

**Safety Data Sheet**  
According to EC Directive 91/155/EEC and following amendments

Date of issue: 18 January 2008.

**SECTION 1 - IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY**

**Product name:**

• □ HI 38000A-0 Sulfate Reagent A.

**Application:**

• □ Determination of sulfate in water samples.

**Manufacturer identification:**

Hanna Instruments Italia S.r.l.  
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**SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS**

*Hazardous Ingredients:*

<b>NAME (EC directives)</b>	<b>EC-Index-No.</b>	<b>CAS No.</b>	<b>LABELLING (EC directives)</b>	<b>CONTENT</b>
Citric acid anhydrous	NA	77-92-9	Xi R36	≥ 95%

(full text of any R phrases in section 16)

**SECTION 3 - HAZARD IDENTIFICATION**

Irritating to eyes.

**SECTION 4 - FIRST AID MEASURES**

- **After inhalation** : remove to fresh air.
- **After skin contact** : wash off with plenty of water. Remove contaminated clothing.
- **After eye contact** : In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call in ophthalmologist.
- **After swallowing** : immediately make victim drink plenty of water. Call in physician.

**SECTION 5 – FIRE-FIGHTING MEASURES**

- **Suitable extinguishing media:**
  - Water spray, carbon dioxide, dry chemical powder, or appropriate foam.
- **Special risks:**
  - Non-combustible.
  - Development of hazardous combustion gases or vapors possible in the event of fire.
- **Special protective equipment for fire fighting:**
  - Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.
  - Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or ground water.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

- **Personal precautions:**
  - Avoid substance contact. Avoid generation of dusts; do not inhale dusts. Ensure supply of fresh air in enclosed rooms.

**Safety Data Sheet**

According to EC Directive 91/155/EEC and following amendments

- **Environmental precautions:**
  - Do not discharge into the drains/surface waters/groundwaters.
- **Additional notes:**
  - Take up dry. Clean up affected area and dispose according to local regulation.

**SECTION 7 - HANDLING AND STORAGE**

- **Handling:**
  - Store protected from solvents.
- **Storage:**
  - Store at room temperature (+15 to +25 °C recommended).

**SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION**

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be determined with the respective supplier.

- **Personal protective equipment:**
  - As appropriate to quantity handled.
- **Protective gloves:**
  - Compatible chemical-resistant gloves.
- **Engineering controls**
  - Safety shower and eye bath.
- **Industrial hygiene:**
  - Change contaminated clothing. Application of skin- protective barrier cream recommended.
  - Wash hands after working with substance.
- **Respiratory protection:**
  - Required when dusts are generated.
- **Eye protection:**
  - Goggles or face mask.

**SECTION 9 - PHYSICAL/CHEMICAL PROPERTIES**

- |                                      |                |                               |                          |
|--------------------------------------|----------------|-------------------------------|--------------------------|
| • <b>appearance</b>                  | : white powder | • <b>ignition temperature</b> | : 345 °C                 |
| • <b>odor</b>                        | : odorless     | • <b>flash point</b>          | : NA                     |
| • <b>Solubility in water at 20°C</b> | : 1330 g/l     | • <b>explosion limits</b>     | : NA                     |
| • <b>melting point</b>               | : ~ 153°C      | • <b>density at 20°C</b>      | : ND                     |
| • <b>boiling point</b>               | : NA           | • <b>pH at 20°C</b>           | : 2.1 at 10 g/L in water |

**SECTION 10 - STABILITY AND REACTIVITY**

- **Conditions to be avoided:**
  - Heating.
- **Hazardous decomposition products:**
  - Toxic gases: see section 5.
- **Substances to be avoided:**
  - Metals, oxidizing agent, bases, reducing agents..
- **Hazardous polymerization**
  - Will not occur.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

Quantitative data on the toxicity of this product are not available.

**APPLICABLE TO PARTIAL COMPONENT(S):**

The following applies to Citric acid anhydrous – as the pure substance:

*Acute toxicity*

LD<sub>50</sub>, oral, rat: 3000 mg/Kg – calculated on the pure substance. (RTECS).

*Specific symptoms in animal studies:*

Eye irritation test (rabbit): Severe irritations (Lit.).

