Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/14/2004 Reviewed on 05/24/2004

1 Identification of substance:

- Product details:
  
  - Product name: Succinic anhydride
  
  - Stock number: A12245

- Manufacturer/Supplier:
  Alfa Aesar, A Johnson Matthey Company
  Johnson Matthey Catalog Company, Inc.
  30 Bond Street
  Ward Hill, MA 01835-8099
  Emergency Phone: (978) 521-6300
  CHEMTREC: (800) 424-9300
  Web Site: www.alfa.com

- Information Department: Health, Safety and Environmental Department

- Emergency information:
  During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

- Chemical characterization:
  
  Description: (CAS#)

  Succinic anhydride (CAS# 108-30-5), 100%

- Identification number(s):
  
  EINECS Number: 203-570-0
  EU Number: 607-103-00-5

3 Hazards identification

- Hazard description: Xi Irritant

- Information pertaining to particular dangers for man and environment
  R 36/37 Irritating to eyes and respiratory system.

- Classification system

- HMIS ratings (scale 0-4)

  (Hazardous Materials Identification System)

  Health (acute effects) = 1
Flammability = 1
Reactivity = 1

4 First aid measures

- **After inhalation**
  Supply fresh air. If required, provide artificial respiration.
  Keep patient warm.
  Seek immediate medical advice.

- **After skin contact**
  Immediately wash with water and soap and rinse thoroughly.
  Seek immediate medical advice.

- **After eye contact**
  Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing** Seek immediate medical advice.

5 Fire fighting measures

- **Suitable extinguishing agents**
  Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards caused by the material, its products of combustion or resulting gases:**
  In case of fire, the following can be released:
  Carbon monoxide and carbon dioxide

- **Protective equipment:**
  Wear self-contained respirator.
  Wear fully protective impervious suit.

6 Accidental release measures

- **Person-related safety precautions:**
  Wear protective equipment. Keep unprotected persons away.
  Ensure adequate ventilation

- **Measures for environmental protection:**
  Do not allow material to be released to the environment without proper governmental permits.

- **Measures for cleaning/collecting:** Ensure adequate ventilation.

- **Additional information:**
  See Section 7 for information on safe handling
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage

- **Handling**

- **Information for safe handling:**
  Keep container tightly sealed.
  Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

- Information about protection against explosions and fires:
  Keep ignition sources away.

- Storage
  - Requirements to be met by storerooms and receptacles:
    No special requirements.
  - Information about storage in one common storage facility:
    Store away from oxidizing agents.
  - Further information about storage conditions:
    Keep container tightly sealed.
    Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

- Additional information about design of technical systems:
  Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:
Not required.

- Additional information: No data

- Personal protective equipment
  - General protective and hygienic measures
    The usual precautionary measures for handling chemicals should be followed.
    Keep away from foodstuffs, beverages and feed.
    Remove all soiled and contaminated clothing immediately.
    Wash hands before breaks and at the end of work.
    Avoid contact with the eyes.
    Avoid contact with the eyes and skin.
  - Breathing equipment:
    Use suitable respirator when high concentrations are present.
  - Protection of hands: Impervious gloves
  - Eye protection: Safety glasses
  - Body protection: Protective work clothing.

9 Physical and chemical properties:

- General Information

  - Form: Crystalline
  - Color: White
  - Odor: Not determined

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<thead>
<tr>
<th>Value/Range</th>
<th>Unit</th>
<th>Method</th>
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<tr>
<td>Change in condition</td>
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<tr>
<td>Melting point/Melting range:</td>
<td>119.6 °C</td>
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Boiling point/Boiling range: 261 °C
Sublimation temperature / start: Not determined
Flash point: Not applicable
Ignition temperature: Not determined
Decomposition temperature: Not determined
Danger of explosion: Product does not present an explosion hazard.

Explosion limits:
Lower: Not determined
Upper: Not determined
Vapor pressure: at 92 °C 1.33 hPa
Density: at 20 °C 1.2340 g/cm³
Solubility in / Miscibility with Water: Insoluble

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Materials to be avoided: Oxidizing agents
Dangerous reactions No dangerous reactions known
Dangerous products of decomposition: Carbon monoxide and carbon dioxide

11 Toxicological information

Acute toxicity:
LD/LC50 values that are relevant for classification:
Oral: LD50: 1510 mg/kg (rat)
Irritation of eyes: severe: 750 µg (rabbit)
Primary irritant effect:
on the skin: Irritant to skin and mucous membranes.
on the eye: Irritating effect.
Sensitization: No sensitizing effects known.
Other information (about experimental toxicology):
Mutagenic effects have been observed on tests with laboratory animals.
Mutagenic effects have been observed on tests with bacteria.
Reproductive effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:
Succinic anhydride is a severe eye irritant and may be carcinogenic.

- **Additional toxicological information:**
  To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

- **12 Ecological information:**
  - **General notes:**
    Do not allow material to be released to the environment without proper governmental permits.

- **13 Disposal considerations**
  - **Product:**
    - **Recommendation**
      Consult state, local or national regulations to ensure proper disposal.
  - **Uncleaned packagings:**
    - **Recommendation**
      Disposal must be made according to official regulations.

- **14 Transport information**
  Not a hazardous material for transportation.
  - **DOT regulations:**
    - **Hazard class:** None
  - **Land transport ADR/RID (cross-border)**
    - **ADR/RID class:** None
  - **Maritime transport IMDG:**
    - **IMDG Class:** None
  - **Air transport ICAO-TI and IATA-DGR:**
    - **ICAO/IATA Class:** None
  - **Transport/Additional information:**
    Not dangerous according to the above specifications.

- **15 Regulations**
  - **Product related hazard informations:**
  - **Hazard symbols:** Xi Irritant
Risk phrases: 36/37 Irritating to eyes and respiratory system.

Safety phrases: 25 Avoid contact with eyes.

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

Information about limitation of use:
For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact: Darrell R. Sanders