SAFETY DATA SHEET

1. Identification

Product Name: Malachite Green oxalate
Cat No.: AC229780000; AC229780250; AC229781000; AC229785000
Synonyms: C.I. 42000; Basic Green 4
Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

2. Hazard(s) identification

Classification:
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity: Category 3
Serious Eye Damage/Eye Irritation: Category 1
Reproductive Toxicity: Category 2

Signal Word:
Danger

Hazard Statements:
Toxic if swallowed
Causes serious eye damage
Suspected of damaging the unborn child

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product

Response
IF exposed or concerned: Get medical attention/advice

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician

Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth

Storage
Store locked up

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

Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium, (4-(p-(dimethylamino)-.alpha.-phenylbenzylidene)-2, 5-cyclohexadien-1-ylidene)- dimethyl-, oxalate (2:1), oxalate (1:1)</td>
<td>2437-29-8</td>
<td>100</td>
</tr>
</tbody>
</table>

4. First-aid measures

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

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

Ingestion
Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects
Causes eye burns.

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Water spray. Carbon dioxide (CO\textsubscript{2}). Dry chemical. chemical foam.

Unsuitable Extinguishing Media
No information available

Flash Point
No information available

Method -
No information available

Autoignition Temperature
No information available

Explosion Limits
Upper
No data available
Lower
No data available
Sensitivity to Mechanical Impact  No information available
Sensitivity to Static Discharge  No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Nitrogen oxides (NOx) Carbon monoxide (CO) Carbon dioxide (CO₂)

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.

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid contact with eyes. Avoid dust formation.

Environmental Precautions
Do not flush into surface water or sanitary sewer system. Keep out of waterways. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling
Wear personal protective equipment. Use only under a chemical fume hood. Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Wash hands before breaks and immediately after handling the product.

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

8. Exposure controls / personal protection

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

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

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Appearance</th>
<th>Odor</th>
<th>Odor Threshold</th>
<th>pH</th>
<th>Melting Point/Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder Solid</td>
<td>Green</td>
<td>Odorless</td>
<td>No information available</td>
<td>2 (2% Solution)</td>
<td>164 °C / 327.2 °F</td>
</tr>
</tbody>
</table>
Malachite Green oxalate

Boiling Point/Range: No information available
Flash Point: No information available
Evaporation Rate: No information available
Flammability (solid,gas): No information available
Flammability or explosive limits:
  Upper: No data available
  Lower: No data available
Vapor Pressure: negligible
Vapor Density: No information available
Relative Density: No information available
Solubility: No information available
Partition coefficient; n-octanol/water: No data available
Autoignition Temperature: No information available
Decomposition temperature: No information available
Viscosity: No information available
Molecular Formula: C23 H25 N2 . 1/2 C2 H2 O4 . C2 H O4
Molecular Weight: 927.03

10. Stability and reactivity

Reactive Hazard: None known, based on information available
Stability: Stable.
Conditions to Avoid: Incompatible products. Avoid dust formation.
Incompatible Materials: Strong oxidizing agents, Strong bases, Strong reducing agents
Hazardous Decomposition Products: Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2)
Hazardous Polymerization: Hazardous polymerization does not occur.
Hazardous Reactions: None under normal processing.

11. Toxicological information

Acute Toxicity
Component Information
Toxicologically Synergistic Products: No information available
Delayed and immediate effects as well as chronic effects from short and long-term exposure
Irritation: Causes severe eye irritation and possible burns
Sensitization: No information available
Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2437-29-8</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects: Mutagenic effects have occurred in experimental animals.
Reproductive Effects: No information available.
12. Ecological information

Ecotoxicity
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains.

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available.

Mobility
No information available.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
UN-No: UN2811
Proper Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.
Proper technical name: (MALACHITE GREEN OXALATE)
Hazard Class: 6.1
Packing Group: III

TDG
UN-No: UN2811
Proper Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.
Hazard Class: 6.1
Packing Group: III

IATA
UN-No: 2811
Proper Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.*
Hazard Class: 6.1
Packing Group: III

IMDG/IMO
UN-No: 2811
Proper Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.
Hazard Class: 6.1
Packing Group: III

15. Regulatory information

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
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Malachite Green oxalate

| Ammonium, (4-(p-(dimethylamino)-alpha.-phenylbenzylidene)-2,5-cyclohexadien-1-ylidene)-dimethyl-, oxalate (2:1), oxalate (1:1) | - | X | - | 219-441-7 | - | X | X | X | X | X |

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable

SARA 311/312 Hazardous Categorization
Acute Health Hazard Yes
Chronic Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act Not applicable
Clean Air Act Not applicable
OSHA Occupational Safety and Health Administration Not applicable
CERCLA Not applicable
California Proposition 65 This product does not contain any Proposition 65 chemicals
State Right-to-Know Not applicable

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available
Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

### WHMIS Hazard Class
- D1B Toxic materials
- D2A Very toxic materials
- D2B Toxic materials

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### 16. Other information

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Regulatory Affairs
Thermo Fisher Scientific
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**Print Date**
16-Jul-2014

**Revision Summary**
This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**
The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of SDS