1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: n-Propoxypropanol

OTHER/GENERIC NAMES: 1-propoxy,2-propanol, PNP, Propylene glycol n-propyl ether, Arcosolv

PRODUCT USE: Solvent

MANUFACTURER: Honeywell, Burdick & Jackson
1953 South Harvey Street
Muskegon, MI 49442

FOR MORE INFORMATION CALL: (Monday-Friday, 8:00am-5:00pm)
1-800-368-0050

IN CASE OF EMERGENCY CALL: (24 Hours/Day, 7 Days/Week)
1-800-707-4555 or Chemtrec 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>CAS NUMBER</th>
<th>WEIGHT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propoxypropanol (1-propoxy-2-Propanol)</td>
<td>1569-01-3</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>2-Propoxy-1-Propanol</td>
<td>10215-30-2</td>
<td>&lt;7%</td>
</tr>
<tr>
<td>Propylene Glycol</td>
<td>57-55-6</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Dipropylene Glycol</td>
<td>25265-71-8</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Dipropylene Glycol Monopropyl Ether</td>
<td>29911-27-1</td>
<td>&lt;5%</td>
</tr>
</tbody>
</table>

Trace impurities and additional material names not listed above may also appear in Section 15 toward the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION


POTENTIAL HEALTH HAZARDS

SKIN: Irritant. Can cause dermatitis through defatting of the skin. Can be absorbed through the skin to produce other toxic effects.

EYES: Irritant. Can cause redness, tearing and swelling.

INHALATION: Can cause irritation to the inside of the mouth and throat. Can cause coughing, shortness of breath, headache, nausea, disorientation and narcosis.
n-Propoxypropanol

INGESTION: Can cause nausea, vomiting and drowsiness.

DELAYED EFFECTS: May cause dermatitis, lung congestion, liver and kidney damage.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>NTP STATUS</th>
<th>IARC STATUS</th>
<th>OSHA LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ingredients listed in this section.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

SKIN: Rinse affected area with plenty of water until no evidence of chemical remains.

EYES: Rinse eyes for at least 15 minutes with plenty of water. CONTACT A PHYSICIAN.

INHALATION: Immediately remove to fresh air. If not breathing, get emergency medical assistance. Administer emergency breathing and or CPR appropriate to your level of training.

INGESTION: Contact physician immediately. Do not induce vomiting unless instructed by a physician.

ADVICE TO PHYSICIAN: No specific antidote. Treat supportively and symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH POINT</td>
<td>117°F (47°C)</td>
</tr>
<tr>
<td>FLASH POINT METHOD:</td>
<td>Closed Cup</td>
</tr>
<tr>
<td>AUTOIGNITION TEMPERATURE:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>UPPER FLAME LIMIT (volume % in air):</td>
<td>16.9%</td>
</tr>
<tr>
<td>LOWER FLAME LIMIT (volume % in air):</td>
<td>1.3%</td>
</tr>
<tr>
<td>FLAME PROPAGATION RATE (solids):</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>OSHA FLAMMABILITY CLASS:</td>
<td>II</td>
</tr>
</tbody>
</table>

EXTINGUISHING MEDIA:
Carbon dioxide, dry chemical, or alcohol foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Fire hazard when exposed to heat, flame or oxidizers. Vapors are heavier than air and may travel a considerable distance to an ignition source and flash back. Vapor mixtures are explosive. Closed storage containers may pressurize and rupture under fire conditions.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:
Incomplete combustion can generate carbon monoxide and other toxic gases and vapors. Do not release runoff from firefighting efforts into sewers or waterways.
6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)
Remove personnel from area. Shut off all sources of ignition. Stop leak if safe to do so. Absorb spilled substance
with inert material (such as ground corn cobs). Collect absorbed material in appropriate salvage container(s) for
later disposal by qualified personnel.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting
requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)
Keep away from heat, open flame or other high temperature sources. Avoid contact with skin, eyes and clothing;
avoid breathing vapor or mist. Use good personal hygiene and housekeeping practices.

