SAFETY DATA SHEET
CITRIC ACID 20% W/V

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

1.1. Product identifier
Product name
CITRIC ACID 20% W/V
Product number
1758

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses
Laboratory reagent.
Uses advised against
No specific uses advised against are identified. Use only for intended applications.

1.3. Details of the supplier of the safety data sheet
Supplier
Reagent Chemical Services
11b - 13 Aston Fields Road
Whitehouse Industrial Estate
Runcorn
Cheshire WA7 3DL
T: 01928 716903 (08.30 - 17.00)
F: 01928 716425
E: info@reagent.co.uk

1.4. Emergency telephone number
Emergency telephone
OHES Environmental Ltd 24-7
Tel. 0333 333 9939 (24 hour)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification (EC 1272/2008)
Physical hazards
Not Classified
Health hazards
Eye Irrit. 2 - H319
Environmental hazards
Not Classified

2.2. Label elements
Pictogram
⚠️
Signal word
Warning
Hazard statements
H319 Causes serious eye irritation.
CITRIC ACID 20% W/V

Precautionary statements
P264 Wash contaminated skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ 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.

2.3. Other hazards
This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

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<th>CITRIC ACID ANHYDROUS</th>
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<tr>
<td>CAS number: 77-92-9</td>
<td>EC number: 201-069-1</td>
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<td>REACH registration number: 01-2119457026-42-0000</td>
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Classification: Eye Irrit. 2 - H319
Classification (67/548/EEC or 1999/45/EC): -

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information
Get medical attention immediately. Show this Safety Data Sheet to the medical personnel.

Inhalation
Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure breathing can take place.

Ingestion
Rinse mouth thoroughly with water. Remove any dentures. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.

Skin contact
Rinse with water.

Eye contact
Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Continue to rinse for at least 10 minutes.

Protection of first aiders
First aid personnel should wear appropriate protective equipment during any rescue.

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

General information
See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation
Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion
Gastrointestinal symptoms, including upset stomach. Nausea, vomiting.

Skin contact
May cause irritation. Prolonged contact may cause dryness of the skin.

Eye contact
Irritating to eyes.
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4.3. Indication of any immediate medical attention and special treatment needed
Notes for the doctor  Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media  The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media  Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products  Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours. Oxides of carbon.

5.3. Advice for firefighters
Protective actions during firefighting  Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters  Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions  No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material.

6.2. Environmental precautions

Environmental precautions  Large Spillages: Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

6.3. Methods and material for containment and cleaning up

Methods for cleaning up  Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Approach the spillage from upwind. Small Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. Large Spillages: If leakage cannot be stopped, evacuate area. Flush spilled material into an effluent treatment plant, or proceed as follows. Contain and absorb spillage with sand, earth or other non-combustible material. Place waste in labelled, sealed containers. Clean contaminated objects and areas thoroughly, observing environmental regulations. The contaminated absorbent may pose the same hazard as the spilled material. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. The requirements of the local water authority must be complied with if contaminated water is flushed directly to the sewer. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.
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6.4. Reference to other sections

Reference to other sections

For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions

Read and follow manufacturer’s recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment.

Advice on general occupational hygiene

Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions

Store away from incompatible materials (see Section 10). Store in accordance with local regulations. Store away from the following materials: Alkalis. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Bund storage facilities to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless and not absorbent.

Storage class

Chemical storage.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

CITRIC ACID ANHYDROUS (CAS: 77-92-9)

PNEC

- Fresh water; 0.44 mg/l
- Marine water; 0.044 mg/l
- STP; 1000 mg/l
- Sediment (Freshwater); 34.6 mg/kg
- Sediment (Marine water); 3.46 mg/kg
- Soil; 33.1 mg/kg

8.2. Exposure controls

Protective equipment
CITRIC ACID 20% W/V

**Appropriate engineering controls**
Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimise exposure.

**Eye/face protection**
Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

**Hand protection**
Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. To protect hands from chemicals, gloves should comply with European Standard EN374. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended. It is recommended that gloves are made of the following material: Nitrile rubber. Butyl rubber. Thickness: > 0.1 mm The selected gloves should have a breakthrough time of at least 8 hours. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material.

**Other skin and body protection**
Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

**Hygiene measures**
Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.

**Respiratory protection**
Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is ‘CE’-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.

**Environmental exposure controls**
Keep container tightly sealed when not in use.

**SECTION 9: Physical and Chemical Properties**

9.1. Information on basic physical and chemical properties

**Appearance**
Liquid.

**Colour**
Colourless.

**Odour**
Odourless.

**pH**
pH (concentrated solution): Approx. 2

**Melting point**
Not determined.

**Initial boiling point and range**
Not determined.
CITRIC ACID 20% W/V

Flash point Not applicable.
Evaporation rate Not determined.
Upper/lower flammability or explosive limits Not applicable.
Vapour pressure Not determined.
Relative density ~ 1.2 @ 20°C
Solubility(ies) Miscible with water.
Partition coefficient Not determined.
Auto-ignition temperature Not applicable.
Decomposition Temperature Not determined.
Viscosity Not determined.
Explosive properties Not considered to be explosive.
Oxidising properties Does not meet the criteria for classification as oxidising.

