



# Material Safety Data Sheet

## Section 1. Product and Company Identification

|                     |   |                       |           |
|---------------------|---|-----------------------|-----------|
| <b>Product Name</b> | Silver Foil   | <b>Product Code</b>   | SX0165    |
| <b>Manufacturer</b> | EMD Chemicals Inc.<br>P.O. Box 70<br>480 Democrat Road<br>Gibbstown, NJ 08027<br>Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc. | <b>Effective Date</b> | 3/18/2004 |
|                     |   | <b>Print Date</b>     | 5/14/2004 |

### For More Information Call

856-423-6300 Technical Service  
Monday-Friday: 8:00 AM - 5:00 PM

### In Case of Emergency Call

800-424-9300 CHEMTREC (USA)  
613-996-6666 CANUTEC (Canada)  
24 Hours/Day: 7 Days/Week

|                        |                     |
|------------------------|---------------------|
| <b>Synonym</b>         | None.               |
| <b>Material Uses</b>   | Analytical reagent. |
| <b>Chemical Family</b> | Metal.              |

## Section 2. Composition and Information on Ingredients

| Component   | CAS #     | % by Weight |
|-------------|-----------|-------------|
| Silver Foil | 7440-22-4 | 100         |

## Section 3. Hazards Identification

|   |   |
|---|---|
| <b>Physical State and Appearance</b>                  | Solid.  |
| <b>Emergency Overview</b>                             | CAUTION!<br>Handling care generally in keeping with safe laboratory practices is recommended.   |
| <b>Routes of Entry</b>                                | Ingestion.  |
| <b>Potential Acute Health Effects</b>                 | <p><b>Eyes</b> No known acute effects of this product resulting from eye contact.</p> <p><b>Skin</b> May cause slight irritation on prolonged or repeated contact with skin.</p> <p><b>Inhalation</b> No known acute effects of this product resulting from inhalation.</p> <p><b>Ingestion</b> Ingestion may cause gastrointestinal irritation and diarrhea.</p> |
| <b>Potential Chronic Health Effects</b>               | <p><b>Carcinogenic Effects</b> This material is not known to cause cancer in animals or humans.</p> <p><b>Additional information</b> See Toxicological Information (section 11)</p>   |
| <b>Medical Conditions Aggravated by Overexposure:</b> | Repeated or prolonged exposure is not known to aggravate medical condition.   |

Continued on Next Page

**Section 4. First Aid Measures**

|                     |  |
|---------------------|--|
| <b>Eye Contact</b>  | Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.   |
| <b>Skin Contact</b> | In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.   |
| <b>Inhalation</b>   | If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.   |
| <b>Ingestion</b>    | Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. |

**Section 5. Fire Fighting Measures**

|  |   |
|--|---|
| <b>Flammability of the Product</b>                         | Non-flammable.  |
| <b>Auto-ignition Temperature</b>                           | Not applicable.   |
| <b>Flash Points</b>  | Not applicable.   |
| <b>Flammable Limits</b>                                    | Not applicable.   |
| <b>Products of Combustion</b>                              | Not available.  |
| <b>Fire Hazards in Presence of Various Substances</b>      | Not applicable.   |
| <b>Explosion Hazards in Presence of Various Substances</b> | Risks of explosion of the product in presence of static discharge: No.<br>Risks of explosion of the product in presence of mechanical impact: No. |
| <b>Fire Fighting Media and Instructions</b>                | Not applicable.   |
| <b>Protective Clothing (Fire)</b>                          | Not applicable.   |
| <b>Special Remarks on Fire Hazards</b>                     | Not available.  |
| <b>Special Remarks on Explosion Hazards</b>                | Not available.  |

**Section 6. Accidental Release Measures**

|                              |   |
|------------------------------|---|
| <b>Small Spill and Leak</b>  | Use appropriate tools to put the spilled solid in a convenient waste disposal container.  |
| <b>Large Spill and Leak</b>  | Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. |
| <b>Spill Kit Information</b> | No specific spill kit required for this product.  |

## Section 7. Handling and Storage

**Handling** Do not ingest. Avoid contact with skin and eyes.

**Storage** Keep container closed.

## Section 8. Exposure Controls/Personal Protection

**Engineering Controls** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection

**Eyes** Safety glasses.

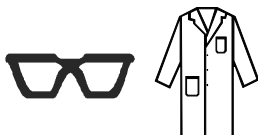
**Body** Lab coat.