STORAGE RECOMMENDATIONS:
Protect from physical damage. Store in a cool, dry, well-ventilated area away from ignition sources and other fire
hazards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:
Provide general or local exhaust ventilation systems to maintain airborne concentrations below permissible TLV
levels. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by
controlling it at its source.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:
Where liquid contact is possible impervious coveralls are recommended. To minimize the possibility of exposure
in other handling and storage operations, wear appropriate PPE to include chemical resistant gloves, boots and
apron.

EYE PROTECTION:
Safety glasses are considered minimum protection. Goggles or face shield may be necessary depending on
quantity of material and conditions of use.

RESPIRATORY PROTECTION:
Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR
1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For emergency or non-routine
operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**ADDITIONAL RECOMMENDATIONS:**
This material should be used in close proximity to eyewash station and safety shower. Use appropriate personal hygiene after handling this material. Do not smoke in the vicinity of flammable materials.

**EXPOSURE GUIDELINES**

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>OTHER LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ingredients listed in this section</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

* = Limit established by Honeywell International, Inc.
** = Workplace Environmental Exposure Level (AIHA).
*** = Biological Exposure Index (ACGIH).

**OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:**
None

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE:**
Clear, Colorless

**PHYSICAL STATE:**
Liquid

**MOLECULAR WEIGHT:**
118.18 gm/mol

**CHEMICAL FORMULA:**
Mixture

**ODOR:**
Mild

**SPECIFIC GRAVITY (water = 1.0):**
0.89

**SOLUBILITY IN WATER (weight %):**
100%

**pH:**
Not Applicable

**BOILING POINT:**
302°F

**MELTING POINT:**
-94°F

**VAPOR PRESSURE:**
1.7 mm Hg

**VAPOR DENSITY (air = 1.0):**
4.0

**EVAPORATION RATE:**
0.22

**% VOLATILES:**
~100%

**FLASH POINT:**
117°F

(Flash point method and additional flammability data are found in Section 5.)

**10. STABILITY AND REACTIVITY**

**NORMALLY STABLE? (CONDITIONS TO AVOID):**
Material is stable under normal handling and storage conditions.
INCOMPATIBILITIES:
Oxidizers, acids, and active metal including aluminum.

CONDITIONS TO AVOID:
Heat, sparks, open flame and unsafe storage conditions such as areas with poor ventilation.

HAZARDOUS DECOMPOSITION PRODUCTS:
Incomplete combustion can produce carbon monoxide and other toxic fumes.

HAZARDOUS POLYMERIZATION:
Not expected to occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:
Oral-Rat LD50: 2504 mg/kg
Skin-Rabbit, Adult LD50: 3550 mg/kg

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:
See Section 3, Potential Health Hazards

OTHER DATA: None.

12. ECOLOGICAL INFORMATION
Dangerous to aquatic life in high concentrations.

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes
If yes, the RCRA ID number is: D001

OTHER DISPOSAL CONSIDERATIONS:
Dispose of material in accordance with all applicable local, state, and federal regulations.
The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT PROPER SHIPPING NAME: Flammable liquid, n.o.s. (Propylene glycol Normal-Propyl ether)
US DOT HAZARD CLASS: 3, Flammable Liquid
US DOT ID NUMBER: UN1993
n-Propyloxypropanol

US DOT PACKING GROUP: III
NA EMERGENCY RESPONSE GUIDE: 128

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed as required
OTHER TSCA ISSUES: None Known.

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>SARA/CERCLA RQ (lb)</th>
<th>SARA EHS TPQ (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ingredients listed in this section.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Acute, Chronic, Fire.

SARA 313 TOXIC CHEMICALS:
The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ingredients listed in this section.</td>
<td></td>
</tr>
</tbody>
</table>

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>WEIGHT %</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ingredients listed in this section.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ADDITIONAL REGULATORY INFORMATION:
FOREIGN INVENTORY STATUS: Not determined.

WHMIS CLASSIFICATION (CANADA): Class B, Division 2
16. OTHER INFORMATION

CURRENT ISSUE DATE: June, 2000
PREVIOUS ISSUE DATE: New, May, 1999

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING: Update to ANSI Standard. New header and footer information.

<table>
<thead>
<tr>
<th>NFPA Classification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health:</td>
<td>1</td>
</tr>
<tr>
<td>Flammability:</td>
<td>2</td>
</tr>
<tr>
<td>Reactivity:</td>
<td>0</td>
</tr>
</tbody>
</table>