1. Chemical Product and Company Identification

Trade Name:	NYACOL® ZTA and ZTAS
Chemical Name:	Antimony Pentoxide
Synonyms:	None.
Product Code:	ZTA and ZTAS
Use:	Flame Retardant
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 powder. No odor. Irritant. Do not breathe dust.

Classification: Irritant

Pictogram:

Hazard Statements:	H320	Causes eye irritation.
	H333	May be harmful if inhaled.
Precautionary Statements:	P102	Keep out of the reach of children.
	P260	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

Component	CAS #	Exposure Limits	Percent By Weight
Antimony Pentoxide partially ion-exchanged with sodium ions:	1314-60-9	0.5mg/M³ (Antimony)	80 - 90
Water:	7732-18-5	None.	10 - 20

Component	EINECS #	RTECS #	REACH #
Antimony Pentoxide:	215-237-7	CC6300000	05-2117294568-25-0000
Water:	231-791-2	ZC0110000	None.

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.
Inhalation:	Remove person from exposure source; consult medical professional.
Ingestion:	If swallowed seek medical attention immediately. If medical attention is not available induce vomiting. Never give anything by mouth to an unconscious person.

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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:	Material will not burn in a 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:	Prevent dusting, cover spill if windy. Vacuum or shovel into containers for reuse or disposal.
Personal Protection:	Emergency responders should wear eye protection and gloves. An approved air-purifying respirator should be worn.

7. Handling and Storage

Handling:	Avoid generating dust during use.
Storage:	Store in dry area.

8. Exposure Controls / Personal Protection

Engineering Control:	Exhaust ventilation: keep airborne concentrations below exposure limits.
Respiratory Protection:	When respiratory protection required or concentrations unknown, use approved air-purifying respirator equipped with 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:	White powder
Odor:	None.
Physical State:	Solid. Nyacol ZTA and ZTAS are powder materials.
pH:	9-10, 20% slurry in water
Boiling Point:	Not available.
Freezing Point:	Not available.
Flash Point:	None.
Vapor Pressure:	Not available.
Oxidizing Properties:	Not an oxidizer
Solubility in Water:	Not soluble
Density:	3900 Kg/M^3
Specific Gravity:	3.9
Volatile by Weight:	2%
Viscosity:	Not applicable.
Explosion Limits:	None.
Partition Coefficient:	Not available.
Evaporation Rate:	Not available.

10. Stability and Reactivity

Chemical Stability:	ZTA and ZTAS are stable under normal ambient and anticipated storage and handling conditions.
Conditions To Avoid:	No recommendation.
Incompatibility With Other Materials:	Use of ZTA and ZTAS under acidic reducing conditions may form the poisonous gas stibine.
Hazardous Decomposition Products:	None.
HazardousPolymerization:	Will not occur.

11. Toxicological Information

Material	LD_{50}, Rat, Oral
Antimony Pentoxide:	Greater than 4123 mg/kg
Water:	None reported.
Eye Effects:	No published data available. Should be irritating based on pH.
Skin Effects:	No published data available. Workers have reported dry skin.
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 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:	Recycle or dispose ZTA and ZTAS in a landfill approved for chemical waste.
United States:	If ZTA and ZTAS become a waste, they do not meet the criteria of a hazard-ous waste as defined in 40 CFR Part 261 Subpart C, nor a listed hazardous waste in 40 CFR Part 261 Subpart D. If they become a waste, it is strongly recommended that the waste be tested in accordance with 40 CFR Part 261 Subpart C to determine proper disposal. Dispose according to federal, state and local regulations.

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	80-90

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15. Regulatory Information, continued

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

U.S. State Regulations

StateRight-to-KnowLaws: Section 2 of this MSDS lists all components of ZTA and ZTAS.

Canadian Regulations

Domestic Substance List: All ingredients listed.

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

Transportation of Dangerous Goods: Not applicable.

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

German Regulations

Wassergefährdungsklass: (Water Pollution Class)

Classification by Manufacturer: WGK2

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 the reach of children. Do not breathe dust

International Inventory Status

Ingredients are included:

Antimony Pentoxide: 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: ZTA and ZTAS are recommended for use as flame retardants. 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 ZTA and ZTAS 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
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