Conforms to ANSI Z400.5-2004 Standard (United States, Canada).

Material Safety Data Sheet
NovaHol

1. Product and company identification

Product name : NovaHol
Material uses : Hard surface cleaner / Degreasers.
Supplier/Manufacturer : Micronova Manufacturing Inc.
3431 West Lomita Boulevard
Torrance, CA 90505
Tel. : (310) 784-6990

In case of emergency : CHEMTREC, U.S. : (800) 424-9300 International: (703) 527-3887

2. Hazards identification

Physical state : Liquid.
Odor : Alcohol-like.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Flammable liquid. Irritating to eyes, respiratory system and skin. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Contains material that can cause target organ damage. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Potential acute health effects

Inhalation : Irritating to respiratory system.
Ingestion : No known significant effects or critical hazards.
Skin : Irritating to skin.
Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : Contains material that can cause target organ damage.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.
Target organs : Contains material which causes damage to the following organs: upper respiratory tract, skin, eye, lens or cornea.
Contains material which may cause damage to the following organs: central nervous system (CNS).

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following: respiratory tract irritation coughing

Ingestion : No specific data.

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2. Hazards identification

Skin: Adverse symptoms may include the following:
- irritation
- redness

Eyes: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

Medical conditions aggravated by over-exposure: Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>United States</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>10 - 24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Canada</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>10 - 24</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

Inhalation: Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention immediately.

Ingestion: Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician: No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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5. Fire-fighting measures

<table>
<thead>
<tr>
<th>Flammability of the product</th>
<th>Flammable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extinguishing media</td>
<td></td>
</tr>
<tr>
<td>Suitable</td>
<td>Use dry chemical, CO₂, water spray (fog) or foam.</td>
</tr>
<tr>
<td>Not suitable</td>
<td>Do not use water jet.</td>
</tr>
<tr>
<td>Special exposure hazards</td>
<td>Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.</td>
</tr>
<tr>
<td>Hazardous thermal decomposition products</td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide</td>
</tr>
<tr>
<td>Special protective equipment for fire-fighters</td>
<td>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</td>
</tr>
</tbody>
</table>

6. Accidental release measures

| Personal precautions | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8). |
| Environmental precautions | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| Methods for cleaning up | |
| Small spill | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. |
| Large spill | Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal. |

7. Handling and storage

| Handling | Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and |

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### 7. Handling and storage

Equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Storage**

- Store in accordance with local regulations. Store in a segregated and approved area.
- Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

### 8. Exposure controls/personal protection

#### United States

<table>
<thead>
<tr>
<th>Product name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>ACGIH TLV (United States, 1/2006).</td>
</tr>
<tr>
<td></td>
<td>STEL: 400 ppm 15 minute(s).</td>
</tr>
<tr>
<td></td>
<td>TWA: 200 ppm 8 hour(s).</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 12/2001).</td>
</tr>
<tr>
<td></td>
<td>STEL: 1225 mg/m³ 15 minute(s).</td>
</tr>
<tr>
<td></td>
<td>TWA: 980 mg/m³ 10 hour(s).</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 11/2006).</td>
</tr>
<tr>
<td></td>
<td>TWA: 980 mg/m³ 8 hour(s).</td>
</tr>
</tbody>
</table>

#### Canada

<table>
<thead>
<tr>
<th>Product name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>ACGIH TLV (United States, 1/2006).</td>
</tr>
<tr>
<td></td>
<td>STEL: 400 ppm 15 minute(s).</td>
</tr>
<tr>
<td></td>
<td>TWA: 200 ppm 8 hour(s).</td>
</tr>
</tbody>
</table>

Consult local authorities for acceptable exposure limits.

**Recommended monitoring procedures**

- If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

**Engineering measures**

- Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Hygiene measures**

- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal protection**

- **Eyes**: Safety glasses.
- **Skin**: Lab coat.
- **Respiratory**: A respirator is not needed under normal and intended conditions of use.
- **Hands**: Natural rubber (latex).
- **Personal protective equipment (Pictograms)**: 

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8. Exposure controls/personal protection

HMIS Code/Personal protective equipment: B

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Physical state: Liquid.
Flash point: Closed cup: 25.60°C (78°F) [Pensky-Martens.]
Color: Colorless.
Odor: Alcohol-like.
Relative density: 0.8
Solubility: Miscible in water.

