

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

SRM Number: 1867a
MSDS Number: 1867a
SRM Name: Uncommon Commercial
Asbestos

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Description: This Standard Reference Material (SRM) is comprised of three uncommon commercial asbestos materials (actinolite asbestos, anthophyllite asbestos, and tremolite asbestos) intended for use in the identification of these minerals by polarized light microscopy. A unit of SRM 1867a consists of a set of three bottles containing several grams of one of the three mine-grade asbestos materials.

Substance: Actinolite Asbestos, Anthophyllite Asbestos, Tremolite Asbestos

Other Designations:

- Actinolite Asbestos (Actinolite)
- Anthophyllite Asbestos (Anthophyllite; azbolen asbestos)
- Tremolite Asbestos (Tremolite)

2. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 1 Fire = 0 Reactivity = 0

Major Health Hazards: Asbestos is a cancer hazard in humans.

Physical Hazards: None listed.

Potential Health Effects:

Inhalation: Short term (acute) exposure to asbestos through dust or fumes, may result in irritation of the respiratory tract and chest pains. Long term (chronic) exposure to asbestos may cause asbestosis, an interstitial fibrosis of the lung tissue, difficulty breathing, bluish skin color, lung damage, and cancer.

Skin Contact: Skin contact with asbestos may cause irritation. Asbestos fibers may penetrate the skin and result in asbestos corns, due to the thickening of the skin around the implanted fiber. These corns are of minor health significance and disappear on removal of the fibers. Repeated or prolonged contact with asbestos may result in dermatitis.

Eye Contact: Eye contact with asbestos may result in irritation due to mechanical action. Repeated or prolonged exposure may result in conjunctivitis.

Ingestion: Ingestion of asbestos may result in digestive disorders. Repeated or prolonged ingestion may result in cancers of the buccal cavity and pharynx, esophagus, stomach, colon, and rectum.

Listed as a Carcinogen/Potential Carcinogen:

Component:	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	<u>X^(a)</u>	_____
In the International Agency for Research on Cancer (IARC) Monographs	<u>X^(b)</u>	_____
By the Occupational Safety and Health Administration (OSHA)	<u>X^(c)</u>	_____

^(a) NTP - Reasonably anticipated to be a human carcinogen.

^(b) IARC - Listed as a Group 1 carcinogen.

^(c) OSHA - Present, see 29 CFR 1910.1001.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Component ^(a)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Actinolite	77536-66-4	Not assigned.	100
Anthophyllite	77536-67-5	Not assigned.	100
Tremolite	77536-68-6	Not assigned.	100

^(a) Hazardous components 1 % or greater; carcinogens 0.1 % or greater are listed in compliance with OSHA 29 CFR 1910.1200.

Component: Actinolite, Anthophyllite, Tremolite

EC Classification: T

EC Safety (S No.): 45, 53

EC Risk (R No.): 45, 48/23

EC Classification Risk/Safety Phrases: See Section 15, "Regulatory Information".

4. FIRST AID MEASURES

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Rinse affected area with copious amounts of water followed by washing with soap and water for at least 15 minutes while removing contaminated clothing. Seek medical attention, if needed.

Eye Contact: Immediately flush eyes, including under the eyelids with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Negligible fire hazard.

Extinguishing Media: Use extinguishing media appropriate for the surrounding fire.

Fire Fighting: Avoid inhalation of material or combustion by-products. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Flash Point (°C): Not available.

Method Used: Not applicable.

Autoignition Temp. (°C): Not applicable.

Flammability Limits in Air

UPPER (Volume %): Not applicable.

LOWER (Volume %): Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Collect spilled material in appropriate container for disposal. Avoid generating dust. Clean up residue with a high-efficiency particulate filter vacuum.

Disposal: See Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards.

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Component Exposure Limits: Actinolite, Anthophyllite, Tremolite

OSHA (TWA): 0.1 fiber/cm³
OSHA (STEL): 1.0 fiber/cm³ (30 mins)
ACGIH (TWA): 1.0 fiber/cm³ (respirable fibers: length >5 µm, aspect ratio ≥3:1)
NIOSH (TWA): 0.1 fiber/cm³

Ventilation: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits. Refer to the ACGIH document *Industrial Ventilation, a Manual of Recommended Practices*.