Skin irritation test (rabbit): Slight irritations (Lit.).

*Subacute to chronic toxicity*

Bacterial mutagenicity: Ames test: negative (Lit.).

No teratogenic effect in animal experiments (Lit.).

No impairment of reproductive performance in animal experiments (Lit.).

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Property of this product must be anticipated on the basis from the components of the preparation:

- **In case of inhalation** : irritation symptoms in the respiratory tract.
- **In case of skin contact** : slight irritations.
- **In case of eye contact** : severe irritations.
- **In case of ingestion** : irritation of: mucous membranes (stomach); coughing, pain, bloody vomiting.
- **Further data** : further hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

#### **SECTION 12 - ECOLOGICAL INFORMATION**

- **Ecotoxic effects:**  
Quantitative data on the toxicity of this product are not available.

APPLICABLE TO PARTIAL COMPONENT(S):

The following applies to Citric acid anhydrous – as the pure substance:

*Biologic degradation:*

Biodegradation: 98 % /2 d (OECD 302 B) (IUCLID).

Easily eliminable.

*Behaviour in environmental compartments:*

Distribution: log Pow: -1.72 (20 °C) (IUCLID).

No bioaccumulation is to be expected (log Pow <1).

*Ecotoxic effects*

Biological effects: Harmful effect due to pH shift.

Fish toxicity: L.idus LC<sub>50</sub>: 440-760 mg/l /96 h (IUCLID).

Daphnia toxicity: Daphnia magna EC<sub>50</sub>: ~120 mg/l /72 h (IUCLID).

Maximum permissible toxic concentration:

Protozoa: E.sulcatum EC<sub>5</sub>: 485 mg/l /72 h (Lit.).

Bacterial toxicity: Ps.putida EC<sub>5</sub>: >10000 mg/l /16 h (Lit.). M.aeruginosa EC<sub>5</sub>: 80 mg/l /8 d (Lit.).

Algeal toxicity: Sc.quadricauda IC<sub>5</sub>: 640 mg/l /7 d (Lit.).

*Behavior in environmental compartments:*

Distribution: log p(o/w): -1.72 (20 °C); No bioaccumulation is to be expected (log P(o/w) <1).

*Further ecologic data:*

Degradability:

BOD<sub>5</sub>: 0.526 g/g (Lit.).

TOD: 0.75 g/g (calculated).

COD: 0.728 g/g (Lit.).

- **Further ecological data**  
Do not allow to enter waters, waste waters, or soil!

#### **SECTION 13 - DISPOSAL CONSIDERATIONS**

- **Waste disposal:**
  - Chemical residues are generally classified as special waste and thus covered by local regulations. Contact local authorities or disposal companies for advice.
  - Handle contaminated packaging in the same way as the substance itself.

**Safety Data Sheet**

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**SECTION 14 - TRANSPORT INFORMATION**

- **Land transport**    ADR/RID                : 9, PGIII  
                              UN-N                         : 3316  
                              Name                        : CHEMICAL KIT
- **Sea transport**     IMDG                        : 9/UN 3316/PGIII  
                              Name                        : CHEMICAL KIT
- **Air transport**     ICAO/IATA                : 9/UN 3316/PGIII  
                              Name                        : CHEMICAL KIT

These transport data apply to the COMPLETE KIT!

**SECTION 15 - REGULATORY INFORMATION****Labelling according to EC Directives:**

Symbol:	<b>Xi</b>	Irritant.
R-phrases:	36	Irritating to eyes.
S-phrases:	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Contains: -

**SECTION 16 - OTHER INFORMATION**

- **Text of any R phrases referred to under section 2:**  
36 : Irritating to eyes.
- **Supersedes edition of** : / (1<sup>st</sup> edition).
- **Legend** : NA Not applicable  
                              ND Not determined

THE INFORMATION CONTAINED HEREIN IS BASED ON THE PRESENT STATE OF OUR KNOWLEDGE. IT CHARACTERIZES THE PRODUCT WITH REGARD TO THE APPROPRIATE SAFETY PRECAUTIONS. IT DOES NOT REPRESENT A GUARANTEE OF THE PROPERTIES OF THE PRODUCT.