Date of Issue:

26 June 2015

**SAFETY DATA SHEET**

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| **1. Substance and Source Identification** |

**Product Identifier**

**SRM Number:** 1077a

**SRM Name:** Silver 2-Ethylhexanoate

**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) was primarily intended for use in preparing oil solutions with known concentrations of silver and is essentially free from other metals and has suitable properties for use with most lubricating oils or petroleum products. A unit of SRM 1077a consists of 5 g of silver 2-ethylhexanoate powder.

**Company Information**

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| National Institute of Standards and Technology |  |
| Standard Reference Materials Program |  |
| 100 Bureau Drive, Stop 2300 |  |
| Gaithersburg, Maryland 20899‑2300 |  |
|  |  |
| Telephone: 301‑975‑2200 | Emergency Telephone ChemTrec: |
| FAX: 301‑948‑3730 | 1‑800‑424‑9300 (North America) |
| E‑mail: [SRMMSDS@nist.gov](mailto:SRMMSDS@nist.gov) | +1‑703‑527‑3887 (International) |
| Website: <http://www.nist.gov/srm> |  |

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| **2. Hazards Identification** |

**Classification**

**Physical Hazard:** Not classified.

**Health Hazard:** Not classified.

**Label Elements**

**Symbol**

No symbol/No pictogram.

**Signal Word**

No signal word.

**Hazard Statement(s):** Not applicable.

**Precautionary Statement(s):** Not applicable.

**Hazards Not Otherwise Classified:** Not applicable.

**Ingredients(s) with Unknown Acute Toxicity:** Not applicable.

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| **3. Composition and Information on Hazardous Ingredients** |

**Substance:** Silver 2-ethylhexanoate

**Other Designations:** Hexanoic acid, 2-Ethyl, silver (1+) salt

Components are listed in compliance with OSHA’s 29 CFR 1910.1200.

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| **Hazardous Component(s)** | **CAS Number** | **EC Number** **(EINECS)** | **Nominal Mass Concentration (%)** |
| Silver 2-ethylhexanoate | 26077-31-6 | 247-443-8 | 100 |

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| **4. First Aid Measures** |

**Description of First Aid Measures**

**Inhalation:** If adverse effects occur, remove to well‑ventilated (uncontaminated) area. If not breathing, qualified personnel should give artificial respiration. Seek immediate medical attention.

**Skin Contact:** Rinse affected skin with water for at least 15 minutes, then wash thoroughly with soap or mild detergent and water. If skin irritation persists, seek medical aid and bring the container or label.

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

**Ingestion:** If a large amount is swallowed, get medical attention.

**Most Important Symptoms/Effects, Acute and Delayed:** May cause mild or mechanical eye, skin, or respiratory tract irritation.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present, seek immediate medical attention.

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| **5. Fire Fighting Measures** |

**Fire and Explosion Hazards:** Negligible fire hazard in bulk form. Dust/air mixtures may ignite or explode. See Section 9, “Physical and Chemical Properties” for flammability properties.

**Extinguishing Media**

Suitable: Regular dry chemical, dolomite, carbon dioxide, or alcohol‑resistant foam.

Unsuitable: Water.

**Specific Hazards Arising from the Chemical**: Not applicable.

**Special Protective Equipment and Precautions for Fire‑Fighters:** Move container from fire area if it can be done without personal risk. Avoid inhalation of material or combustion by‑products. Wear full protective clothing and NIOSH‑approved self‑contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 2 Fire = 3 Reactivity = 0

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| **6. Accidental Release Measures** |

**Personal Precautions, Protective Equipment and Emergency Procedures:** Use suitable protective equipment; see Section 8, “Exposure Controls and Personal Protection”. Keep out of waters supplies and sewers.

**Methods and Materials for Containment and Clean up:** Collect in appropriate container for disposal.

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| **7. Handling and Storage** |

**Safe Handling Precautions:** Avoid dust formation. Avoid breathing vapors, mist or gas. See Section 8, “Exposure Controls and Personal Protection”.

