Section 1 - Product and Company Information

Product Name
NANOCLAY, NANOMER® I.31PS, MONTMORILLONITE CLAY SURFACE MODIFIED WITH 15-35 WT.% OCTADECYLAMINE AND 0.5-5 WT.% AMINOPROPYLTRIETHOXYSILANE

Product Number
682632

Brand
ALDRICH

Company
Sigma-Aldrich

Address
3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>NANOCLAY, NANOMER® I.31PS</td>
<td>None</td>
<td>No</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS #</th>
<th>Percent</th>
<th>SARA 313</th>
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</thead>
<tbody>
<tr>
<td>3-AMINOPROPYLTRIETHOXYSILANE</td>
<td>919-30-2</td>
<td>&gt;= 0.5</td>
<td>No</td>
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<tr>
<td>OCTADECYLAMINE</td>
<td>124-30-1</td>
<td>&gt;= 15</td>
<td>No</td>
</tr>
<tr>
<td>MONTMORILLONITE K 10</td>
<td>1318-93-0</td>
<td>&gt;= 65</td>
<td>No</td>
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</tbody>
</table>

Synonyms
Montmorillinite clay surface modified with 15-35 WT.% octadecylamine and 0.5-5 WT.% aminopropyltriethoxysilane

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Irritant.
Irritating to eyes, respiratory system and skin.

HMIS RATING
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures
ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Physical State: Solid</th>
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</thead>
<tbody>
<tr>
<td>Property</td>
<td>Value</td>
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<tr>
<td>Molecular Weight</td>
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<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>BP/BP Range</td>
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</tr>
<tr>
<td>MP/MP Range</td>
<td>N/A</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Vapor Pressure</td>
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<tr>
<td>Vapor Density</td>
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<tr>
<td>Saturated Vapor Conc.</td>
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<tr>
<td>SG/Density</td>
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<tr>
<td>Bulk Density</td>
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<tr>
<td>Odor Threshold</td>
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<tr>
<td>Volatile%</td>
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<tr>
<td>VOC Content</td>
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</tr>
<tr>
<td>Water Content</td>
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<tr>
<td>Solvent Content</td>
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</tr>
<tr>
<td>Evaporation Rate</td>
<td>N/A</td>
</tr>
<tr>
<td>Viscosity</td>
<td>N/A</td>
</tr>
<tr>
<td>Surface Tension</td>
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<tr>
<td>Partition Coefficient</td>
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<tr>
<td>Decomposition Temp.</td>
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<tr>
<td>Flash Point</td>
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<tr>
<td>Explosion Limits</td>
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<tr>
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<tr>
<td>Autoignition Temp</td>
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<tr>
<td>Refractive Index</td>
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<tr>
<td>Optical Rotation</td>
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<tr>
<td>Miscellaneous Data</td>
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<tr>
<td>Solubility</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Nature of decomposition products not known.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information
ROUTE OF EXPOSURE
  Skin Contact: Causes skin irritation.
  Skin Absorption: May be harmful if absorbed through the skin.
  Eye Contact: Causes eye irritation.
  Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.
  Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE
  To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12 - Ecological Information
  No data available.

Section 13 - Disposal Considerations
  APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
  Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information
  DOT
  Proper Shipping Name: None
  Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

  IATA
  Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information
  EU ADDITIONAL CLASSIFICATION
  Symbol of Danger: Xi
  Indication of Danger: Irritant.
  R: 36/37/38
  Risk Statements: Irritating to eyes, respiratory system and skin.
  S: 26
  Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

  US CLASSIFICATION AND LABEL TEXT
  Indication of Danger: Irritant.
  Risk Statements: Irritating to eyes, respiratory system and skin.
  Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

  UNITED STATES REGULATORY INFORMATION
  SARA LISTED: No

  CANADA REGULATORY INFORMATION
  WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
  DSL: Yes
Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.