10. Stability and reactivity

Stability: The product is stable.
Hazardous polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Materials to avoid: Reactive or incompatible with the following materials:
oxidizing materials
Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity: Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical impacts.

11. Toxicological information

Acute toxicity
Product/ingredient name: Isopropyl alcohol

<table>
<thead>
<tr>
<th>Species</th>
<th>Dose</th>
<th>Result</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>12800 mg/kg</td>
<td>LD50 Dermal</td>
<td>-</td>
</tr>
<tr>
<td>Rat</td>
<td>2735 mg/kg</td>
<td>LD50 Intrapitoneal</td>
<td>-</td>
</tr>
<tr>
<td>Rat</td>
<td>1086 mg/kg</td>
<td>LD50 Intravenous</td>
<td>-</td>
</tr>
<tr>
<td>Rat</td>
<td>5045 mg/kg</td>
<td>LD50 Oral</td>
<td>-</td>
</tr>
<tr>
<td>Rat</td>
<td>5000 mg/kg</td>
<td>LD50 Oral</td>
<td>-</td>
</tr>
</tbody>
</table>

Inhalation: Irritating to respiratory system.
Ingestion: No known significant effects or critical hazards.
Skin: Irritating to skin.
Eyes: Irritating to eyes.

Date of issue: 05/17/2010
11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>EPA</th>
<th>NIOSH</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>A4</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>None</td>
</tr>
</tbody>
</table>

12. Ecological information

Environmental effects: No known significant effects or critical hazards.

Aquatic ecotoxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Exposure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>Behavior</td>
<td>Fish</td>
<td>48 hours</td>
<td>Acute EC50 10000 mg/L</td>
</tr>
<tr>
<td></td>
<td>Mortality</td>
<td>Fish</td>
<td>96 hours</td>
<td>Acute LC50 10400 mg/L</td>
</tr>
<tr>
<td></td>
<td>Mortality</td>
<td>Fish</td>
<td>96 hours</td>
<td>Acute LC50 11130 mg/L</td>
</tr>
<tr>
<td></td>
<td>Mortality</td>
<td>Fish</td>
<td>96 hours</td>
<td>Acute LC50 9640 mg/L</td>
</tr>
<tr>
<td></td>
<td>Mortality</td>
<td>Fish</td>
<td>96 hours</td>
<td>Acute LC50 6550 mg/L</td>
</tr>
<tr>
<td></td>
<td>Mortality</td>
<td>Fish</td>
<td>96 hours</td>
<td>Acute LC50 &gt;1400 mg/L</td>
</tr>
</tbody>
</table>

13. Disposal considerations

Waste disposal: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>Proper shipping name</th>
<th>Class</th>
<th>UN number</th>
<th>PG</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN / IMDG / IATA</td>
<td>Consumer commodity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOT Classification</td>
<td>ORM-D / Consumer commodity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Regulatory information

United States

HCS Classification: Flammable liquid
Irritating material
Target organ effects

U.S. Federal regulations: TSCA 8(a) PAIR: Nonylphenoxypolyglycol
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Isopropyl alcohol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Isopropyl alcohol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
15. Regulatory information

Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

Form R - Reporting requirements

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>10 - 30</td>
</tr>
</tbody>
</table>

Supplier notification

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>10 - 30</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: Isopropyl alcohol
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: Isopropyl alcohol
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: None of the components are listed.
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed: Isopropyl alcohol
Rhode Island Hazardous Substances: None of the components are listed.

Canada

WHMIS (Canada)

Class B-2: Flammable liquid
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPR: The following components are listed: Isopropyl alcohol
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada inventory

Canada inventory: All components are listed or exempted.

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15. Regulatory information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations
International lists
This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, in Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16. Other information

Label requirements
FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.)

Hazard ratings

4- Extreme
3- Serious
2- Moderate
1- Slight
0- Minimal

See section 8 for more detailed information on personal protection.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Flammability

Health

Instability

Special

References

Date of issue
05/17/2010

Version
2

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither Micronova Mfg., Inc. nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.