**Respiratory** Not applicable.

**Hands** Not applicable.

**Feet** Not applicable.

### Protective Clothing (Pictograms)



### Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Product Name

Silver Foil

### Exposure Limits

#### INRS (France, 1996).

VME: 0.1 mg/m<sup>3</sup> 8 hour(s).

#### EH40-OES (United Kingdom (UK), 1997).

TWA: 0.1 mg/m<sup>3</sup> 8 hour(s).

#### NIOSH REL (United States, 1994).

TWA: 0.01 mg/m<sup>3</sup> 10 hour(s).

#### BMWA\_MAK (Austria, 2001).

STEL: 0.1 mg/m<sup>3</sup> 1 times per shift, 30 minute(s).

TWA: 0.01 mg/m<sup>3</sup> 8 hour(s).

**NOHSC (Australia, 2002). Notes: Documentation for the substances with this footnote can be found in the 5th Edition of the ACGIH documentation of the threshold limit values and biological exposure indices.<sup>1</sup> For all other substances with 'H' in Column 7 the documentation can be found in the 6th Edition of the ACGIH documentation of the threshold limit values and biological exposure indices.<sup>2</sup>**

TWA: 0.1 mg/m<sup>3</sup> 8 hour(s).

TWA: 0.01 mg/m<sup>3</sup> 8 hour(s). Form: Soluble

#### Lijst Grenswaarden (Belgium, 2002).

VL: 0.1 mg/m<sup>3</sup> 8 hour(s).

#### SUVA (Switzerland, 2001).

MAK: 0.1 mg/m<sup>3</sup> 8 hour(s). Form: Dust

#### 178/2001 (CZ, 2001).

STEL: 0.3 mg/m<sup>3</sup> 10 minute(s).

TWA: 0.1 mg/m<sup>3</sup> 8 hour(s).

#### MAK-Werte Liste (Germany, 2000).

Spitzenbegrenzung: 1 mg/m<sup>3</sup> 1 times per shift, 30 minute(s). Form:

Inhalable fraction

TWA: 0.1 mg/m<sup>3</sup> 8 hour(s). Form: Inhalable fraction

**TRGS900 MAK (Germany, 2002).**Spitzenbegrenzung: 0.4 mg/m<sup>3</sup>TWA: 0.1 mg/m<sup>3</sup> 8 hour(s).**Arbejdstilsynet (Denmark, 2000).**GV: 0.01 mg/m<sup>3</sup> 8 hour(s).**INSHT (Spain, 2001).**TWA: 0.1 mg/m<sup>3</sup> 8 hour(s).**EU OEL (Europe, 2000). Notes: Indicative**TWA: 0.1 mg/m<sup>3</sup> 8 hour(s).**Työterveyslaitos (Finland, 2002).**STEL: 0.03 mg/m<sup>3</sup> 15 minute(s).TWA: 0.1 mg/m<sup>3</sup> 8 hour(s).**NAOSH (Ireland, 2002).**OEL: 0.1 mg/m<sup>3</sup> 8 hour(s).**JSOH (Japan, 1996).**TWA: 0.01 mg/m<sup>3</sup> 8 hour(s).**Ministry of Labor (KR, 1997).**TWA: 0.01 mg/m<sup>3</sup> 8 hour(s).**Secretary of Work and Social Security (MX, 1994).**CPT: 0.01 mg/m<sup>3</sup> 8 hour(s).**Nationale MAC-lijst (Netherlands, 2003). Notes: Administrative**TGG 8 uur: 0.1 mg/m<sup>3</sup> 8 hour(s).**Arbejdstilsynet (Norway, 2001).**AN: 0.01 mg/m<sup>3</sup> 8 hour(s).AN: 0.1 mg/m<sup>3</sup> 8 hour(s). Form: Dust and fumes**NZ OSH (NZ, 1994).**TWA: 0.01 mg/m<sup>3</sup> 8 hour(s).**AFS (Sweden, 2000).**NGV: 0.1 mg/m<sup>3</sup> 8 hour(s). Form: Dust**ACGIH TLV (United States, 2002). Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124)****:36338-33351, June 30, 1993, for revised OSHA PEL.**TWA: 0.1 mg/m<sup>3</sup> 8 hour(s). Form: Metallic formTWA: 0.01 mg/m<sup>3</sup> 8 hour(s). Form: Soluble**OSHA PEL (United States, 1974).**TWA: 0.01 mg/m<sup>3</sup> 8 hour(s).**OSHA PEL 1989 (United States, 1989).**TWA: 0.01 mg/m<sup>3</sup> 8 hour(s).**Section 9. Physical and Chemical Properties**

|                                      |                      |
|--------------------------------------|----------------------|
| <b>Odor</b>                          | Not available.       |
| <b>Color</b>                         | Silvery.             |
| <b>Physical State and Appearance</b> | Solid.               |
| <b>Molecular Weight</b>              | 107.87 g/mole        |
| <b>Molecular Formula</b>             | Ag                   |
| <b>pH</b>                            | Not applicable.      |
| <b>Boiling/Condensation Point</b>    | 2000.05°C (3632.1°F) |
| <b>Melting/Freezing Point</b>        | 961.8°C (1763.2°F)   |
| <b>Specific Gravity</b>              | 10.49 (Water = 1)    |

