## Section 1: Product and Company Identification

<table>
<thead>
<tr>
<th>Identification of Substance:</th>
<th>Polyester Resin, Antimony Pentoxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name:</td>
<td>NYACOL® APE3040</td>
</tr>
<tr>
<td>Synonym:</td>
<td>Antimony Pentoxide Dispersion / APE3040</td>
</tr>
<tr>
<td>CAS Number:</td>
<td>1314–60–9; See Section 3.</td>
</tr>
<tr>
<td>Company Identification:</td>
<td>Nyacol Nano Technologies, Incorporated</td>
</tr>
<tr>
<td></td>
<td>Megunko Road, P.O. Box 349, Ashland, MA 01721 U.S.A. 508–881–2220</td>
</tr>
</tbody>
</table>

### In Case of Emergency:
- CHEMTREC: 800–424–9300
- 24 Hours/Day: 7 Days/Week
- E-mail Contact: info@nyacol.com
- Internet: www.nyacol.com
- Recommended Use: Recommended as flame retardant additive.
- Restrictions on Use: For industrial use only, not for food, drug or home use.

## Section 2: Hazard(s) Identification

<table>
<thead>
<tr>
<th>Health</th>
<th>Environmental</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation (Category 3)</td>
<td>None known.</td>
<td>None known.</td>
</tr>
<tr>
<td>Corrosion/Damage/Irritation Eye (Category 2B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, oral (Category 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity, repeated exposure (Category 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, inhalation (Category 4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### GHS label element including precautionary statements:
- P102 Keep out of reach of children. See Hazard and Precautionary Statements below.

**Pictogram/Signal Word:** Danger

Chronic exposure to antimony compounds may cause damage to the heart with altered ECG, high blood pressure, ulcers and disturbances in menstruation.

Kidney damage from ethanol, 2,2’oxybis-(diethylene glycol).

Kidney and liver damage can occur from resin and additives.

**Emergency Overview:**

**Primary routes of entry:** Inhalation. Skin. Eyes.

**Target organs:** Lungs. Heart. Kidney. Liver.

<table>
<thead>
<tr>
<th>Hazard Statement(s):</th>
<th>Precautionary Statement(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>H332 – Harmful if inhaled.</td>
<td>P261 – Avoid breathing dust/fumes/gas/mist/vapors/spray. P271 – Use only outdoors or in a well-ventilated area; P304+P340 – If inhaled remove person to fresh air and keep at rest in a position comfortable for breathing; P312 – Call a Poison Control Center or doctor/physician if you feel unwell.</td>
</tr>
<tr>
<td>H316 – Causes mild skin irritation.</td>
<td>P332 + P313 If skin irritation occurs, get medical advice/attention.</td>
</tr>
<tr>
<td>H320 – Causes eye irritation.</td>
<td>P264 – Wash face, hands and any exposed skin thoroughly after handling. P305+P351+P338 – If in eyes rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. P337+P313 If eye irritation persists get medical advice/attention.</td>
</tr>
</tbody>
</table>
### Section 3: Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Component Name</th>
<th>CAS Number</th>
<th>Exposure Limits</th>
<th>Percent By Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isophthalic Acid Polyester Resin with Diethylene Glycol, Adipic Acid, Maleic Anhydride, and 1,2 Propanediol:</td>
<td>61224–63-3</td>
<td>Not Available.</td>
<td>35 – 45</td>
</tr>
<tr>
<td>Unsaturated Polyester Resin:</td>
<td>Trade Secret of vendor</td>
<td>Not Available.</td>
<td>10 – 15</td>
</tr>
<tr>
<td>Antimony Pentoxide:</td>
<td>1314–60–9</td>
<td>0.5 mg/M³ (Antimony)</td>
<td>40</td>
</tr>
<tr>
<td>Amines, C₁₂–C₁₄-tert-alkyl, ethyoxylated:</td>
<td>73138–27–9</td>
<td>Not Available.</td>
<td>1 – 5</td>
</tr>
</tbody>
</table>

**Impurities:**
- Not Listed.

**Stabilizing Additives:**
- Not Listed.

### Section 4: First-Aid Measures

**Eye Contact:**
Immediately flush eyes with large amounts of water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. Do not attempt to neutralize the material, and do not apply ointments or oils to the eyes at this time.
Get medical attention immediately.

