

LTS RESEARCH LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET
SILICON MONOXIDE-CARBON

GENERAL INFORMATION

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.

COMPANY'S STREET: 37 RAMLAND ROAD
COMPANY'S CITY: ORANGEBURG
COMPANY'S STATE: NEW YORK
COMPANY'S ZIP CODE: 10962
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COMPANY'S TEL #: 845-494-2940
DATE MSDS PREPARED: 11/22/05
DATE MSDS REVISED: 06/14/11

1. IDENTIFICATION

CHEMICAL NAME: SILICON MONOXIDE-CARBON
CHEMICAL FORMULA: SiO-C
CAS NO: 10097-28-6/7782-42-5

2. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: SOLID
APPEARANCE AND ODOR: TRANSLUCENT, WHITE TO OFF-WHITE, POWDER, PIECES, SPATTERING TARGETS, ODORLESS
PH: NOT AVAILABLE.
VAPOR PRESSURE: NOT AVAILABLE.
VAPOR DENSITY: NOT AVAILABLE.
EVAPORATION RATE: NOT AVAILABLE.
VISCOSITY: NOT AVAILABLE.
BOILING POINT: NOT AVAILABLE
FREEZING/MELTING POINT: NOT AVAILABLE
DECOMPOSITION TEMPERATURE: NOT AVAILABLE.
SOLUBILITY: INSOLUBLE
SPECIFIC GRAVITY/DENSITY: 2.2-2.6 G/CM³

3. HAZARDS INFORMATION

SILICON MONOXIDE
HAZARD DESCRIPTION: Xn HARMFUL
T TOXIC
Xi IRRITANT

RISK PHRASES: R 49 MAY CAUSE CANCER BY INHALATION
R 48/20 ALSO HARMFUL: DANGER OF SERIOUS DAMAGE BY PROLONGED EXPOSURE THROUGH INHALATION
R 20 HARMFUL BY INHALATION
R 36/ 37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM, AND SKIN
R 22 HARMFUL IF SWALLOWED

HMIS RATINGS:
HEALTH: 1
FLAMMABILITY: 0
REACTIVITY: 0

EMERGENCY OVERVIEW REMOVE VICTIM TO FRESH AIR, KEEP WARM AND QUIET, GIVE OXYGEN IF

BREATHING IS DIFFICULT AND SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.

CARBON
HAZARDOUS COMPONENTS % 0-100
GRAPHITE
 OSHA/PEL 5MG/M³
 ACGIH/TLV 10 MG/M³
HAZARD DESCRIPTION: Xi IRRITANT, F HIGHLY FLAMMABLE
RISK PHRASES: R 11 HIGHLY FLAMMABLE, R 36/37 IRRITATING TO EYES
AND RESPIRATORY SYSTEM
HMIS RATINGS:
 HEALTH: 1
 FLAMMABILITY: 3
 REACTIVITY: 1

4. HEALTH HAZARD INFORMATION

SILICON MONOXIDE
POTENTIAL HEALTH EFFECTS

SILICA IS THE CHIEF CAUSE OF PULMONARY DUST DISEASE. THE PROLONGED INHALATION OF DUSTS CONTAINING FREE SILICA MAY RESULT IN THE DEVELOPMENT OF DISABLING, PULMONARY FIBROSIS KNOWN AS SILICOSIS. THE ACTION OF CRYSTALLINE SILICA ON THE LUNGS RESULTS IN THE PRODUCTION OF A DIFFUSE, NODULAR FIBROSIS IN WHICH THE PARENCHYMA AND THE LYMPHATIC SYSTEMS ARE INVOLVED. THIS FIBROSIS IS, TO A CERTAIN EXTENT, PROGRESSIVE, AND MAY CONTINUE TO INCREASE FOR SEVERAL YEARS AFTER EXPOSURE IS TERMINATED. THE FIRST AND MOST COMMON SYMPTOM IS SHORTNESS OF BREATH. FURTHER PROGRESS OF THE DISEASE RESULTS IN MARKED FATIGUE, EXTREME DYSPNEA AND CYANOSIS, LOSS OF APPETITE, PLEURITIC PAIN AND TOTAL INCAPACITY TO WORK. IF TUBERCULOSIS DOES NOT SUPERVENE, THE CONDITION MAY EVENTUALLY CAUSE DEATH EITHER FROM CARDIAC FAILURE OR FROM DESTRUCTION OF LUNG TISSUE, WITH RESULTANT ANOXEMIA.

EYE: MAY CAUSE EYE IRRITATION.
SKIN: MAY CAUSE SKIN IRRITATION.
INGESTION: MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT. THE TOXICOLOGICAL PROPERTIES OF THIS SUBSTANCE HAVE NOT BEEN FULLY INVESTIGATED.
INHALATION: SILICON DIOXIDE 0-100 10 MG/M³ /% RESPIRABLE SIO 2+2 .1 MG/M³ RES
CHRONIC: NOT AVAILABLE.

