Naphthalene-1,4,5,8-tetracarboxylic acid dianhydride

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

Product Description: Naphthalene-1,4,5,8-tetracarboxylic acid dianhydride

Cat No.: L14365
CAS-No: 81-30-1
Molecular Formula: C14 H4 O6

Supplier
Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham, Lancashire LA3 2XY
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number
Call Carechem 24 at +44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

E-mail address
uktech@alfa.com
www.alfa.com
Product Safety Department

Recommended Use
Laboratory chemicals.
Uses advised against
No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Solid

Appearance
Brown

Odor
No information available

Emergency Overview
Moisture sensitive. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>2</td>
</tr>
<tr>
<td>Specific target organ toxicity - (single exposure)</td>
<td>3</td>
</tr>
</tbody>
</table>

Label Elements
Signal Word

Warning

Hazard Statements
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Precautionary Statements

Prevention
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

Response
P312 - Call a POISON CENTER or doctor/ physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P362 - Take off contaminated clothing and wash before reuse

Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards
None identified.

Health Hazards
Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.

Environmental hazards
Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,4,5,8-Naphthalene tetracarboxylic dianhydride</td>
<td>81-30-1</td>
<td>&lt;=100</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General Advice
If symptoms persist, call a physician.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation
Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion
Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects
None reasonably foreseeable.

Self-Protection of the First Aider
No special precautions required.

**Notes to Physician**
Treat symptomatically.

### SECTION 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Carbon dioxide (CO\(_2\)). Dry powder. Water spray. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

**Extinguishing media which must not be used for safety reasons**
No information available.

**Specific Hazards Arising from the Chemical**
Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions**
Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.

**Environmental Precautions**
Should not be released into the environment. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up**
Keep in suitable, closed containers for disposal. Sweep up or vacuum up spillage and collect in suitable container for disposal.

Refer to protective measures listed in Sections 8 and 13.

### SECTION 7. HANDLING AND STORAGE

**Handling**
Wear personal protective equipment. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

**Storage**
Keep container tightly closed in a dry and well-ventilated place.

**Specific Use(s)**
Use in laboratories

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

**Monitoring methods**
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust.
Exposure Controls

Engineering Measures
Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection
- Goggles (European standard - EN 166)

Hand Protection
- Protective gloves

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrile rubber</td>
<td>See manufacturers recommendations</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
</tbody>
</table>

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Skin and body protection
- Long sleeved clothing

Respiratory Protection
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use
- In case of insufficient ventilation wear suitable respiratory equipment
  - Recommended Filter type: Particle filter

Small scale/Laboratory use
- Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
- When RPE is used a face piece Fit Test should be conducted

Hygiene Measures
- Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls
- No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
- Brown

Physical State
- Solid

Odor
- No information available

Odor Threshold
- No data available

pH
- No information available

Melting Point/Range
- > 300 °C / 572 °F

Softening Point
- No data available

Boiling Point/Range
- No information available

Flash Point
- No information available

Evaporation Rate
- Not applicable

Flammability (solid, gas)
- No information available

Explosion Limits
- No data available

Vapor Pressure
- No data available

Vapor Density
- Not applicable

Specific Gravity / Density
- No data available

Bulk Density
- No data available
**SAFETY DATA SHEET**

**Naphthalene-1,4,5,8-tetracarboxylic acid dianhydride**

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**SECTION 10. STABILITY AND REACTIVITY**

**Stability**
Moisture sensitive.

**Hazardous Reactions**
None under normal processing.

**Hazardous Polymerization**
No information available.

**Conditions to Avoid**
None known.

**Materials to avoid**

**Hazardous Decomposition Products**
Carbon monoxide (CO). Carbon dioxide (CO₂).

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**SECTION 11. TOXICOLOGICAL INFORMATION**

**Product Information**

(a) **acute toxicity;**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,4,5,8-Naphthalene tetracarboxylic dianhydride</td>
<td>LD50 = 7400 mg/kg (Rat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) **skin corrosion/irritation;**
Category 2

(c) **serious eye damage/irritation;**
Category 2

(d) **respiratory or skin sensitization;**
Respiratory
No data available
Skin
No data available

(e) **germ cell mutagenicity;**
No data available

(f) **carcinogenicity;**
No data available
There are no known carcinogenic chemicals in this product

(g) **reproductive toxicity;**
No data available

(h) **STOT-single exposure;**
Category 3
Results / Target organs
Respiratory system
(i) STOT-repeated exposure;                  No data available
          Target Organs                        None known.

(j) aspiration hazard;                     Not applicable
          Solid                              

Symptoms / effects, both acute and       No information available
          delayed

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects                        Contains no substances known to be hazardous to the environment or that are not
                                          degradable in waste water treatment plants.

Persistence and Degradability              No information available

Bioaccumulative Potential                  No information available

Mobility in soil                           No information available

Endocrine Disruptor Information
                                          This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant
                                          This product does not contain any known or suspected substance
Ozone Depletion Potential                  This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from Residues / Unused Products      Waste is classified as hazardous. Dispose of in accordance with the European Directives
                                          on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging                     Dispose of this container to hazardous or special waste collection point.

Other Information                          Waste codes should be assigned by the user based on the application for which the product
                                          was used. Do not empty into drains.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport                    Not Regulated

IMDG/IMO                                   Not regulated

IATA                                       Not regulated

Special Precautions for User              No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories                  X = listed
Naphthalene-1,4,5,8-tetracarboxylic acid dianhydride

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12266-2012</th>
<th>Taiwan Toxic Chemicals Substances Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
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<tbody>
<tr>
<td>1,4,5,8-Naphthalene tetracarboxylic dianhydride</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>201-342-5</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department
Revision Date 09-Jul-2018
Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 81-30-1.

Training Advice Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
PNEC - Predicted No Effect Concentration
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - Volatile Organic Compounds

Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer

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...
End of Safety Data Sheet