Material Safety Data Sheet  
Material/Trade Name: Advance Liquid Copper  
Stock Number(s): 335-171  
MSDS Code: RIO-473  

SECTION I  PRODUCT/SUPPLIER INFORMATION  
| Material/Trade Name: Advance Liquid Copper | Emergency Telephone No.: (800) 255-3924 |
| Synonyms: Aqueous Salt Solution | Nonemergency Safety/Technical Information Telephone No.: (505) 821-7620 |
| Stock Numbers: 335-171 | Supersedes our version dated: Original |

SECTION II  INGREDIENT/EXPOSURE LIMIT INFORMATION  
<table>
<thead>
<tr>
<th>Component (synonym)</th>
<th>%</th>
<th>CAS No.</th>
<th>TLV</th>
<th>PEL</th>
<th>REL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td></td>
<td>7440-50-8</td>
<td>0.2 mg/m³ (f)</td>
<td>0.1 mg/m³ (f)</td>
<td>0.1 mg/m³ (f/hr)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 mg/m³ (dm)</td>
<td>1 mg/m³ (dm)</td>
<td></td>
</tr>
<tr>
<td>Ammonia</td>
<td>&lt;1</td>
<td>7664-41-7</td>
<td>25 ppm</td>
<td>50 ppm</td>
<td>25 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>35 ppm (a)</td>
<td></td>
<td>35 ppm (a)</td>
</tr>
<tr>
<td>Propylene Glycol</td>
<td>&lt;4</td>
<td>57-55-6</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
</tbody>
</table>

f = as fume, dm = dusts and mists, hr = 10h TWA, a = Short Term Exposure Limit, N.E. = None Established (Exposure Limit)

SECTION III  PHYSICAL PROPERTIES  
| Vapor Pressure (mm Hg): | Not Available | Specific Gravity: | 1.10 |
| Vapor Density (Air = 1): | Not Available | Boiling Point: | 212°F (100°C) |
| Solubility in Water: | Soluble | Evaporation Rate: | > Ether |
| Appearance: | Copper colored liquid | Volatility (%): | > 95 |
| Odor: | Not Available | pH: | Not Available |
| Melting Point: | Not Available |

SECTION IV  FIRE AND EXPLOSION DATA  
Flash Point: None Known  
Auto Ignition Temperature: Not Available  
Flammable Limits: LEL: Unknown  
UBL: Unknown

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical

Special Fire Fighting Procedures: Fire fighters should wear full turnout gear and pressure-demand self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: None Known

SECTION V  REACTIVITY DATA  
Stable? Yes  Conditions to Avoid: Elevated temperatures, freezing temperatures

Incompatibility (Materials to Avoid): Strong alkalis, acids

Hazardous Decomposition Products: Ammonia vapors

Hazardous polymerization may occur? No  Conditions to Avoid: None Known

SECTION VI  HEALTH HAZARD DATA  
Primary Routes of Exposure: Inhalation, skin and eye contact

Acute Signs and Symptoms of Overexposure: May cause minor eye and skin irritation. May dry out skin. Inhalation of fumes may cause respiratory irritation, headache, nausea, vomiting, diarrhea, chills, fever, aching muscles.
Chronic Signs and Symptoms of Overexposure: None Known

**SECTION VI HEALTH HAZARD DATA (Continued)**

Carcinogenicity: No

*NNo ingredients listed in this section*

**Conditions That May Increase Overexposure Potential:** The extent of exposure to this product will depend largely on the intensity and duration of product use. Employers who supply this product for use by their employees must determine the conditions under which overexposure can result.

**Medical Conditions Generally Aggravated by Exposure:** Damaged skin, Wilson's disease—a disease in which the body abnormally absorbs and retains copper. May be fatal if untreated.

**FIRST AID PROCEDURES:**

- **Eye Contact:** Flush eyes with plenty of water. If irritation develops and persists, seek medical attention.
- **Skin Contact:** Remove contaminated clothing and wash affected area with soap and water. Seek medical attention if irritation develops and persists.
- **Inhalation:** Remove victim to fresh air. Restore breathing if necessary. Seek medical attention immediately.
- **Ingestion:** Give large amounts of water. Seek medical attention.

**SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE**

**Actions to Take For Spills:** Absorb with inert material (sand, vermiculite, etc.). Sweep or scoop up and put in disposal container. Flush area immediately with plenty of water; prevent washings from entering waterways.

**Waste Disposal:** Dispose of via a licensed firm in accordance with federal, state and local regulations (see EPA 40 CFR 261).

