1. Chemical Product and Company Identification

Trade Name:	NYACOL® A1540N Antimony Pentoxide Sol
Chemical Name:	Antimony Pentoxide
Synonyms:	None
Product Code:	A1540N
Use:	Flame Retardant, Catalyst
Manufacturer:	Nyacol Nano Technologies, Inc. Megunko Road, P.O. Box 349, Ashland, MA 01721 U.S.A.
EmergencyTelephone:	508-881-2220
E-mail Contact:	info@nyacol.com

2. Composition / Information on Ingredients

Component	CAS #	Exposure Limits	Percent By Weight
Antimony Pentoxide partially ion-exchanged with sodium ions	1314-60-9	0.5mg/M³ (Antimony)	44 - 47
Triethanolamine	102-71-6	5.0mg/M³	1 - 5
Water	7732-18-5	None.	48 - 55

Component	EINECS #	RTECS #	REACH #
Antimony Pentoxide	215-237-7	CC6300000	05-2117294568-25-0000
Triethanolamine	203-049-8	KL9275000	05-2117294583-33-0000
Water	231-791-2	ZC0110000	None.

3. Hazard Identification

Emergency Overview:	White milky liquid. No odor. Keep spills out of surface waters.
Classification:	Harmful.
Symbol:	Xn St. Andrew's Cross
Risk Phrases:	R20/22 Harmful by inhalation or if swallowed.
Safety Phrases:	S2; S22 Keep out of reach of children. Do not breathe dust.

Potential Health Effects / Health Hazard Identification

Acute Exposure:	
Eye:	Irritant
Skin:	Irritation, drying or cracking of skin due to drying effect.
Ingestion:	Gastrointestinal effects such as vomiting and diarrhea reported in humans and animals after ingesting antimony compounds.
Inhalation:	Pneumoconiosis and upper airway inflammation.
Chronic Exposure:	Chronic exposure to antimony compounds has caused damage to the heart with altered ECG, high blood pressure, ulcers and disturbances in menstruation.

Other Hazards

Known Synergists:	None known.
Explosion Hazard:	None known.
Fire Hazard:	None known.
Corrosion Hazard:	None known.

4. First Aid Measures

Eye Contact:	Flush eyes with large quantities of water. If irritation persists get medical attention.
Skin Contact:	Wash with soap and water.
Ingestion:	If swallowed seek medical attention immediately. If medical attention is not available induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation:	Remove person from exposure source. Consult medical professional.
First Aid Facilities:	Eye wash station. Syrup of Ipecac.
Advice to Physicians:	Reports of Occupational Exposure to inorganic antimony compounds include skin rash, gastrointestinal disturbances and ECG alterations. Therapeutic administration of antimonial drugs has reported side effects of ECG changes in the T wave and possible heart failure. Liver damage has also been reported. Studies with pentavalent antimonial drugs show between 19 and 43% of the antimony being excreted after 24 hours. See U.S. Department of Health, Education and Welfare document Occupational Exposure to Antimony for details.

5. Fire Fighting Measures

Not Flammable:	Material will not burn in a fire. Containers can build pressure if exposed to heat or fire.
Extinguishing Media:	All are acceptable. Cool containers with water spray.
Protective Equipment:	Wear standard full firefighter turnout gear (full bunker gear) and respiratory protection (SCBA).
Special Exposure Hazard:	None known.

6. Accidental Release Measures

Leaks and Spills:	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.
Personal Protection:	Eye protection and impervious gloves. An approved air-purifying respirator should be worn if dust or mist is present.

7. Handling and Storage

Handling:	Avoid generating mist or dust during use.
Storage:	Store in cool dry area. Do not freeze.

8. Exposure Controls / Personal Protection

Engineering Control:	Use exhaust ventilation to keep airborne concentrations below exposure limits.
Respiratory Protection:	When respiratory protection required, or concentrations unknown, use approved air-purifying respirator with a dust cartridge.
Skin Protection:	Clean body-covering clothing; impervious gloves such as neoprene.
Eye Protection:	Wear approved safety glasses.