**Skin Contact:**
Immediately remove contaminated clothing and shoes. Wash skin with soap and plenty of water for at least 15 minutes. Do not attempt to neutralize with chemical agents. Get medical attention. Wash contaminated clothing before reuse. Thoroughly clean or destroy contaminated shoes.

**Inhalation:**
Inhalation is unlikely. If it does occur, remove to fresh air. If breathing becomes difficult, seek medical attention. If breathing has stopped, give artificial respiration. Maintain airway and give oxygen if available. Get medical attention immediately. Treat symptomatically.
Section 5: Fire-Fighting Measures

Flammability of the product: Material will burn in a fire.
Extinguishing Media: Water (low pressure), dry powder, foam, carbon dioxide.
Not Suitable: Not available.
Special Hazard Arising from the Chemical: None known.
Special Protective Equipment for Fire-fighters: Wear standard full firefighter turn-out gear (full bunker gear) and respiratory protection (SCBA).
Firefighting Procedures: As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate non-essential personnel from the fire area. Firefighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. If possible, move containers from the fire area. If not leaking, keep fire-exposed containers cool with a water fog or spray to prevent rupture due to excessive heat. High-pressure water may spread product from broken containers increasing contamination of fire hazard. Contaminated buildings, areas and equipment must not be used until they are properly decontaminated. Dike fire water for later disposal. Do not allow contaminated water to enter waterways.

Section 6: Accidental Release Measures

Personal Precautions and PPE: Eye protection and impervious gloves. An approved air-purifying respirator should be worn if dust or mist is present.
Environmental Precautions: Water contamination should be avoided.
Method for Cleaning Up:
Spill: Contain spill or leak with sand, clay or absorbents. Recover liquid for recycle or disposal. Do not allow spills into sewers or surface waters. Place absorbents, waste products and contaminated soil into containers for disposal.

Section 7: Handling and Storage

Precautions During Handling: Avoid generating mist during use.
SAFETY DATA SHEET
NYACOL® APE3040

Storage:
Store in cool, dry area.

Section 8: Exposure Controls / Personal Protection

Ingredient(s):
Antimony Pentoxide, CAS 1314–60–9

OSHA PEL:
USA, Occupational Exposure Limits (OSHA) – table Z–1 Limits for Air Contaminants.
TWA: 0.5 mg/M³
ACGIH TLV:
USA, ACGIH Threshold Limit Values (TLV)
TWA: 0.5 mg/M³

Engineering Controls:
Use exhaust ventilation to keep airborne concentrations below exposure limits.

Hygiene Measures:
Change contaminated clothing. Wash hands after working with substance.

Personal Protective Equipment (PPE):

Respiratory:
When respiratory protection is required, or concentrations unknown, use approved air–purifying respirator with organic vapor cartridge.

Hands:
Wear impervious gloves such as neoprene.

Eyes:
Wear approved safety goggles or face shield.

Skin:
Wear clean body–covering clothing; impervious gloves such as neoprene. Workers should wash exposed skin several times daily with soap and water. Soiled work clothing should be laundered or dry-cleaned.

Environmental Exposure Controls:
APE3040 should be recycled or solidified for disposal in a landfill approved for chemical waste or burned in an incinerator with scrubber approved for chemical waste. APE3040 that becomes a waste material should be tested by the EPA TCLP test for disposal status.

Section 9: Physical and Chemical Properties

Appearance (Physical State, Color):
Tan viscous liquid. Nyacol APE3040 is an organic liquid–based material.

Volatile by Weight:
Not volatile.

Odor:
Sweet.

Vapor Pressure:
Not applicable.

Specific Gravity:
1.6

pH:
Not applicable.

Density:
1,600 kg/m³

Boiling Point:
>232°C

Freezing Point:
Not available.

Solubility in Water:
Not soluble.

Flashpoint:
>101°C open cup.

Evaporation Rate:
Slow.

Partition Coefficient:
Not available. Negligible solubility in water. Appreciable solubility in oil.

Explosion Limits:
Not available.

Oxidizing Properties:
Not an oxidizer.

Viscosity:
Not available.

Section 10: Stability and Reactivity
SAFETY DATA SHEET
NYACOL® APE3040

Chemical Stability: Stable under normal ambient and anticipated storage and handling conditions.

Hazardous Reactions: None known.

Conditions to Avoid: Prolonged storage at elevated temperatures.