**Continued on Next Page**

Vapor Pressure Not available.

Vapor Density Not available.

Odor Threshold Not available.

Evaporation Rate Not available.

LogK<sub>ow</sub> Not available.

Solubility Insoluble in water.

### Section 10. Stability and Reactivity

Stability and Reactivity The product is stable.

Conditions of Instability Not available.

Incompatibility with Various Substances Not available.

Rem/Incompatibility Not available.

Hazardous Decomposition Products Not available.

Hazardous Polymerization Will not occur.

### Section 11. Toxicological Information

RTECS Number: Silver Foil VW3500000

Toxicity LD<sub>50</sub>: Not available.  
LC<sub>50</sub>: Not available.

Chronic Effects on Humans Not available.

Acute Effects on Humans Not available.

Synergetic Products (Toxicologically) Not available.

Irritancy Draize Test: Not available.

Sensitization Not available.

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

Toxicity to Reproductive System Not available.

Teratogenic Effects Not available.

Mutagenic Effects Not available.

**Section 12. Ecological Information**

**Ecotoxicity** Ecotoxicity in water (LC50): 0.0092 mg/l [EC50, Intoxication], 48 hours [Daphnia (Daphnia magna)]. 0.0021 ppm [LC50, Mortality], 96 hours [Fish (Pimephales promelas)]. 0.0024 ppm [LC50, Mortality], 96 hours [Fish (Pimephales promelas)]. 0.0028 ppm [LC50, Mortality], any hours [Fish (Pimephales promelas)]. 0.0031 ppm [LC50, Mortality], any hours [Fish (Pimephales promelas)]. 0.0034 ppm [LC50, Mortality], any hours [Fish (Pimephales promelas)].

**BOD5 and COD** Not available.

**Toxicity of the Products of Biodegradation** The product itself and its products of degradation are not toxic.

**Section 13. Disposal Considerations**

**EPA Waste Number** D011

**Treatment** Specified Technology - Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations..

**Section 14. Transport Information**

**DOT Classification** Proper Shipping Name: CHEMICALS, N.O.S.  
RQ: Not applicable.

**TDG Classification** Not available.

**IMO/IMDG Classification** Proper Shipping Name: CHEMICALS, N.O.S.  
RQ: Not applicable.

**ICAO/IATA Classification** Proper Shipping Name: CHEMICALS, N.O.S.  
RQ: Not applicable.

**Section 15. Regulatory Information**

**U.S. Federal Regulations** TSCA 8(b) inventory: Silver Foil  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: Silver Foil  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Silver Foil:  
Immediate (Acute) Health Hazard  
SARA 313 toxic chemical notification and release reporting: Silver Foil  
Clean Water Act (CWA) 307: Silver Foil  
Clean Water Act (CWA) 311: No products were found.  
Clean air act (CAA) 112 accidental release prevention: No products were found.  
Clean air act (CAA) 112 regulated flammable substances: No products were found.  
Clean air act (CAA) 112 regulated toxic substances: No products were found.

**WHMIS (Canada)** Not controlled under WHMIS (Canada).

CEPA DSL: Silver Foil

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

**International Regulations**

**EINECS** Silver Foil 231-131-3

**DSCL (EEC)** R50- Very toxic to aquatic organisms.

**Continued on Next Page**

**International Lists** Australia (NICNAS): Silver Foil

China: Silver Foil

Germany water class: Silver Foil

Korea (TCCL): Silver Foil

Philippines (RA6969): Silver Foil

China: Silver Foil

**State Regulations**

Pennsylvania RTK: Silver Foil: (environmental hazard, generic environmental hazard)

Massachusetts RTK: Silver Foil

New Jersey: Silver Foil

California prop. 65: No products were found.

**Section 16. Other Information**

**National Fire  
Protection  
Association  
(U.S.A.)**



**Changed Since Last  
Revision**

+

**Notice to Reader**

*The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.*