9. Physical and Chemical Properties

Appearance:	Milky white liquid.
Odor:	No odor.
Physical State:	Liquid. NYACOL® A1540N is a water-based material.
pH:	8
Boiling Point:	100°C (212°F) water
Freezing Point:	0°C (32°F) water
Flash Point:	None.
Oxidizing Properties:	Not an oxidizer.
Vapor Pressure:	2260 kPs (17 mm Hg) at 20°C water
Solubility in Water:	Soluble in all proportions.

CONTINUED →

9. Physical and Chemical Properties, continued

Density:	1,600 Kg/M^3
Specific Gravity:	1.6 (water = 1)
Volatile by Weight:	53%
Viscosity:	<10 c
Explosion Limits:	Not applicable.
Partition Coefficient:	Not available.
Evaporation Rate:	Slow (Butyl Acetate = 1)

10. Stability and Reactivity

Chemical Stability:	Stable under normal ambient and anticipated storage and handling conditions.
Conditions To Avoid:	No recommendation.
Incompatibility With Other Materials:	Use of A1540N under acidic reducing conditions may form the poisonous gas stibine.
Hazardous Decomposition Products:	Oxides of nitrogen and carbon.
Hazardous Polymerization:	Will not occur.

11. Toxicological Information

Material	LD_{50}, Rat, Oral
Antimony Pentoxide	Greater than 4123 mg/kg.
Triethanolamine	4920 uL/kg.
Water	None

Eye Effects:	No published data available. Should be irritating based on pH.
Skin Effects:	No published data available. Dry skin has been reported.
Inhalation Effects:	Published reports claim respiratory irritation for mixed antimony compounds.
Ingestion Effects:	Published reports claim gastrointestinal effects such as vomiting and diarrhea after ingesting antimony compounds.

12. Ecological Information

Ecotoxicity:	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.
Persistence:	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.

13. Disposal Considerations

Disposal Considerations:	A1540N should be recycled or solidified for disposal in a landfill approved for chemical waste.
United States:	Should A1540N become a waste, EPA TCLP test should be performed. If test not done then waste should be treated as an EP toxic material and given EPA waste numbers D004 and D008.

14. Transport Information

Regulations	Shipping Name	Hazard Class	Packing Group	U.N. Number
U.S. D.O.T.:	Not applicable	Not applicable	Not applicable	Not applicable
ICAO / IATA:	Not applicable	Not applicable	Not applicable	Not applicable
IMO / IMDG:	Not applicable	Not applicable	Not applicable	Not applicable
ADR:	Not applicable	Not applicable	Not applicable	Not applicable

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:

Chemical Name	CAS #	Percent By Weight
Antimony Pentoxide	1314-60-9	44 - 47

D.O.T Regulations: See Section 14.

U.S. State Regulations

StateRight-to-KnowLaws: Section 2 of this MSDS lists all components of A1540N.

Canadian Regulations

Domestic Substance List: All ingredients listed.

WHMIS: Class D, Division 2, material causing other toxic effects.

Transportation of Dangerous Goods (TDG): Not applicable. A1540N does not meet dangerous goods criteria.

Controlled Products Regulations (CPR): This MSDS contains all the information items specified in Schedule 1, Column 3 of the Controlled Products Regulations in a 16-heading format.

EC Regulations

Classification: Harmful.

Symbol: Xn St. Andrew's Cross

Risk Phrases: R20/22 Harmful by inhalation or if swallowed

Safety Phrases: S2; S22 Keep out of reach of children. Do not breathe dust

International Inventory Status

Ingredients are included: Australia (AICS); Canada (DSL); China (IECSC); Europe (EINECS); Japan (ENCS); Korea (ECL); Philippines (PICCS); SWISS

16. Other Information

NFPA 704 Hazard Rating: Health - 0, Flammability - 0, Reactivity - 0, Special - None

HMIS® Hazard Rating: Health - 1, Flammability - 0, Reactivity - 0
Protective Equipment - E: safety glasses, gloves, dust respirator

Recommended Use: A1540N is recommended for use as a flame retardant synergist or catalyst. 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 A1540N should read and understand this MSDS and be trained in the proper use of this material.

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R&D Department
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This MSDS has been prepared with data from Nyacol Nano Technologies, Inc.'s laboratories, raw material suppliers and government publications.

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