**Precautions to be Taken in Handling and Storage:** Store in cool, dry location.

**Community Right-to-Know Requirements:** SARA 302: Copper, RQ = 5000 lbs; Ammonia, RQ = 100 lbs, TPQ = 500 lbs (EPA Extremely Hazardous Substance) (see 40 CFR 355).

SARA 313: Annual release reporting requirements for Copper Powder, Ammonia (see 40 CFR 372.65).

**SECTION VIII EMPLOYEE PROTECTION MEASURES**

**Ventilation:** Local ventilation is preferred to meet TLV requirements. General ventilation is acceptable, if exposure is maintained below TLV.

**Respiratory Protection:** When airborne concentrations exceed the TLV or are unknown, use a NIOSH/MSHA approved respirator for dust, mist and fumes in accordance with the OSHA respiratory protection requirements (29 CFR 1910.134).

**Eye Protection:** Safety glasses or goggles

**Protective Gloves:** Rubber gloves are recommended.

**Other Protective Equipment:** Clothing to protect against skin contact

**Work/Hygiene Practices:** Eyewash station and safety shower should be available in areas of use. Wash thoroughly after handling product.

The information herein is given in good faith, but no warranty, express or implied, is made.
SECTION I  PRODUCT/SUPPLIER INFORMATION

Material/Trade Name: Advance Rust Patina
Synonyms: Aqueous Salt Solution
Stock Numbers: 335-172

SECTION II  INGREDIENT/EXPOSURE LIMIT INFORMATION

Component (synonym) | % | CAS No. | TLV | PEL | REL
--- | --- | --- | --- | --- | ---
Sodium Silicate | <30 | 1344-09-8 | N.E. | N.E. | N.E.

N.E. = None Established (Exposure Limit)

SECTION III  PHYSICAL PROPERTIES

Vapor Pressure (mm Hg): Not Available
Vapor Density (Air = 1): Not Available
Solubility in Water: Soluble
Appearance: Rust colored liquid
Odor: Not Available
Melting Point: Not Available

Specific Gravity: 1.10
Boiling Point: 212 °F (100 °C)
Evaporation Rate: > Ether
Volatility (%): >95
pH: Not Available

SECTION IV  FIRE AND EXPLOSION DATA

Flash Point: None Known
Auto Ignition Temperature: Not Available

Flammable Limits: LEL: Unknown
UEL: Unknown

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical

Special Fire Fighting Procedures: Firefighters should wear full turnout gear and pressure-demand self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: None Known

SECTION V  REACTIVITY DATA

Stable? Yes
Conditions to Avoid: Elevated temperatures, confined areas with poor exhaust, freezing temperatures

Incompatibility (Materials to Avoid): Strong alkalis, acids

Hazardous Decomposition Products: None Known

Hazardous polymerization may occur? No

SECTION VI  HEALTH HAZARD DATA

Primary Routes of Exposure: Inhalation, skin and eye contact

Acute Signs and Symptoms of Overexposure: May cause minor eye and skin irritation. May dry out skin.

Chronic Signs and Symptoms of Overexposure: None Known
Carcinogenicity? No NTP IARC ACGIH OSHA

*No ingredients listed in this section*

Conditions That May Increase Overexposure Potential: The extent of exposure to this product will depend largely on the intensity and duration of product use. Employers who supply this product for use by their employees must determine the conditions under which overexposure can result.

Medical Conditions Generally Aggravated by Exposure: None Known

FIRST AID PROCEDURES:

Eye Contact: Flush eye(s) with plenty of water. Seek medical attention if irritation develops and persists.

Skin Contact: Wash skin with soap and water. Seek medical attention if irritation develops and persists.

Inhalation: Remove victim to fresh air. Restore breathing if necessary. Seek medical attention immediately.

Ingestion: Give large amounts of water. Seek medical attention.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Actions to Take For Spills: Absorb with inert material (sand, vermiculite, etc.). Sweep or scoop up and put in disposal container. Flush area immediately with plenty of water; prevent washings from entering waterways.

Waste Disposal: Dispose of via a licensed firm in accordance with federal, state and local regulations (see EPA 40 CFR 261).

Precautions to be Taken in Handling and Storage: Store in cool, dry location.

Community Right-to-Know Requirements: None Known

SECTION VIII EMPLOYEE PROTECTION MEASURES

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Respiratory Protection: When airborne concentrations exceed the TLV or are unknown, use a NIOSH/MSHA approved respirator for dust, mist and fumes in accordance with the OSHA respiratory protection requirements (29 CFR 1910.134).

Eye Protection: Safety glasses or goggles

Protective Gloves: Rubber gloves are recommended.

Other Protective Equipment: Appropriate clothing to prevent skin contact

Work/Hygiene Practices: Eyewash station and safety shower should be available in areas of use. Wash thoroughly after handling product.

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