IDENTIFICATION

MSDS Record Number: 5618231
Product Name(s): NINHYDRIN MONOHYDRATE
Product Identification: MSDS NUMBER: N3510
                  PRODUCT CODE: N862, 1858
Date of MSDS: 2007-02-26
Currency Note: This MSDS was acquired from the supplier on 2007-09-06.

MANUFACTURER/SUPPLIER INFORMATION

Company: MALLINCKRODT BAKER INC

MATERIAL SAFETY DATA

Effective Date: 02/26/07
Supercedes: 02/16/06

MALLINCKRODT J. T. BAKER

NINHYDRIN MONOHYDRATE

1. Product Identification

Synonyms: 1,2,3-Indantrione monohydrate; triketohydrindene hydrate
CAS No: 485-47-2
Molecular Weight: 178.14
Chemical Formula: C9H4O3.H2O
2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ninhydrin Monohydrate</td>
<td>485-47-2</td>
<td>90 - 100%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3. Hazards Identification

Emergency Overview

WARNING! CAUSES IRRITATION TO EYES AND SKIN. MAY BE HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

<table>
<thead>
<tr>
<th>Health Rating</th>
<th>2 - Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability Rating</td>
<td>1 - Slight</td>
</tr>
<tr>
<td>Reactivity Rating</td>
<td>1 - Slight</td>
</tr>
<tr>
<td>Contact Rating</td>
<td>2 - Moderate (Life)</td>
</tr>
<tr>
<td>Lab Protective Equip</td>
<td>GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES</td>
</tr>
<tr>
<td>Storage Color Code</td>
<td>Green (General Storage)</td>
</tr>
</tbody>
</table>

Information on the human health effects from exposure to this substance is limited.

Inhalation:
Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

Ingestion:
Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea.

Skin Contact:
Causes irritation. May be absorbed through skin. Discolor the skin.

Eye Contact:
Causes irritation, redness, and pain.

Chronic Exposure:
No information found.

Aggravation of Pre-existing Conditions:
No information found.

4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:
Give large amounts of water to drink. Never give anything by mouth to an
unconscious person. Get medical attention.

Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes.
Remove contaminated clothing and shoes. Get medical attention. Wash
clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes,
lifting lower and upper eyelids occasionally. Get medical attention
immediately.

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5. Fire Fighting Measures

Fire:
As with most organic solids, fire is possible at elevated temperatures or
by contact with an ignition source.

Explosion:
Fine dust dispersed in air in sufficient concentrations, and in the
presence of an ignition source is a potential dust explosion hazard.

Fire Extinguishing Media:
Dry chemical, foam, carbon dioxide, or water spray.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved
self-contained breathing apparatus with full facepiece operated in the
pressure demand or other positive pressure mode.

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6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective
equipment as specified in Section 8. Spills: Sweep up and containerize
for reclamation or disposal. Vacuuming or wet sweeping may be used to
avoid dust dispersal.

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7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated
area. Protect against physical damage. Isolate from incompatible
substances. Containers of this material may be hazardous when empty since
they retain product residues (dust, solids); observe all warnings and
precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
None established.

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee
exposures as low as possible. Local exhaust ventilation is generally
preferred because it can control the emissions of the contaminant at its
source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators (NIOSH Approved):
For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>White to brownish-white crystals.</td>
</tr>
<tr>
<td>Odor:</td>
<td>No information found.</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Freely soluble.</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>No information found.</td>
</tr>
<tr>
<td>pH:</td>
<td>No information found.</td>
</tr>
<tr>
<td>% Volatiles by volume @ 21C (70F):</td>
<td>0</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Reddens when heated above 100C (212F)

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Strong oxidizers.

Conditions to Avoid:
Heat, flames, ignition sources and incompatibles.
11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>NTP Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ninhydrin Monohydrate (485-47-2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Known</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

12. Ecological Information

Environmental Fate:
No information found.

Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TSCA</th>
<th>EC</th>
<th>Japan</th>
<th>Australia</th>
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<tbody>
<tr>
<td>Ninhydrin Monohydrate (485-47-2)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Korea</th>
<th>DSL</th>
<th>NDSL</th>
<th>Phil.</th>
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<tbody>
<tr>
<td>Ninhydrin Monohydrate (485-47-2)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>SARA 302</th>
<th>SARA 313</th>
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<tbody>
<tr>
<td>Ninhydrin Monohydrate (485-47-2)</td>
<td>RQ TPQ</td>
<td>List Chemical Catg.</td>
</tr>
</tbody>
</table>
Ingredient: Ninyhydrin Monohydrate (485-47-2)

CERCLA: No
TSCA 12(b): No
CDTA: No
Chemical Weapons Convention: No
SARA 311/312: Acute: Yes Chronic: No
Fire: No Pressure: No
Reactivity: No
(Pure / Solid)

Australian Hazchem Code: None allocated.
Australian Poison Schedule: None allocated.

WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFFA Ratings:
Health: 1 Flammability: 0 Reactivity: 0

Label Hazard Warning:
WARNING! CAUSES IRRITATION TO EYES AND SKIN. MAY BE HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.

Label Precautions:
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Avoid breathing dust.
Keep container closed.
Use with adequate ventilation.

Label First Aid:
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. If swallowed, give large amounts of water to drink. Never give anything by mouth to an unconscious person.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 3.

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