Respirator: Refer to the “NIOSH Guide to the Selection and Use of Particulate Respirators Certified under 42 CFR 84” for selection and use of respirators certified by NIOSH.

Eye Protection: Wear safety goggles. An eye wash station should be readily available near the handling and use areas.

Personal Protection: Wear protective clothing and chemically resistant gloves to prevent skin exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Actinolite	Anthophyllite	Tremolite
Appearance and Odor	green to grey solid; odorless	white, green, brown or gray solid; odorless	white, green, blue or yellow solid; odorless
Relative Molar Mass	complex molecule	complex molecule	complex molecule
Boiling Point	not applicable	not applicable	not applicable
Water Solubility	insoluble	insoluble	insoluble
Specific Gravity (water=1)	3.0–3.2	2.857–3.2	2.9–3.2
Melting Point (°C)	not applicable	not applicable	not applicable
Solvent Solubility	insoluble	insoluble	insoluble

10. STABILITY AND REACTIVITY

Stability: Stable Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid generating dust.

Incompatible Materials: Acids, bases.

Fire/Explosion Information: See Section 5, “Fire Fighting Measures”.

Hazardous Decomposition: Miscellaneous decomposition products.

Hazardous Polymerization: Will Occur Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: Inhalation Skin Ingestion

Toxicity Data: The components of this material have been reviewed, no endpoints are listed.

Target Organ(s): Respiratory system and gastrointestinal tract.

Health Effects (Acute and Chronic): See Section 2, “Hazards Identification” for potential health effects.

Mutagen/Teratogen:

Actinolite: Rat, Intraperitoneal LD₅₀, 50 mg/kg
Anthophyllite: Rat, Inhalation TC_{LO}, 11 mg/m³ (1 year)
Tremolite: Rat, Intrapleural TD_{LO}, 100 mg/kg

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: White asbestos, UN2590, Hazard Class 9, Packing Group III, Excepted Quantity E1.

15. REGULATORY INFORMATION

U.S. REGULATIONS

CERCLA Sections 102a/103 (40 CFR 302.4): 0.454 kg final RQ (friable, Asbestos).
SARA Title III Section 302 (40 CFR 355.30): This material is not regulated.
SARA Title III Section 304 (40 CFR 355.40): This material is not regulated.
SARA Title III Section 313 (40 CFR 372.65): 0.1% de minimis concentration (friable, Asbestos).
OSHA Process Safety (29 CFR 1910.119): This material is not regulated.
SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

ACUTE:	No
CHRONIC:	Yes
FIRE:	No
REACTIVE:	No
SUDDEN RELEASE:	No

STATE REGULATIONS

California Proposition 65: This material is subject to California Safe Drinking Water and Toxic Enforcement Act of 1986. Keep out of water supplies and sewers.

CANADIAN REGULATIONS

WHMIS Classification: Not determined.

EUROPEAN REGULATIONS**EC Classification:**

T: Toxic

EC Risk Phrases:

R45 - May cause cancer.
R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation.

EC Safety Phrases:

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53 - Avoid exposure – obtain special instructions before use.

NATIONAL INVENTORY STATUS

U.S. Inventory (TSCA): Not listed inventory.
TSCA 12(b), Export Notification: Section 6, 0.1 % de minimis concentration.

16. OTHER INFORMATION

Sources: ChemADVISOR, Inc., MSDS *Actinolite*, 10 June 2011.

ChemADVISOR, Inc., MSDS *Anthophyllite*, 10 June 2011.

ChemADVISOR, Inc., MSDS *Tremolite*, 10 June 2011.

OSHA/EPA; Occupational Safety & Health Administration, *Asbestos - Actinolite*, CAS No 77536-66-4; available at <http://www.osha.gov/web/dep/chemicaldata/default.asp> (accessed Sept 2011).

OSHA/EPA; Occupational Safety & Health Administration, *Asbestos - All Forms*, CAS No. 13326-21-4; available at <http://www.osha.gov/web/dep/chemicaldata/default.asp> (accessed Sept 2011).

OSHA/EPA; Occupational Safety & Health Administration, *Asbestos - Tremolite*, CAS No. 77536-68-6; available at <http://www.osha.gov/web/dep/chemicaldata/default.asp> (accessed Sept 2011).

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.