

MATERIAL SAFETY DATA SHEET

SECTION 1 – MATERIAL IDENTIFICATION AND USE

Material Name: Silver Nitrate Impregnated Paper Tape
Use: Gas sensing
WHMIS Classification: Class C: Oxidizer
 Class D1A: Very Toxic Material
 Class D2B: Toxic Material
 Class E: Corrosive

Manufacturer/Supplier: Galvanic Applied Sciences Inc.
 7000 Fisher Road S.E.
 CALGARY, ALBERTA, CANADA, T2H 0W3
Emergency Telephone: (403)-252-8470

Chemical Family: Metal salt of inorganic acid

SECTION 2 – HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	Approximate Concentrations %	C.A.S. Nos.	LD50/LC50 Specify Species & Route	Exposure Limits
silver nitrate	4 - 7	7761-88-8	50 mg/kg, oral, mouse;	0.01 mg/m ³ (OEL & TLV)
acetic acid	2 - 5	64-19-7	525 mg/kg, oral, mouse	10 ppm (OEL & TLV)
nitric acid	<0.1	7697-37-2	67 ppm, mouse, 4hrs	2 ppm (OEL & TLV)

OEL = 8 hr. Alberta Occupational Exposure Limit

TLV = Threshold Limit Value – Time-Weighted Average

SECTION 3 – PHYSICAL DATA FOR MATERIAL

Physical State: Solid
Specific Gravity: 5.35 (silver nitrate)
Vapour Density (air=1): N.App.
Percent Volatiles, by volume: 0
Odour & Appearance: odourless or possible slight odour of vinegar; white paper tape
Freezing Pt. (deg.C): 212°C (silver nitrate)
pH: 2.8 (estimated)
(N.AV. = not available N.App. = not applicable)

Vapour Pressure (mmHg): N.App.
Odour Threshold (ppm): N.Av.
Evaporation Rate: N.App.
Boiling Pt. (deg.C): decomposes at 440°C
Coefficient of Water/Oil Distribution: >10

SECTION 4 – FIRE AND EXPLOSION

Flammability: Yes – paper tape will burn (silver nitrate not combustible, but is oxidizing agent)
Conditions: Open flame, excessive heat
Means of Extinction: Foam, CO₂, dry chemical.
Special Procedures: Wear SCBA, due to presence of toxic silver fume and nitrogen oxides.
Flash Point (deg.C) & Method: N.App.
Hazardous Combustion Products: Silver fume, nitrogen oxides, acetic acid
Lower Explosive Limit (% by vol.): N.App. **Upper Explosive Limit (% by vol.):** N.App.
Sensitivity to Impact: No **Sensitivity to Static Discharge:** No
Auto-Ignition Temp. (deg.C): N.App. **TDG Classification:** Not regulated

SECTION 5 – REACTIVITY DATA

Chemical Stability: No **If No, What Conditions:** Light (silver nitrate may decompose in the presence of light)
Incompatibility: Yes (silver nitrate is oxidizing agent) **Substances:** Organic materials, powdered magnesium, alcohols
Reactivity: Antimony salts, arsenites, bromides, carbonates, iodides, thiocyanates, ferrous salts, hypophosphites, morphine salts, oils, creosote, phosphates, tannic acid, tartrates, sodium hydroxide, charcoal, thimerosal, benckalkonium chloride, halogenated acids and salts, acetylene/ammonia mix, chlorosulphonic acid, hydrogen sulphide.
Conditions: Normal conditions
Hazardous Decomposition Products: Silver fume, nitrogen oxides, acetic acid

SECTION 6 – TOXICOLOGICAL PROPERTIES OF PRODUCT

Routes of Entry:

Skin Absorption: Slow

Skin Contact: Yes

Eye Contact: Yes

Inhalation: Acute: Yes

Chronic: Yes

Ingestion: Yes

Effects of Acute Exposure: Not likely to be a problem during normal use. However, if large amounts of dust or fume emitted (e.g. involved in fire), health effects may include irritation / burning of eyes, nose, throat and lungs. Severe overexposure can cause lung damage, choking and unconsciousness or death. May cause kidney damage. Contact with eyes may cause irritation and corrosion, possible corneal damage and blindness. Although not readily absorbed through intact skin, an unprotected wound may allow entry into bloodstream. May be absorbed through the mucous membranes lining the nose, throat and lungs. Ingestion of silver nitrate can cause severe gastroenteritis, shock and death.

Effects of Chronic Exposure: Exposure by inhalation, ingestion or cuts in skin can lead to argyria, a grey discoloration of the skin and internal tissues due to deposition of silver. Prolonged inhalation can cause bronchitis.

Sensitization to Product: No.

Exposure Limits of Product: 0.01 mg/m³ (OEL and TLV, as silver);

Irritancy: Skin irritant; corrosive to eyes.

Synergistic Materials: N.Av.

Carcinogenicity: N.Av. **Reproductive Effects:** N.Av. **Teratogenicity:** N.Av. **Mutagenicity:** N.Av.

SECTION 7 – PREVENTIVE MEASURES

Personal Protective Equipment:

Gloves: Nitrile, neoprene, PVC, natural rubber

Respiratory: Not necessary for routine handling of tape.

Eye: Not required* **Footwear:** No special requirements* **Clothing:** No special requirements*

(*Except as required as part of standard equipment according to site safety policy)

Engineering Controls: No special requirements for routine use.

Leaks & Spills: N.App.

Waste Disposal: Dispose as hazardous waste. Do not put in regular garbage. Ensure compliance with regulatory requirements.

Handling Procedures & Equipment: Wear impervious gloves (not leather or cotton – see above). Avoid rubbing tape (which might generate dust).

Storage Requirements: Store in a cool, dry, well ventilated area away from heat, strong sunlight and ignition sources.

Special Shipping Information: Not regulated by TDG.

SECTION 8 – FIRST AID MEASURES

Skin: Wash skin areas to remove contamination.

Eye: Immediately flush with large amounts of luke warm water for 15 minutes, lifting upper and lower lids at intervals. Seek medical attention.

Inhalation: N.App.

Ingestion: If accidental ingestion occurs, do not induce vomiting except upon the direction of a physician**. Seek medical attention. (**Also, never induce vomiting in a patient who is unconscious or convulsing.)

SECTION 9 – PREPARATION OF MSDS

Prepared By: Galvanic Applied Sciences Inc.
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