**Storage and Incompatible Materials:** Store in a well‑ventilated area. Keep separated from incompatible substances (see Section 10, “Stability and Reactivity”).

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| **8. Exposure Controls and Personal Protection** |

**Exposure Limits** Silver (metal dust and soluble compounds, as Ag)

OSHA (PEL): 0.01 mg/m3 TWA – dust

NIOSH (REL): 0.01 mg/m3 TWA – dust  
 10 mg/m3 IDLH – dust

ACGIH (TLV): 0.1 mg/m3 TWA – dust and fume

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection Measures:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

**Respiratory Protection:** If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

**Eye Protection:** Splash resistant safety goggles and emergency eyewash are recommended.

**Skin and Body Protection:** Chemical resistant clothing and gloves are recommended.

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| **9. Physical and Chemical Properties** |

| **Properties** | **Silver 2-Ethylhexanoate** |
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| **Molar Mass (g/mol)** | 251.074 |
| **Molecular Formula** | C8H16O2Ag |
| **Appearance (physical state, color, etc.)** | powder |
| **Odor** | not available |
| **Odor threshold** | not available |
| **pH** | not available |
| **Evaporation rate** | not available |
| **Melting point/freezing point** | not available |
| **Relative Density** (water = 1) | not available |
| **Density** | not available |
| **Vapor Pressure** | not available |
| **Vapor Density (air = 1)** | not available |
| **Viscosity** | not available |
| **Solubilities** | not available |
| **Partition coefficient (n‑octanol/water)** | not available |
| **Particle size** | not available |
| **Thermal Stability Properties** |  |
| **Autoignition Temperature** | not available |
| **Thermal Decomposition** | not available |
| **Initial boiling point and boiling range** | not available |
| **Explosive Limits, LEL (Volume %)** | not available |
| **Explosive Limits, UEL (Volume %)** | not available |
| **Flash Point (Closed Cup)** | not available |
| **Flammability (solid, gas)** | not available |

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| **10. Stability and Reactivity** |

**Reactivity:** Stable at normal temperatures and pressure.

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| **Stability:** | X | Stable |  | Unstable |

**Possible Hazardous Reactions:** Not applicable.

**Conditions to Avoid:** Avoid generating dust. Avoid heat, flames, sparks and other sources of ignition.

**Incompatible Materials:** Combustible materials, bases, halo carbons, halogens, peroxides, acids, oxidizing materials.

**Hazardous Decomposition:** Miscellaneous decomposition products.

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| **Hazardous Polymerization:** |  | Will Occur | X | Will Not Occur |

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| **11. Toxicological Information** |

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| **Route of Exposure:** | X | Inhalation | X | Skin | X | Ingestion |

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Irritation of skin, eye or respiratory tract may occur.

**Potential Health Effects (Acute, Chronic, and Delayed)**

**Inhalation:** May cause irritation. Inhalation of silver dust may cause localized argyria.

**Skin Contact:** Skin contact with silver compounds may cause irritation and localized argyria.

**Eye Contact:** Eye contact with silver compounds may cause irritation and localized argyria.

**Ingestion:** May cause irritation.

**Numerical Measures of Toxicity**

**Acute Toxicity:** Not classified; no data available.

**Skin Corrosion/Irritation:** Not classified; no data available.

**Serious Eye Damage/Irritation:** Not classified; no data available.

**Respiratory Sensitization:** Not classified; no data available.

**Skin Sensitization:** Not classified; no data available.

**Germ Cell Mutagenicity:** Not classified; no data available.

**Carcinogenicity:** Not classified.

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| **Listed as a Carcinogen/Potential Carcinogen** |  | Yes | X | No |

Silver is not listed by IARC, NTP or OSHA as a carcinogen or potential carcinogen.

