Date of Issue:

16 July 2015

**SAFETY DATA SHEET**

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

**Product Identifier**

**SRM Number:** 1066a

**SRM Name:** Octaphenylcyclotetrasiloxane

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

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

This Standard Reference Material (SRM) is intended for use in preparing oil solutions with known concentrations of silicon. It was prepared to ensure the material is essentially free from other metals and has suitable properties for use with most lubricating oils and other petroleum products. A unit of SRM 1066a consists of 5 g of octaphenylcyclotetrasiloxane 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:** Octaphenylcyclotetrasiloxane

**Other Designations:** Cyclotetrasiloxane, octaphenyl-; 1,1,3,3,5,5,7,7-Octaphenylcyclotetrasiloxane

Components are listed in compliance with OSHA’s 29 CFR 1910.1200; for the actual values see the NIST Certificate of Analysis.

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| **Component(s)** | **CAS Number** | **EC Number** **(EINECS)** | **Nominal Mass Concentration (%)** |
| Octaphenylcyclotetrasiloxane | 546-56-5 | 208-904-9 | 100 |

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| **4. FIRST AID MEASURES** |

**Description of First Aid Measures:**

**Inhalation:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

**Skin Contact:** Wash skin with soap and water for at least 15 minutes. If necessary, seek medical attention.

**Eye Contact:** Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

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

**Most Important Symptoms/Effects, Acute and Delayed:** Generated dust may cause mechanical irritation.

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

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| **5. FIRE FIGHTING MEASURES** |

**Fire and Explosion Hazards:** Slight fire hazard. See Section 9, “Physical and Chemical Properties” for flammability properties.

**Extinguishing Media**

Suitable: Use extinguishing agents appropriate for surrounding fire.

Unsuitable: None listed.

**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 = 0 Fire = 1 Reactivity = 0

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| **6. ACCIDENTAL RELEASE MEASURES** |

**Personal Precautions, Protective Equipment and Emergency Procedures:** Any accumulated material on surfaces should be removed and properly disposed of. Use suitable protective equipment; see Section 8, “Exposure Controls and Personal Protection”.

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

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| **7. HANDLING AND STORAGE** |

**Safe Handling Precautions:** Use suitable personal protection equipment (PPE). See Section 8, “Exposure Controls and Personal Protection”.

**Storage and Incompatible Materials:** Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, “Stability and Reactivity”).

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| **8. EXPOSURE CONTROLS AND PERSONAL PROTECTION** |

**Exposure Limits:** This material is a particulate matter and adequate inhalation/respiratory protection should be used to minimize exposure. No occupational exposure limits have been established for fine particulate matter. The exposure limits for Particulates Not Otherwise Regulated are applicable.

OSHA (PEL): 15 mg/m3 (TWA, total particulates)

5 mg/m3 (TWA, respirable particulates)

**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 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/Face Protection:** Eye and face protection is required when dust is generated. Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin and Body Protection:** Standard PPE is recommended to avoid irritation.

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| **9. PHYSICAL AND CHEMICAL PROPERTIES** |

| **Descriptive Properties** |  |
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| **Appearance (physical state, color, etc.)** | gray powder |
| **Molecular Formula** | C48H40O4Si4 |
| **Molar Mass (g/mol)** | 793.18 |
| **Odor** | not available |
| **Odor threshold** | not available |
| **pH** | not available |
| **Evaporation rate** | not available |
| **Melting point/freezing point** | 200.5°C (392.9 °F) |
| **Density** | 3.203 at 25 °C |
| **Vapor Pressure** | not available |
| **Vapor Density (air = 1)** | not available |
| **Viscosity** | not available |
| **Solubilities** | insoluble in water; other solubility: not available |
| **Partition coefficient (n‑octanol/water)** | 14.82 |
| **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** | not available |
| **Flash Point** | 200 °C (392 °F) |
| **Flammability (solid, gas)** | not applicable |

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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:**

**Conditions to Avoid:** Avoid generating dust.

**Incompatible Materials:** 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:** Generated dust may cause mechanical irritation.

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

**Inhalation:** Inhalation of dust may cause irritation. No toxicity data available for acute or chronic exposure.

**Skin Contact:** Skin exposure may result in mechanical irritation.

**Eye Contact:** Direct contact may cause mechanical irritation.

**Ingestion:** No data for health effects available for acute or chronic ingestion.

**Numerical Measures of Toxicity**

**Acute Toxicity:** Not classified.

Rat, Oral LD50: >4 640 mg/kg

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

**Serious Eye Damage/Eye 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** |

Octaphenylcyclotetrasiloxane is not listed by IARC, NTP, or OSHA as carcinogens/potential carcinogens.

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

**Specific Target Organ Toxicity, Single Exposure:** Not classified; no data available.

**Specific Target Organ Toxicity, 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 of waste in accordance with all applicable federal, state, and local regulations.

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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.

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

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

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

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

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 listed.

**U.S. TSCA Inventory:** Octaphenylcyclotetrasiloxane is listed.

**TSCA 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:** 16 July 2015

**Sources:** ChemIDplus Advanced, *Octaphenylcyclotetrasiloxane,* *CAS No. 546-56-5*, available at <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>(accessed Jun 2015).

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Safety and Health; *Particulates Not Otherwise Regulated*, 13 February 2015; available at <http://www.cdc.gov/niosh/npg/npgd0480.html> (accessed Jun 2015).

**Key of Acronyms:**

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| ACGIH | American Conference of Governmental Industrial Hygienists | NRC | Nuclear Regulatory Commission |
| ALI | Annual Limit on Intake | 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 |
| EC50 | Effective Concentration, 50 % | RM | Reference Material |
| 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, 50 % | STEL | Short Term Exposure Limit |
| LD50 | Lethal Dose, 50 % | TLV | Threshold Limit Value |
| LEL | Lower Explosive Limit | TPQ | Threshold Planning Quantity |
| MSDS | Material Safety Data Sheet | TSCA | Toxic Substances Control Act |
| NFPA | National Fire Protection Association | TWA | Time Weighted Average |
| NIOSH | National Institute for Occupational Safety and Health | UEL | Upper Explosive Limit |
| NIST | National Institute of Standards and Technology | 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>.