	CAS-No.	Concentration [%]
No dangerous ingredients according to Regulation (EC) No. 1907/2006 :		
Tributyl O-acetylcitrate	77-90-7	>= 99 - <= 100

3.2 Mixtures

4. First aid measures

4.1 Description of first aid measures

- General advice : No hazards which require special first aid measures.
Get medical attention if symptoms occur.
- If inhaled : If breathed in, move person into fresh air.
- In case of skin contact : Wash skin thoroughly with soap and water or use recognized skin cleanser.
Call a physician if irritation persists.
- In case of eye contact : If easy to do, remove contact lens, if worn.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- If swallowed : If swallowed, DO NOT induce vomiting.
If symptoms persist, call a physician.
If a person vomits when lying on his back, place him in the recovery position.

4.2 Most important symptoms and effects, both acute and delayed

4.3 Indication of any immediate medical attention and special treatment needed

5. Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Product is compatible with standard fire-fighting agents.
- Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire- : Do not use a solid water stream as it may scatter and spread

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fighting

fire.
Hazardous decomposition products may be formed under fire conditions (see section 10).
Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

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

Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
In the event of fire and/or explosion do not breathe fumes.
Use water spray to cool unopened containers.
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.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Refer to protective measures listed in sections 7 and 8.
Ensure adequate ventilation, especially in confined areas.
Avoid inhalation of vapour or mist.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.
Clean contaminated surface thoroughly.

6.4 Reference to other sections

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8.
Do not breathe vapours or spray mist.
Avoid contact with skin and eyes.

Advice on protection against : Normal measures for preventive fire protection.

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fire and explosion

Dust explosion class : not applicable

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep containers tightly closed in a dry, cool and well-ventilated place.

Further information on storage conditions : Do not store at temperatures above 30 °C / 86 °F.

Advice on common storage : No special restrictions on storage with other products.

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

8. Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures

Provide adequate ventilation.

Personal protective equipment

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

Eye protection : Wear the following personal protective equipment:
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.

Skin and body protection : Wear the following personal protective equipment:
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Workers should wear antistatic footwear.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
General industrial hygiene practice.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

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When using do not eat, drink or smoke.
Wash hands before breaks and at the end of workday.
Wash contaminated clothing before re-use.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform
respective authorities.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid

Colour : colourless
transparent

Odour : characteristic

Flash point : 217,9 °C
at 1.017 hPa
Method: ASTM D 93

Ignition temperature : not applicable

Lower explosion limit : not applicable

Upper explosion limit : not applicable

Oxidizing properties : not applicable

Auto-ignition temperature : not applicable

Burning number : not applicable

Molecular weight : 570,8 g/mol
402,47 g/mol

pH : not applicable

Drop point : -57 °C
at 1.013 hPa
Method: ASTM D 97-66

Melting point/range : -80 °C
at 1.013 hPa

Boiling point/boiling range : 331 °C
at 976,4 hPa
Method: OECD Test Guideline 103

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Vapour pressure	: 0,04944 hPa at 25 °C Calculation
Density	: 1,0528 g/cm ³ at 20 °C Method: OECD Test Guideline 109
Bulk density	: not applicable
Water solubility	: 4,49 mg/l at 20 °C
Partition coefficient: n-octanol/water	: log Pow: 4,86 at 40 °C Method: OECD Test Guideline 107
Viscosity, dynamic	: 32,7 mPa.s at 25 °C Method: Brookfield
Viscosity, kinematic	: 40,4 mm ² /s at 20 °C Method: ASTM D 445
Surface tension	: 54,6 mN/m at 20 °C Surface tension
Evaporation rate	: not determined

9.2 Other information**10. Stability and reactivity****10.1 Reactivity**

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Note: No decomposition if stored and applied as directed.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials**10.6 Hazardous decomposition products**Hazardous decomposition products : No decomposition if stored and applied as directed.
Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.

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11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Tributyl O-acetylcitrate : LD50 Oral: > 31.500 mg/kg
Species: Rat
Health injuries are not known or expected under normal use.