Incompatible Materials: Strong acids and/or oxidizers. Use of APE3040 under acidic reducing conditions may form a poisonous gas stibine.

Hazardous Decomposition Products: Oxides of carbon and nitrogen.

Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

Acute Toxicity Values:
- Antimony Pentoxide: LD50, Rat, Oral >4123 mg/kg
- Amines, C12–C14-tert-alkyl, ethyoxylated: 1520 mg/kg

Skin Contact: Irritant. No published data available. This material is expected to be slightly irritating to the skin.

Eye Contact: Irritant. No published data available. This material is expected to be moderately irritating to the eyes.

Inhalation: Pneumoconiosis and upper airway inflammation. Prolonged breathing of vapors may cause headache.

Ingestion: May cause nausea. Gastrointestinal effects such as vomiting and diarrhea have been reported in both humans and animals after ingesting antimony compounds. Kidney damage from ethanol, 2,2’oxybis-(diethylene glycol).


Chronic Effects: Chronic exposure to antimony compounds has caused damage to the heart with altered ECG, high blood pressure, ulcers and disturbances in menstruation. Kidney and liver damage can occur from resin and additives.

Medication Conditions Aggravated by Over-exposure: No data available.

Carcinogenicity: No data available.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Antimony does not appear to bioconcentrate appreciably in fish. Plant uptake of antimony from soil is minor and correlates to the amount of available antimony. Antimony does not appear to biomagnify from lower to higher trophic levels in the food chain. No data available for organic components.

Persistence and degradability: Reports claim that antimony compounds released in the environment are absorbed by the soil with no general mobility except in sandy soils. Some methylated antimony compounds can form in reducing conditions such as found in anaerobic sediment. No data available for organic components.

Chronic Aquatic Toxicity: Not available.

Environmental Effects: Not available.

Other Adverse Effects: Not available.

Section 13: Disposal Considerations
This information presented only applies to the materials as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Disposal Considerations: APE3040 should be recycled or solidified for disposal in a landfill approved for chemical waste or burned in an incinerator with scrubber approved for chemical waste.

United States: APE3040 that become a waste material should be tested by the TCLP test for disposal status.

Section 14: Transport Information

<table>
<thead>
<tr>
<th>Regulations</th>
<th>Shipping Name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
<th>UN Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. D.O.T.:</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ICAO/IATA:</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IMO/IMDG:</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ADR:</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Section 15: Regulatory Information

U.S. Federal Regulations:

EPA TSCA Inventory: All ingredients listed.
SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimony Pentoxide</td>
<td>1314–60–9</td>
<td>40</td>
</tr>
</tbody>
</table>

Known Synergist: None known.
Fire Hazard: Material will burn in a fire.
Explosion Hazard: None known.
Corrosion Hazard: None known.

U.S. State Regulations:

California Proposition 65: No ingredients listed.
New Jersey Right to Know Components: Diantimony pentoxide, CAS # 1314–60–9, Revised 2007–07–01
Pennsylvania Right to Know Components: Diantimony pentoxide, CAS # 1314–60–9, Revised 2007–07–01

State Right–to–Know Laws: Section 3 of this SDS lists all components of APE3040.
International Regulations: Check with governmental or regional regulations.

Canadian Regulations: All ingredients listed.

Domestic Substance List:

WHMIS: Class D, Division 2, material causing other toxic effects.
Transportation of Dangerous Goods: APE3040 does not meet dangerous goods criteria.
Controlled Products Regulations: This SDS contains all the information items specified in Schedule 1, Column 3 of the Controlled Products Regulations in a 16–heading format.

International Lists:
Recommended Use: APE3040 is recommended for use as a flame retardant synergist. Other uses have not been investigated and may have other hazards. For industrial use only, not for food, drug or home use.

Work Alert: Workers using APE3040 should read and understand this SDS and be trained in the proper use of this material.

Other Special Considerations: None known.

HMIS® Hazard Rating: Health-0, Flammability-1, Reactivity-0, Protective Equipment – B; safety goggles, gloves.

This MSDS has been prepared with data from Nyacol Nano Technologies, Inc.’s laboratories, raw material suppliers, and government publications. Information herein is accurate to the best of our knowledge. Suggestions are made without warranty or guarantee of results. Before using, the user should determine the suitability of the products for the intended use, and the user assumes the risk and liability in connection therewith. We do not suggest violation of any existing patents or give permission to practice any patented invention without license.

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