



MATERIAL SAFETY DATA SHEET  
NYACOL® A1550

REVISION: 10/5/2010  
SUPERSEDES: 4/9/2009  
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1. Chemical Product and Company Identification

Trade Name: NYACOL® A1550 Antimony Pentoxide Sol  
Chemical Name: Antimony (V) oxide  
Synonyms: None  
Product Code: A1550  
Use: Flame Retardant, Catalyst  
Manufacturer: Nyacol Nano Technologies, Inc.  
Megunko Road, P.O. Box 349, Ashland, MA 01721 U.S.A.  
508-881-2220  
Emergency Telephone: CHEMTREC: 800-424-9300  
E-mail Contact: info@nyacol.com

2. Hazard Identification

Emergency Overview White liquid. No odor. Keep spills out of surface waters.

Classification Harmful

Symbol:  Xn

Risk Phrases: R20/22 Harmful by inhalation and 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 have been 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.

3. Composition / Information on Ingredients

<u>Component</u>	<u>CAS RN</u>	<u>Exposure Limits</u>	<u>Percent By Weight</u>
Antimony Pentoxide partially ion-exchanged with sodium ions:	1314-60-9	0.5mg/M <sup>3</sup> (Antimony)	50 - 60
Triethanolamine:	102-71-6	5.0mg/M <sup>3</sup>	1 - 5
Water:	7732-18-5	None	39 - 45
<u>Component</u>	<u>EINECS #</u>	<u>RTECS #</u>	<u>REACH #</u>
Antimony Pentoxide:	215-237-7	CC6300000	05-2117294568-25-0000
Triethanolamine:	203-049-8	KL9275000	05-2117294583-33-0000
Water:	231-791-2	ZC0110000	N/A

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.

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**4. First Aid Measures, continued**

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. Firefighting Measures**

Flammability: 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 turn out 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: Emergency responders should wear 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 a cool dry area. Do not freeze.

**8. Exposure Controls/Personal Protection**

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

**9. Physical and Chemical Properties**

Appearance: White liquid  
Odor: No odor.  
Physical State: Liquid. NYACOL® A1550 is a water-based material.  
pH: 5  
Boiling Point: 100°C (212°F) water  
Freezing Point: 0°C (32°F) water  
Flash Point: None.  
Vapor Pressure: 2260 kPs (17 mm Hg) at 20°C water  
Oxidizing Properties: Not an oxidizer.  
Solubility in Water: Soluble in all proportions.  
Density: 1800 Kg/M<sup>3</sup>  
Specific Gravity: 1.8 (water = 1)  
Volatile by Weight: 41%  
Viscosity: <10 cP  
Explosion Limits: Not applicable.  
Partition Coefficient: Not available.  
Evaporation Rate: Slow (Butyl Acetate = 1)



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**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 A1550 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<sub>50</sub>, Rat, Oral  
Antimony Pentoxide: Greater than 4123 mg/kg  
Triethanolamine: 4920 uL/kg  
Water: None reported.

Effects:

Eye Effects: No published data available. Should be irritating based on pH.  
Skin Effects: No published data available. Workers exposed to this product have reported dried skin.  
Inhalation Effects: Published reports claim respiratory irritation for mixed antimony oxides.  
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 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: A1550 should be recycled or solidified for disposal in a landfill approved for chemical waste.  
United States: Should A1550 become a waste the EPA TCLP test should be performed. If this test is not done then the waste should be treated as an EP toxic material and given EPA waste numbers D004 and D008.

**14. Transport Information**

<u>Regulations</u>	<u>Shipping Name</u>	<u>Hazard Class</u>	<u>Packing Group</u>	<u>U.N. Number</u>
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:

<u>Chemical Name</u>	<u>CAS RN</u>	<u>Percent By Weight</u>
Antimony Pentoxide	1314-60-9	50 - 60

D.O.T. Regulations: See Section 14.

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15. Regulatory Information, continued

U.S. State Regulations

State Right-to-Know Laws: Section 2 of this MSDS lists all components of A1550.

Canadian Regulations

Domestic Substance List: All ingredients listed.

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

Transportation of

Dangerous Goods:

Not applicable. A1550 does not meet dangerous goods criteria.

Controlled Products

Regulations:

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

German Regulations

*Wassergefährdungsklasse*

(Water Pollution Class)

Classification by

Manufacturer:

WGK2

EC Regulations

Classification:

Harmful.

Symbol:

■ n St. Andrew's Cross

Risk Phrases:

R20/22 Harmful by inhalation and if swallowed.

Safety Phrases:

S2 Keep out of reach of children.

S22 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:

A1550 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 A1550 should read and understand this MSDS and be trained in the proper use of this material.

MSDS Prepared By:

David L. Catone

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R&D Department

Nyacol Nano Technologies, Inc.

Telephone: 508-881-2220 U.S.A.

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April 9, 2009

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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