MATERIAL SAFETY DATA SHEET

Prepared in accordance with ISO 11014-1/ ANSI standard Z400.1-2004

Revision Date: 19/February/2013
Product Code: NGTAL

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Lumira ™ Aerogel Particles**

Synonyms: None

This SDS is valid for the following grades: LA1000, LA2000

Use of the Substance/Preparation: Insulating material, Industrial Products, Various

Supplier:

Cabot Corporation
157 Concord Road
Billerica, MA 01821
UNITED STATES
Tel: 1-978-663-3455
Fax: 1-978-670-6955

Cabot Aerogel GmbH
Industriepark Hoechst D660
65926 Frankfurt am Main
GERMANY
Tel: (+49) 69-305-22102
Fax: (+49) 69-305-22103

Cabot Specialty Chemicals, Inc.
Sumitomo Shiba-Daimon Bldg. 3F
2-5-5 Shiba Daimon, Minato-ku
Tokyo, 105-0012
Japan
Tel: +81 3 6820 0255
Fax: +81 3 5425 4500

Cabot Brasil Industria e ComercioLtda
Rua do Paraiso, 148-5 Andar - 04103-000-Paraiso
Sao Paulo
Brasil
Tel: +55 11 2144 6400
Fax: +55 11 3253 0051

Emergency Telephone Number: US: CHEMTREC 1-800-424-9300 or 1-703-527-3887
Cabot (Germany): (+49) 69 305 47715
CHEMTREC Japan: +(81) 345209637

2. HAZARDS IDENTIFICATION

Indication of danger: Not hazardous according to the Globally Harmonized System (GHS)

EMERGENCY OVERVIEW - CAUTION: White powder. Odorless. Dust may be irritating to respiratory tract. Avoid contact with skin and eyes.

Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.

Heating above 300°C leads to decomposition of Aerogel surface treatment. Decomposition vapor should be ventilated.

Principle Routes of Exposure: Inhalation, Skin contact, Eye contact

POTENTIAL HEALTH EFFECTS

Eye Contact: May cause mechanical irritation.

Skin Contact: May cause mechanical irritation. Repeated exposure may cause skin dryness or cracking.

Inhalation: Dust may be irritating to respiratory tract. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.

Ingestion: Health injuries are not known or expected under normal use. Low hazard for usual industrial or commercial handling.

Carcinogenic Effects: Does not contain any substances listed by IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference for Governmental Industrial Hygienists) or EU (European Union). See also Section 11.

Target Organ Effects: Lungs, Skin

Medical Conditions Aggravated by Exposure: Asthma, Respiratory disorder, Skin disorders

Potential Environmental Effects: None known. No special environmental precautions required.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	EINECS/ELINCS Number	Weight %	EU Classification
Silica, [(trimethylsilyl)oxy]-modified	102262-30-6	Not determined	>97	None

4. FIRST AID MEASURES

Skin Contact: Wash thoroughly with soap and water. Seek medical attention if redness, swelling, itching, or burning occurs.

Eye Contact: Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if redness, swelling, itching, burning or visual disturbances occur.

Inhalation: If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.

Ingestion: Do not induce vomiting. If conscious, give several glasses of water. Never give anything by mouth to an unconscious person.

Notes to Physician: Treat symptomatically.

5. FIRE AND IGNITION INFORMATION

Flash Point: Not applicable
Explosion Limits in Air - Lower (g/m^3): 220 g/m^3 (dust)

Method: VDI 2263

Autoignition Temperature: 550°C

Method: ASTM D-1929

Minimum Ignition Energy: 100 - 300 mJ at room temperature
Method: VDI 2263

Burn Velocity: Does not ignite (Brennzahl 1)
Method: VDI 2263-1

Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product is insoluble and floats on water.

Special Protective Equipment for Firefighters:	Wear suitable protective equipment. In the event of fire, wear self-contained breathing apparatus.
Specific Hazards:	Heating above 300°C leads to decomposition of Aerogel surface treatment. Decomposition vapor should be ventilated. May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen.
Hazardous Decomposition and/or Combustion Products:	Carbon monoxide, Carbon dioxide, Organic products of decomposition, Formaldehyde.
Risk of Dust Explosion:	Dust may form explosive mixture in air. Take precautionary measures against static discharges.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Avoid dust cloud formation. Remove all sources of ignition. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.
Methods for Cleaning Up:	Clean up promptly by vacuum. Use a suitable vacuum cleaner. Do not create a dust cloud by using a brush or compressed air. Pick up and transfer to properly labelled containers. See Section 13.
Environmental Precautions:	No special environmental precautions required. Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

Handling:	Avoid dust cloud formation. Do not breathe dust. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air. Avoid contact with skin and eyes. Take precautionary measures against static discharge. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.
Storage:	Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store together with volatile chemicals as they may be adsorbed onto product. Keep at ambient temperatures. Heating above 300°C leads to decomposition of surface treatment. Decomposition vapor should be ventilated.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Information given is based on data obtained from this substance or from similar substances.

