SAFETY DATA SHEET
SUPERIOR NO. 312-PVA
DATE REVISED: January 1, 2017

Product Name: Superior No. Superior 312-PVA
Manufacturer: Superior Flux & Mfg. Co. 6615 Parkland Blvd. Cleveland, OH 44139
Emergency Phone Number: 1-800-424-9300 (CHEMTREC)
Other Information Calls: (440) 349-3000

To the Purchaser: This MSDS contains important environmental, health, and toxicology information for your employees who have ordered this product. Please be sure this information is given to them. If you resell this product, a copy of the MSDS should be given to the buyer.

H.M.I.S. INFORMATION: HEALTH = 1 FLAMMABILITY = 3 REACTIVITY = 1

SECTION I - IDENTIFICATION

Common Name: Superior 312-PVA
Chemical Family: No Clean Flux for Photovoltaic Assembly
CAS Number: NA
Chemical Name: NA
Formula: See below

SECTION II – HAZARDS IDENTIFICATION

Classification of Substance or Mixture:
Classification (CLP): NA
Signal Word: Danger
Label Elements (CLP): NA

Risk Phrases: R11, R36, R67
Safety Phrases: S2, S7, S16, S24/25, S-26
See section XVI for full text description of S and R phrases
Other Hazards: None if used properly

SECTION III- COMPOSITION INFORMATION

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>%</th>
<th>OSHA PEL</th>
<th>H Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>85-97</td>
<td>1000 PPM</td>
<td>H225, H319, H335, H336</td>
</tr>
<tr>
<td>Carboxylic Acid</td>
<td>68937-69-9</td>
<td>2-10</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Unlisted percentages are non-hazardous stabilizers, and water. None of the materials in this product are listed in NTP, IARC, or OSHA as carcinogens.
SECTION IV – FIRST AID MEASURES

Inhalation: Remove to fresh air
Skin: Wash thoroughly with water.
Ingestion: If patient is fully conscious, give large amounts of water. Obtain medical attention immediately.

Most Important Symptoms and effects, both acute and delayed

Primary Routes of Entry into Body: Fume inhalation, ingestion, skin, and eyes.
Symptoms of Overexposure: Salivation, coughing, choking, chills, may cause weight loss, brittle bones, anemia, and stiff joints.

Medical Conditions Generally Aggravated by Exposure: Any weakness of the lungs, kidneys or liver will be aggravated.
Chemical Listed as Carcinogen or Potential Carcinogen: None
OSHA Permissible Exposure Limit (PEL): 1000 PPM
ACGIH Threshold Limit Value (TLV): 1000 PM

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Flash Point: 11.7°C/53°
Flammable Limits: Lower-2 Upper-12
Extinguishing Media: Dry Chemical, CO₂
Auto Ignition Temperature: 398.9°C/750°F
Special Fire Fighting Procedures: Wear protective clothing, including NIOSH approved self-contained breathing apparatus
Unusual Fire and Explosion Hazards: Flammable, do not mix with strong oxidizing or dehydrating agents. Do not store in presence of oxidizing agents

SECTION VI - ACCIDENTAL RELEASE MEASURES

Steps to be Taken in Case Material is Spilled: Absorb with sawdust and remove in accordance to EPA regulations.

SECTION VII - HANDLING AND STORAGE

Storage Requirements: Store in plastic containers in cool area. Do not store in glass containers.
Handling Precautions: Safe precautionary practices.
Other Precautions: Keep away from electrical sparks, heat, open flame or oxidizing agents
SECTION VIII - CONTROL MEASURES

Respiratory Protection (TYPE): NIOSH approved respirator.
Ventilation: Yes
Mechanical (General): Explosion proof
Local Exhaust: Yes
Protective Gloves: Recommended, NIOSH approved
Other Protective Clothing or Equipment: Rubber apron is recommended.
Eye Protection: Safety Glasses
Regulatory Information: The chemical components are listed on TSCA and DSL inventory. See composition section ii for CAS numbers.

SECTION IX - PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling Point: 77°C/170.6°F
Specific Gravity (Water = 1): 0.815
Vapor Pressure (mm Hg): 42
Percent Volatile by Volume: 94%
Vapor Density (Air = 1): 1.4
Evaporation Rate (Butyl Acetate = 1): 3.1
Melting Point: -90°C/-130°F
Solubility in Water: Unlimited
Reactivity in Water: None
Appearance and Odor: Clear liquid, alcohol odor

SECTION X - STABILITY AND REACTIVITY

Stability: Product is stable 
(Conditions to Avoid): Avoid heat sparks and open flames
Incompatibility: Strong oxidizers.
Hazardous Decomposition Products: CO.
Hazardous Polymerization: NA

SECTION XI - TOXICOLOGICAL INFORMATION

Acute Toxicity Data
1) Oral: LD-50 (rat): Not available
2) Inhalation: LC-50 (rat): Not available
3) Dermal: LD-50 (rabbit): Not available
4) Skin Irritation: (rabbit): Not available

Chronic Toxicity Data
1) Repeated Skin Application: (rat): Not available
2) Eye Irritation: (rabbit): Not available

SECTION XII - ECOLOGICAL INFORMATION

This material has not been tested for environmental effects.

SECTION XIII - DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of in accordance with EPA regulations
SECTION XIV - TRANSPORTATION

D.O.T. Proper Shipping Name: Alcohol NOS (Contains Ethanol, Methanol)
Hazard Class: 3
Identification Number: UN1987
Packing Group: II
Type D.O.T Label Required Information: Flammable Liquid

SECTION XV - REGULATORY INFORMATION

OSHA Hazardous Chemical According to 29 CFR 1910.1200: NA
Carcinogenicity Classification: (Components Present at 0.1% or More)
International Agency for Research on Cancer (IARC): NA
American Conference of Governmental Industrial Hygienists (ACGIH): NA
National Toxicology Program (NTP): NA
Occupational Safety and Health Administration (OSHA): NA
All Components of this Product are Listed on the U.S. Toxic Substances Control Act Inventory or Otherwise Comply with TSCA Pre-manufacture Notification Requirements.
This product is RoHS compliant.

SECTION XVI - OTHER INFORMATION

The labeling of this product is indicated in Section II. The full text of all abbreviations indicated by codes in the MSDS are as follows:

R11 Highly flammable
R36 Irritating to eyes
R67 Irritating to respiratory system

S-2 Keep out of the reach of children
S-7 Keep container tightly closed
S-16 Keep away from sources of ignition - No smoking
S-24/25 Avoid contact with skin and eyes
S-26 In case of eye contact, rinse thoroughly and get medical attention

H225 Highly flammable liquid and vapour
H319 Causes serious eye irritation
H335 May cause respiratory irritation
H336 May cause drowsiness or dizziness

P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking
P233 Keep container tightly closed
P240 Ground/bond container and receiving equipment
P241 Use explosion-proof electrical/ventilating/light/…/equipment.
P242 Use only non-sparking tools
P243 Take precautionary measures against static discharge
P280 Wear protective gloves/protective clothing/eye protection/face protection
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P264 Wash ... thoroughly after handling
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P337+P313 If eye irritation persists get medical advice/attention
P403+P235 Store in a well ventilated place. Keep cool

Further information:
Judgments as to the suitability of information herein or the purchaser's purposes are necessarily the purchaser's responsibility. Reasonable care has been taken in the preparation of this material, but there are NO WARRANTIES, NO REPRESENTATIONS AND NO RESPONSIBILITY AS TO THE ACCURACY OR THE SUITABILITY OF THIS INFORMATION FOR ANY PURCHASER'S USE OR FOR ANY CONSEQUENCE TO USE.