Material Safety Data Sheet
Semicarbazide Hydrochloride, 98%

ACC# 36327

Section 1 - Chemical Product and Company Identification

MSDS Name: Semicarbazide Hydrochloride, 98%
Catalog Numbers: AC264610000, AC264611000, AC264612500, AC264615000
Synonyms: Amidourea Hydrochloride; Carbamylhydrazine Hydrochloride; Hydrazinecarboxamide Monohydrochloride.
Company Identification:
    Acros Organics N.V.
    One Reagent Lane
    Fair Lawn, NJ 07410
For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>563-41-7</td>
<td>Semicarbazide Hydrochloride</td>
<td>98%</td>
<td>209-247-0</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white to light cream solid.
Caution! May cause eye and skin irritation. May cause respiratory and digestive tract irritation. Cancer suspect agent. May cause central nervous system depression. May cause cardiac disturbances. The toxicological properties of this material have not been fully investigated.
Target Organs: Central nervous system, cardiovascular system.

Potential Health Effects
Eye: May cause eye irritation.
Skin: May cause skin irritation.
Ingestion: May cause irritation of the digestive tract. May cause cardiac disturbances. The toxicological properties of this substance have not been fully investigated. May cause central nervous system depression.
Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated. May cause cardiac abnormalities. Inhalation at high concentrations may cause CNS depression and asphyxiation.
Chronic: Effects may be delayed. Cancer suspect agent.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and
lower eyelids. Get medical aid.

**Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Ingestion:** Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

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**Section 5 - Fire Fighting Measures**

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Containers may explode when heated. Non-combustible substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes. Runoff from fire control or dilution water may cause pollution.

**Extinguishing Media:** Use water spray to cool fire-exposed containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 0

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**Section 6 - Accidental Release Measures**

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

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**Section 7 - Handling and Storage**

**Handling:** Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

**Storage:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

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**Section 8 - Exposure Controls, Personal Protection**

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations
Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semicarbazine Hydrochloride</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** Semicarbazine Hydrochloride: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** 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:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

**Physical State:** Solid

**Appearance:** white to light cream

**Odor:** None reported.

**pH:** Not available.

**Vapor Pressure:** Not available.

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** Not available.

**Freezing/Melting Point:** 175.00 - 177.00 deg C

**Decomposition Temperature:** Not available.

**Solubility:** 100 g/l (15 °C)

**Specific Gravity/Density:** Not available.

**Molecular Formula:** CH5N3O.HCl

**Molecular Weight:** 111.53

Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, dust generation, excess heat, strong oxidants.

**Incompatibilities with Other Materials:** Oxidizing agents.

**Hazardous Decomposition Products:** Hydrogen chloride, nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.

**Hazardous Polymerization:** Has not been reported.

Section 11 - Toxicological Information

RTECS#: 

2/9/2005
CAS# 563-41-7: VT35000000

LD50/LC50:
CAS# 563-41-7:
   Oral, mouse: LD50 = 225 mg/kg;

Carcinogenicity:
CAS# 563-41-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Neurotoxicity: No information available.
Mutagenicity: No information available.
Other Studies: See actual entry in RTECS for complete information.

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Section 12 - Ecological Information

No information available.

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Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.
RCRA U-Series: None listed.

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Section 14 - Transport Information

<table>
<thead>
<tr>
<th></th>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping Name:</td>
<td>TOXIC SOLIDS, ORGANIC, N.O.S.</td>
<td>TOXIC SOLID ORGANIC NOS (SEMICARBAZIDE HYDROCHLORIDE)</td>
</tr>
<tr>
<td>Hazard Class:</td>
<td>6.1</td>
<td>6.1</td>
</tr>
<tr>
<td>UN Number:</td>
<td>UN2811</td>
<td>UN2811</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>III</td>
<td>III</td>
</tr>
</tbody>
</table>

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Section 15 - Regulatory Information

US FEDERAL

TSCA
   CAS# 563-41-7 is listed on the TSCA inventory.

Health & Safety Reporting List
   None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
   None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
   None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule  
None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs  
None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances  
CAS# 563-41-7: 1000 lb TPQ (lower threshold); 10000 lb TPQ (upper threshold)

SARA Codes  
CAS # 563-41-7: acute.

Section 313  
No chemicals are reportable under Section 313.

Clean Air Act:  
This material does not contain any hazardous air pollutants.  
This material does not contain any Class 1 Ozone depletors.  
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:  
None of the chemicals in this product are listed as Hazardous Substances under the CWA.  
None of the chemicals in this product are listed as Priority Pollutants under the CWA.  
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:  
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE  
CAS# 563-41-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

California Prop 65  
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations  
European Labeling in Accordance with EC Directives

Hazard Symbols:  
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Risk Phrases:  
R 25 Toxic if swallowed.

Safety Phrases:  
S 23 Do not inhale gas/fumes/vapour/spray.  
S 24/25 Avoid contact with skin and eyes.  
S 37 Wear suitable gloves.  
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
S 28A After contact with skin, wash immediately with plenty of water.

WGK (Water Danger/Protection)  
CAS# 563-41-7: 2

Canada - DSL/NDSL  
CAS# 563-41-7 is listed on Canada's DSL List.

Canada - WHMIS  
This product does not have a WHMIS classification.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997
Revision #5 Date: 3/18/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.