9.2. Other information
Other information None.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reactivity The following materials may react with the product: Alkalis. Strong oxidising agents.

10.2. Chemical stability
Stability Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions May generate heat.

10.4. Conditions to avoid
Conditions to avoid Avoid heat.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Hazardous decomposition products Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity - oral
Notes (oral LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - dermal
Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - inhalation
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Notes (inhalation LC₅₀)
Based on available data the classification criteria are not met.

Skin corrosion/irritation
Animal data
Based on available data the classification criteria are not met.

Serious eye damage/irritation
Serious eye damage/irritation
Causes serious eye irritation.

Respiratory sensitisation
Respiratory sensitisation
Based on available data the classification criteria are not met.

Skin sensitisation
Based on available data the classification criteria are not met.

Germ cell mutagenicity
Genotoxicity - in vitro
Based on available data the classification criteria are not met.

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

IARC carcinogenicity
None of the ingredients are listed or exempt.

Reproductive toxicity
Reproductive toxicity - fertility
Based on available data the classification criteria are not met.

Reproductive toxicity - development
Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure
STOT - single exposure
Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure
STOT - repeated exposure
Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard
Aspiration hazard
Based on available data the classification criteria are not met.

General information
The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation
Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion
Gastrointestinal symptoms, including upset stomach. Nausea, vomiting.

Skin contact
May cause skin irritation. Prolonged contact may cause dryness of the skin.

Eye contact
Irritating to eyes.

Route of entry
Ingestion Inhalation Skin and/or eye contact

Target organs
No specific target organs known.

CITRIC ACID ANHYDROUS

Acute toxicity - oral
Notes (oral LD₅₀)
LD₅₀ >5400 mg/kg, Oral, Mouse

Acute toxicity - dermal
Notes (dermal LD₅₀)
LD₅₀ >2000 mg/kg, Dermal, Rat
SECTION 12: Ecological Information

Ecotoxicity  
Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

CITRIC ACID ANHYDROUS

Ecotoxicity  
The product is not expected to be hazardous to the environment.

12.1. Toxicity
Toxicity  
Based on available data the classification criteria are not met.

CITRIC ACID ANHYDROUS

Acute toxicity - fish  
LC₅₀, 48 hours: 440 mg/l, Leuciscus idus (Golden orfe)

Acute toxicity - aquatic invertebrates  
EC₅₀, 24 hours: 1535 mg/l, Daphnia magna

Acute toxicity - aquatic plants  
NOEC, 8 days: 425 mg/l, Scenedesmus Quadricauda

12.2. Persistence and degradability
Persistence and degradability  
The product is expected to be biodegradable.

CITRIC ACID ANHYDROUS

Persistence and degradability  
The product is readily biodegradable.

Biodegradation  
Water - Degradation 97:  28 days

12.3. Bioaccumulative potential
Bioaccumulative potential  
Bioaccumulation is unlikely.

Partition coefficient  
Not determined.

CITRIC ACID ANHYDROUS

Bioaccumulative potential  
BCF:  3.2 L/kg,

12.4. Mobility in soil
Mobility  
The product is water-soluble and may spread in water systems. The product is non-volatile.

Adsorption/desorption coefficient  
Not determined.

CITRIC ACID ANHYDROUS

Mobility  
The product is water-soluble and may spread in water systems.

12.5. Results of PBT and vPvB assessment
Results of PBT and vPvB assessment  
This product does not contain any substances classified as PBT or vPvB.
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Results of PBT and vPvB assessment
This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects
Other adverse effects
None known.

CITRIC ACID ANHYDROUS

Other adverse effects
None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
General information
The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods
Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Waste packaging should be collected for reuse or recycling. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

General
The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number
Not applicable.

14.2. UN proper shipping name
Not applicable.

14.3. Transport hazard class(es)
Not applicable.

Transport labels
No transport warning sign required.

14.4. Packing group
Not applicable.

14.5. Environmental hazards
Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user
Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
CITRIC ACID 20% W/V

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

SECTION 15: Regulatory information

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

National regulations
Health and Safety at Work etc. Act 1974 (as amended).

EU legislation

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS
None of the ingredients are listed or exempt.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
CAS: Chemical Abstracts Service.
ATE: Acute Toxicity Estimate.
LC₅₀: Lethal Concentration to 50 % of a test population.
LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
EC₅₀: 50% of maximal Effective Concentration.
PBT: Persistent, Bioaccumulative and Toxic substance.
vPvB: Very Persistent and Very Bioaccumulative.

Classification abbreviations and acronyms
Eye Irrit. = Eye irritation

Key literature references and sources for data

Classification procedures according to Regulation (EC) 1272/2008
Eye Irrit. 2 - H319: Calculation method.
**CITRIC ACID 20% W/V**

<table>
<thead>
<tr>
<th>Training advice</th>
<th>Only trained personnel should use this material.</th>
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<td>Hazard statements in full</td>
<td>H319 Causes serious eye irritation.</td>
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