LD50 Oral: > 50.000 mg/kg
Species: Cat

Acute inhalation toxicity

Tributyl O-acetylcitrate : not applicable

Acute dermal toxicity

Tributyl O-acetylcitrate : LD50 Dermal: > 1.000 mg/kg
Species: Rabbit

Skin corrosion/irritation

Skin irritation

Tributyl O-acetylcitrate : Species: Rabbit
Result: No skin irritation
Method: Albino rabbit
Exposure time: 6 d

Serious eye damage/eye irritation

Eye irritation

Tributyl O-acetylcitrate : Species: Rabbit
Result: Mild eye irritation
Exposure time: 72 h

Respiratory or skin sensitisation

Sensitisation

Tributyl O-acetylcitrate : Maximisation Test (GPMT)
Species: Guinea pig
Result: Does not cause skin sensitisation.

Germ cell mutagenicity

Tributyl O-acetylcitrate : Ames test
Salmonella typhimurium
Result: negative, Not mutagenic in Ames Test.
Method: OECD Test Guideline 471

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in-vitro Mouse Lymphoma Assay
mouse lymphoma cells
Result: negative
Method: OECD Test Guideline 476

Genotoxicity in vivo

Tributyl O-acetylcitrate

: Chromosome aberration test in vitro
Species: Rat
Method: OECD Test Guideline 475
Dose: 2000
Result: negative
In vivo tests did not show any chromosomal changes.

Germ cell mutagenicity

Assessment

Tributyl O-acetylcitrate

: Not mutagenic in Ames Test., Did not show carcinogenic, teratogenic or mutagenic effects in animal experiments.

Carcinogenicity

Tributyl O-acetylcitrate

: Species: Rat
Exposure time: 24

Reproductive toxicity

Tributyl O-acetylcitrate

:

Target Organ Systemic Toxicant - Repeated exposure

Tributyl O-acetylcitrate

: Species: Rat
Application Route: Oral
Exposure time: 90 d
NOAEL: ≥ 1.000 mg/kg

12. Ecological information**12.1 Toxicity**

Toxicity to fish

Tributyl O-acetylcitrate

: LC50: 38 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)
flow-through test
Method: OECD Test Guideline 203

LC50: 59 mg/l
Exposure time: 96 h
Species: Fish
flow-through test

Toxicity to daphnia and other aquatic invertebrates

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Tributyl O-acetylcitrate : EC50: > 1 mg/l
Exposure time: 24 h
Species: Daphnia magna (Water flea)
static test
Method: OECD Test Guideline 202

NOEC: 1,11 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
semi-static test

Toxicity to algae
Tributyl O-acetylcitrate : EC50: 11,5 mg/l
Exposure time: 72 h
Species: Desmodesmus subspicatus (green algae)
Cell multiplication inhibition test
Method: OECD Test Guideline 201

Toxicity to bacteria
Tributyl O-acetylcitrate : EC10: > 1.000 mg/l
Exposure time: 3 h
Species: activated sludge
Respiration inhibition
Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
Tributyl O-acetylcitrate : NOEC: >= 1,11 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

12.2 Persistence and degradability

Biodegradability
Tributyl O-acetylcitrate : Primary biodegradation
82 %
Exposure time: 28 d
Method: OECD Test Guideline 302

12.3 Bioaccumulative potential

Bioaccumulation
Tributyl O-acetylcitrate : Bioconcentration factor (BCF): 31,57
Calculation

12.4 Mobility in soil

Surface tension : 54,6 mN/m
at 20 °C
Note: Surface tension

Distribution among environmental compartments

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Tributyl O-acetylcitrate : Adsorption/Soil
Medium: Soil
Log Koc: 4,271
Method: OECD Test Guideline 121

12.5 Results of PBT and vPvB assessment

12.6 Other adverse effects

13. Disposal considerations

13.1 Waste treatment methods

Product : In accordance with local and national regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user based on the application for which the product was used.
Do not dispose of waste into sewer.
Do not dispose of together with household waste.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Dispose of as unused product.

14. Transport information

ADR
Not dangerous goods

IATA
Not dangerous goods

IMDG
Not dangerous goods

RID
Not dangerous goods

15. Regulatory information

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

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Directive 96/82/EC does not apply

TA Luft List (Germany) : : not subject

Notification status

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EINECS	:	On the inventory, or in compliance with the inventory
CH INV	:	On the inventory, or in compliance with the inventory
AICS	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
REACH	:	Notification number: 01-2119457265-36

15.2 Chemical Safety Assessment

16. Other information

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.