EXPOSURE LIMITS

There are no exposure limits identified for this product. In its facilities globally, Cabot Corporation manages to the Germany TRGS 900 occupational exposure limit of 4 mg/m³, TWA, Inhalable fraction.

Exposure limits for silica are stated below.

Amorphous Silica, The regulatory exposure limits are found under the general silica, CAS RN 7631-86-9:	Australia:	2 mg/m³, TWA, Respirable
	Austria MAK	4 mg/m³, TWA, Inhalable fraction
	Finland:	5 mg/m³
	Germany TRGS 900:	4 mg/m³, TWA, Inhalable fraction
	India:	10 mg/m³, TWA
	Ireland:	2.4 mg/m³, TWA, Respirable dust
	Norway:	1.5 mg/m³, TWA, Respirable dust
	Switzerland:	4 mg/m³, TWA
	UK WEL:	6 mg/m³, TWA, Inhalable fraction 2.4 mg/m³, TWA, Respirable fraction
	US OSHA PEL:	6mg/m³
Dust, or Particulates Not Otherwise Specified:	US ACGIH - TLV:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	Belgium:	10 mg/m³, TWA, Inhalable 3 mg/m³ TWA, Respirable
	China:	8 mg/m³, TWA 10 mg/m³, STEL
	Italy:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, respirable
	Malaysia:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	Spain:	10 mg/m³, VLA, Inhalable 3 mg/m³, VLA, Respirable
	France:	10 mg/m³, TWA Inhalable dust 5 mg/m³, TWA Respirable dust

MAK: Maximale Arbeitsplatzkonzentration (Maximum Workplace Concentration)
OEL: Occupational Exposure Limit
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TRGS: Technische Regeln für Gefahrstoffe (Technical Rule for Hazardous Materials)
TWA: Time Weighted Average
US ACGIH: United States American Conference of Governmental Industrial Hygienists
US OSHA: United States Occupational Safety and Health Administration
VLA: Valore Límite Ambientales (Environmental Limit Value)
WEL: Workplace Exposure Limit

ENGINEERING CONTROLS Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Ensure adequate ventilation to maintain exposures below occupational limits.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Approved respirator may be necessary if local exhaust ventilation is not adequate.

Hand Protection: Repeated exposure may cause skin dryness or cracking. Use protective barrier cream before handling the product. Wear suitable gloves.

Eye Protection: Wear eye/face protection. Safety glasses with side-shields. Or goggles.

Skin and Body Protection: Wear suitable protective clothing. No special protective equipment required.

Other: Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White powder

Odor:	None
pH:	3.0 - 6.5
Vapor Pressure:	Not applicable
Boiling Point/Range:	2230°C after partial decomposition
Melting Point/Range:	1700°C after partial decomposition
Water Solubility:	Insoluble
Density:	60 - 150 kg/m^3 @ 20°C
% Volatile (by Volume):	Negligible
Evaporation Rate:	Not applicable
Viscosity:	Not applicable
Partition Coefficient (n-octanol/water):	Not determined
Flash Point:	Not applicable
Explosion Limits in Air - Lower (g/m^3):	220 g/m^3 (dust)
Autoignition Temperature:	550°C
Method:	ASTM D-1929

10. STABILITY AND REACTIVITY

Information given is based on data obtained from this substance or from similar substances.

Stability:	Stable.
Hazardous Polymerization:	Hazardous polymerization does not occur.
Mechanical Sensitivity (shock):	Not sensitive to mechanical impact.
Conditions to Avoid:	Do not expose to temperatures above 300°C. Heating above 300°C leads to decomposition of Aerogel surface treatment. Decomposition vapor should be ventilated. May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen. Avoid conditions where oxygen may condense in or around this product, as this will increase the flammability.
Hazardous Decomposition and/or Combustion Products:	Carbon monoxide, Carbon dioxide, Organic products of decomposition, Formaldehyde.
Static Discharge Effects:	Avoid dust cloud formation. Dust may form explosive mixture in air at concentrations above 200 g/m^3. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.

11.TOXICOLOGICAL INFORMATION

Information given is based on data obtained from this substance or from similar substances.

ACUTE TOXICITY

Oral LD50: LD50/oral/rat = > 5000 mg/kg.

Inhalation LC50: Due to the product's physical characteristics, no suitable testing procedure is available.

Dermal LD50: No data are available on the product itself.

Eye Irritation: Draize score 1.0/110 @ 24 hr. Non-irritating.