**Reproductive Toxicity:** Not classified; no data available.

**STOT, Single Exposure:** Not classified; no data available.

**STOT, Repeated Exposure:** Not classified; no data available.

**Aspiration Hazard:** Not applicable.

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| **12. Ecological Information** |

**Ecotoxicity Data:** No data available.

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

**Other Adverse effects:** No data available.

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| **13. Disposal Considerations** |

**Waste Disposal:** Dispose in accordance with all applicable federal, state, and local regulations. Dispose of in accordance with US EPA 40 CFR 262 for concentrations of silver at or above the regulatory level, 5 mg/L.

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| **14. Transportation Information** |

**U.S. DOT and IATA:** This material is not regulated by DOT or IATA.

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| **15. Regulatory Information** |

**U.S. Regulations**

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated for this material.

SARA Title III Section 302 (40 CFR 355.30): Not regulated for this material.

SARA Title III Section 304 (40 CFR 355.40): Not regulated for this material.

SARA Title III Section 313 (40 CFR 372.65): 1 % de minimis concentration (N740, silver compounds).

OSHA Process Safety (29 CFR 1910.119): Not regulated for this material.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH: No

CHRONIC HEALTH: No

FIRE: No

REACTIVE: No

PRESSURE: No

**State Regulations**

California Proposition 65: Not regulated.

**U.S. TSCA Inventory:** Silver 2-ethylhexanoate is listed.

T**SCA 12(b), Export Notification:** Not listed.

**Canadian Regulations:** WHMIS Information is not provided for this material.

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| **16. Other Information** |

**Issue Date:** 26 June 2015

**Sources:** ChemADVISOR, Inc., SDS *Silver*, 20 March 2015.

ChemIDplus Advanced, *Silver 2‑Ethylhexanoate*, *CAS No. 62638-04-4*, available at <http://chem.sis.nlm.nih.gov/chemidplus/>(accessed June 2015).

CDC NIOSH, *Silver (metal dust and soluble compounds, as Ag)*, available at <http://www.cdc.gov/niosh/npg/npgd0557.html> (accessed June 2015).

EPA, *The Emergency Planning and Community Right-to-Know Act, Section 313 Release and Other Waste Management Reporting Requirements*, available at

<http://www.epa.gov/tri/guide_docs/pdf/2000/brochure2000.pdf> (accessed June 2015).

**Key of Acronyms:**

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| ACGIH | American Conference of Governmental Industrial Hygienists | NTP | National Toxicology Program |
| CAS | Chemical Abstracts Service | OSHA | Occupational Safety and Health Administration |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | PEL | Permissible Exposure Limit |
| CFR | Code of Federal Regulations | RCRA | Resource Conservation and Recovery Act |
| DOT | Department of Transportation | REL | Recommended Exposure Limit |
| EINECS | European Inventory of Existing Commercial Chemical Substances | RQ | Reportable Quantity |
| EPCRA | Emergency Planning and Community Right-to-Know Act | RTECS | Registry of Toxic Effects of Chemical Substances |
| IARC | International Agency for Research on Cancer | SARA | Superfund Amendments and Reauthorization Act |
| IATA | International Air Transportation Agency | SCBA | Self‑Contained Breathing Apparatus |
| IDLH | Immediately Dangerous to Life and Health | SRM | Standard Reference Material |
| LC50 | Lethal Concentration | STOT | Specific Target Organ Toxicity |
| LD50 | Median Lethal Dose or Lethal Dose, 50 % | STEL | Short Term Exposure Limit |
| LEL | Lower Explosive Limit | TLV | Threshold Limit Value |
| MSDS | Material Safety Data Sheet | TPQ | Threshold Planning Quantity |
| NFPA | National Fire Protection Association | TSCA | Toxic Substances Control Act |
| NIOSH | National Institute for Occupational Safety and Health | TWA | Time Weighted Average |
| NIST | National Institute of Standards and Technology | UEL | Upper Explosive Limit |
| n.o.s. | Not Otherwise Specified | WHMIS | Workplace Hazardous Materials Information System |

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

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975‑2200; fax (301) 948‑3730; e‑mail srmmsds@nist.gov; or via the Internet at <http://www.nist.gov/srm>.