

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

CITRIC ACID, ANHYDROUS

Revision Date: 30-Nov-2010

Revision Number: 8

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name CITRIC ACID, ANHYDROUS

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

Recommended Use Solvent
Uses Advised Against No information available

Details of the supplier of the safety data sheet

Halliburton Energy Services
Halliburton House, Howemoss Place
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

Emergency telephone number

+44 1224 795277 or +1 281 575 5000

| Emergency telephone §45 - (EC)1272/2008 | |
|---|---|
| Europe | 112 |
| Denmark | Poison Control Hotline (DK): +45 82 12 12 12 |
| France | ORFILA (FR): + 01 45 42 59 59 |
| Germany | Poison Center Berlin (DE): +49 030 30686 790 |
| Italy | Poison Center, Milan (IT): +39 02 6610 1029 |
| Netherlands | National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals) |
| Norway | Poisons Information (NO): + 47 22 591300 |
| Poland | Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97 |
| Spain | Poison Information Service (ES): +34 91 562 04 20 |
| United Kingdom | NHS Direct (UK): +44 0845 46 47 |

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

| | |
|-------------------------------------|---------------------|
| Serious Eye Damage / Eye Irritation | Category 2 - (H319) |
|-------------------------------------|---------------------|

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases mentioned in this Section, see Section 16

2. HAZARDS IDENTIFICATION

Classification Xi - Irritant.

Risk Phrases R36 Irritating to eyes.

Label Elements

Hazard Pictograms



Signal Word Warning

Hazard Statements

H319 - Causes serious eye irritation

Contains

Substances

Citric acid

CAS Number

77-92-9

Precautionary Statements - EU (§28, 1272/2008)

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear eye protection/face protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

Other Hazards

None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Substances | EINECS | CAS Number | PERCENT | EEC Classification | EU - CLP Substance Classification | REACH No. |
|-------------|-----------|------------|-----------|--------------------|-----------------------------------|-------------------|
| Citric acid | 201-069-1 | 77-92-9 | 60 - 100% | Xi: R36 | Eye Irrit. 2 (H319) | No data available |

For the full text of the R-phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of first aid measures

Inhalation

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes

In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing. Wash with soap and water. Get medical attention if irritation persists.

Skin

Ingestion

Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

4. FIRST AID MEASURES

Most Important symptoms and effects, both acute and delayed

May cause eye irritation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Special hazards arising from the substance of mixture

Special Exposure Hazards

Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Advice for firefighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust.

See Section 12 for additional information

Environmental precautions

Prevent from entering sewers, waterways, or low areas.

Methods and material for containment and cleaning up

Scoop up and remove.

Reference to other sections

See Section 12 for additional information.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

Conditions for safe storage, including any incompatibilities

Store in a cool, dry location.

Specific End Use(s)

Exposure Scenario No information available

Other Guidelines No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

| Substances | EU | UK OEL | Netherlands | France OEL | Germany MAK/TRK |
|-------------|----------------|----------------------|----------------|----------------|-----------------|
| Citric acid | Not applicable | 10 mg/m ³ | Not applicable | Not applicable | Not applicable |

| Substances | Italy | Poland | Hungary | Czech Republic | Denmark |
|-------------|----------------|----------------|----------------|----------------|----------------|
| Citric acid | Not applicable | Not applicable | Not applicable | Not applicable | Not applicable |

| | |
|---|---|
| Derived No Effect Level (DNEL) | No information available. |
| Predicted No Effect Concentration (PNEC) | No information available. |
| Exposure controls | |
| Engineering Controls | Use in a well ventilated area. |
| Personal protective equipment | |
| Respiratory Protection | Dust/mist respirator. (N95, P2/P3) |
| Hand Protection | Impervious rubber gloves. |
| Skin Protection | Normal work coveralls. |
| Eye Protection | Dust proof goggles. |
| Other Precautions | Eyewash fountains and safety showers must be easily accessible. |
| Environmental Exposure Controls | No information available |

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|------------------------|----------|------------------------|--------------------------|
| Physical State: | Solid | Color: | White |
| Odor: | Odorless | Odor Threshold: | No information available |

| <u>Property</u> | <u>Values</u> |
|---|--------------------------|
| Remarks/ Method | |
| pH: | 1.8 |
| Melting Point/Range | No data available |
| Freezing Point/Range (C): | No data available |
| Boiling Point/Range | No data available |
| Flash Point | No data available |
| Evaporation rate | No data available |
| Vapor Pressure | No data available |
| Vapor Density | No data available |
| Specific Gravity | 1.66 |
| Water Solubility | Soluble in water |
| Solubility in other solvents | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Autoignition Temperature | No data available |
| Decomposition Temperature | No data available |
| Viscosity | No data available |
| Explosive Properties | No information available |
| Oxidizing Properties | No information available |

Other information

| | |
|-------------------------|-------------------|
| Molecular Weight | 192.12 |
| VOC Content (%) | No data available |

10. STABILITY AND REACTIVITY

Reactivity

Not applicable

Chemical Stability

Stable

Possibility of Hazardous Reactions

Will Not Occur

Conditions to Avoid

None anticipated

Incompatible Materials

Strong oxidizers. Strong alkalis.

Hazardous Decomposition Products

Carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

| | |
|--|--|
| Inhalation Eye Contact Skin Contact Ingestion | May cause respiratory irritation. May cause severe eye irritation. May cause skin irritation. Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. |
|--|--|

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

LD50 Oral: 11700 mg/kg (rat)

| Substances | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-------------|-------------|-------------------|-------------------|
| Citric acid | 11700 mg/kg | No data available | No data available |

Test species: Rat

12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity Effects

| Substances | Toxicity to Algae | Toxicity to Fish | Toxicity to Microorganisms | Daphnia Magna (Water Flea) |
|-------------|--------------------------|--------------------------|----------------------------|--------------------------------------|
| Citric acid | No information available | No information available | No information available | TLM96: 100-330 ppm (Crangon crangon) |

Persistence and degradability

Biodegradable.

Bioaccumulative potential

No information available

Mobility in soil

No information available

Results of PBT and vPvB assessment

No information available.

Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Method

Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging

Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

IMDG/IMO

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted

14. TRANSPORT INFORMATION

Transport Hazard Class(es): Not applicable

RIDUN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable**ADR**UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable**IATA/ICAO**UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable

Special Precautions for User None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

15. REGULATORY INFORMATION**Safety, health and environmental regulations/legislation specific for the substance or mixture****International Inventories**EINECS Inventory This product, and all its components, complies with EINECS
US TSCA Inventory All components listed on inventory or are exempt.
Canadian DSL Inventory All components listed on inventory or are exempt.**Legend**

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 1: Low hazard to waters.

Chemical Safety Assessment

No information available

16. OTHER INFORMATION**Full text of R-phrases referred to under Sections 2 and 3**

R36 Irritating to eyes.

Key literature references and sources for datawww.ChemADVISOR.com/Revision Date: 30-Nov-2010
Revision Note: Not applicable

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

16. OTHER INFORMATION

Disclaimer Statement

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End of Safety Data Sheet