Skin Irritation: Primary Dermal Irritation score = 0.0 Non-irritating

SUBCHRONIC TOXICITY

No data are available on the product itself.

CHRONIC TOXICITY

Mutagenic Effects:
Not mutagenic in AMES Test, chromosomal aberration in Chinese hamster ovary (CHO) cells.

Reproductive Toxicity: No data are available on the product itself. According to experience not expected.

Sensitization: Non-sensitizing. A delayed contact hypersensitivity study in guinea pigs utilizing the Buehler technique was performed.

Synergistic Materials: None reasonably foreseeable.

Carcinogenic Effects: Does not contain any substances listed by IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference for Governmental Industrial Hygienists) or EU (European Union)

12. ECOLOGICAL INFORMATION

Aquatic Toxicity: Not determined

ENVIRONMENTAL FATE

Mobility: Not expected to migrate.

Bioaccumulation: According to experience not expected.

Persistence / Degradability: The methods for determining biodegradability are not applicable to inorganic substances

Distribution to Environmental Compartments: Not determined.

13. DISPOSAL CONSIDERATIONS

Disclaimer: Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 3 of this MSDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations.

RCRA Classification (40 CFR 261): Non-hazardous.

DISPOSAL CONSIDERATIONS Can be landfilled or incinerated, when in compliance with local regulations

14. TRANSPORT INFORMATION

US Department of Transportation (US DOT) Hazardous Materials Regulations Status: Use UN Classification listed.

UN Number: Not regulated

UN Proper Shipping Name: Not regulated

UN Shipping Class: Not regulated

UN Packing Group: Not regulated

IMDG (International Maritime Organization's Dangerous Goods Code):
Use UN classification listed above.

IATA:
Use UN classification listed above.

15. REGULATORY INFORMATION

Hazard Classification

United States - OSHA (29 CFR 1910.1200): Hazardous.
Mexico - NOM-018-STPS-2000: Refer to HMIS Rating in Section 16.
Canada - WHMIS Classification (CPR, SOR/88-66): Not controlled.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International Inventories

All components of this product are listed on or exempt from the following inventories:

YES - Australian Inventory of Chemical Substances (AICS)
YES - Canadian Domestic Substances List (DSL)
YES - Chinese Inventory
YES - European Inventory of Existing Commercial Chemical Substances (EINECS)
YES - Japanese Existing and New Chemical Substances (ENCS)
YES - Korean Existing Chemicals List (KECL)
YES - New Zealand Hazardous Substances and New Organisms Act (HSNO)
YES - Philippine Inventory of Chemicals and Chemical Substances (PICCS)
YES - United States Toxic Substances Control Act (TSCA) Inventory

U.S. Federal Regulations

TSCA 12(b) Export Notification: This product does not contain any components that are subject to TSCA 12(b) Export Notification.

Clean Air Act Amendments of 1990 (CAA, Section 112, 40 CFR 82): This product does not contain any components listed as a Hazardous Air Pollutant, Flammable Substance, Toxic Substance, or Class 1 or 2 Ozone Depletor.

Clean Water Act (CWA, 40 CFR 116) Priority Pollutants: This product does not contain any listed Priority Pollutants.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, 40 CFR 302): This product does not contain any listed Hazardous Substances.

Superfund Amendments and Reauthorization Act, Title III (SARA):

SARA Section 302 (40 CFR 355) Extremely Hazardous Substances: No components are listed as extremely hazardous substances under SARA Section 302.

SARA Sections 311/312 (40 CFR 370) Hazard Category: CHRONIC/DELAYED HEALTH HAZARD. Reporting may be required if the material is present at any one time in amounts equal to or greater than 10,000 pounds.

SARA Section 313 (40 CFR 372) Toxics Release Inventory: Does not contain any of the substances identified under Section 313 as toxic chemicals in excess of the de minimis concentrations necessary to be subject to the supplier notification requirements.

Pharmaceutical Information: Cabot Corporation does not endorse the use of this product in any pharmaceutical application.

U.S. State Regulations

California Proposition 65: This product does not contain any components listed on California Proposition 65.

Massachusetts Right-to-Know Substances List: This product does not contain any listed components.

US Coalition of NorthEastern Governors (CONEG) Metals List: This product meets the CONEG Source Reduction Council limits for the sum of the levels of lead, cadmium, mercury and hexavalent chromium of less than 100 parts per million by weight.

16. OTHER INFORMATION

HMIS Rating

HMIS Index: * - chronic, 0 - minimal, 1 - slight, 2 - moderate, 3 - serious, 4 - severe

Health:	*1
Flammability:	2
Physical Hazard:	0

Prepared by:	Cabot Corporation - Safety, Health and Environmental Affairs
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Reason for Revision:	Revision to Section(s) 1, 2, 15

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