CARBON
EFFECTS OF EXPOSURE
ACUTE EFFECTS:

INHALATION: BREATHING DUSTS MAY RESULT IN AGGRAVATION OF EXISTING RESPIRATORY DISEASES.
INGESTION: NONE KNOWN
SKIN: NONE KNOWN.
EYE: MAY BE IRRITATING TO THE EYE
CHRONIC EFFECTS: OVEREXPOSURE TO RESPIRABLE DUST FROM MACHINING/CRUSHING MAY AGGRAVATE EXISTING RESPIRATORY DISEASES. MASSIVE OVEREXPOSURE MAY CAUSE PNEUMOCONIOSIS

THE INHALATION OF GRAPHITE, BOTH NATURAL AND SYNTHETIC, HAS CAUSED PNEUMOCONIOSIS IN EXPOSED WORKERS. THE PNEUMOCONIOSIS FOUND SIMILAR TO COAL WORKER'S PNEUMOCONIOSIS.

5. FIRST AID

EYES: FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER LIDS. GET MEDICAL AID.

SKIN: GET MEDICAL AID IF IRRITATION DEVELOPS OR PERSISTS. RINSE AREA WITH LARGE AMOUNTS OF WATER FOR AT EAST 15 MINUTES.

INHALATION: REMOVE FROM EXPOSURE TO FRESH AIR IMMEDIATELY. GET MEDICAL AID IF COUGH OR OTHER SYMPTOMS APPEAR.
IF IRRITATION OF THE NOSE AND THROAT OCCURS FROM EXPOSURE TO DUSTS, MOVE AWAY FROM EXPOSURE AND INTO FRESH AIR. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION. IF VICTIM IS NOT BREATHING OR IF BREATHING DIFFICULTIES DEVELOP ARTIFICIAL RESPIRATION OR OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. SEEK MEDICAL ATTENTION.

INGESTION: GIVE 1-2 GLASSES OF MILK OR WATER AND INDUCE VOMITING, SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST. NEVER INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. NOTES TO PHYSICIAN: TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

6. FIRE FIGHTING MEASURES

GENERAL INFORMATION: WEAR A SELF-CONTAINED BREATHING APPARATUS IN PRESSURE-DEMAND, MSHA/NIOSH (APPROVED OR EQUIVALENT), AND FULL PROTECTIVE GEAR.

EXTINGUISHING MEDIA: NON-FLAMMABLE, USE SUITABLE EXTINGUISHING MEDIA FOR SURROUNDING MATERIALS AND TYPE OF FIRE.

AUTO IGNITION TEMPERATURE: NOT AVAILABLE.

FLASH POINT: NOT AVAILABLE.

NFPA RATING: NOT PUBLISHED.

EXPLOSION LIMITS:

LOWER: NOT AVAILABLE.

UPPER: NOT AVAILABLE.

7. HANDLING AND STORAGE

HANDLING: USE WITH ADEQUATE VENTILATION. MINIMIZE DUST GENERATION AND ACCUMULATION.
AVOID BREATHING DUST, VAPOR, MIST, OR GAS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING.
AVOID INGESTION AND INHALATION.

STORAGE: STORE IN A TIGHTLY CLOSED CONTAINER. STORE IN A COOL, DRY, WELL-VENTILATED AREA AWAY FROM INCOMPATIBLE SUBSTANCES.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

ENGINEERING CONTROLS: USE ADEQUATE VENTILATION TO KEEP AIRBORNE CONCENTRATIONS LOW.

EXPOSURE LIMITS:

EYES: FLUSH EYES WITH LUKEWARM WATER, LIFTING UPPER AND LOWER EYELIDS, FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.

SKIN: REMOVE CONTAMINATED CLOTHING, BRUSH MATERIAL OFF SKIN, WASH AFFECTED AREA WITH MILD SOAP AND WATER, AND SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST. CLOTHING WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT SKIN EXPOSURE. RESPIRATORS: FOLLOW THE OSHA RESPIRATOR REGULATIONS FOUND IN 29CFR 1910.13 FOR EUROPEAN STANDARD EN 149. ALWAYS USE A NIOSH OR EUROPEAN STANDARD EN 149 APPROVED RESPIRATOR WHEN NECESSARY.

9. STABILITY AND REACTIVITY

CHEMICAL STABILITY: STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.
CONDITIONS TO AVOID: EXPOSURE TO MOIST AIR OR WATER. INCOMPATIBILITIES
MATERIAL TO AVOID: HYDROGEN FLUORIDE, INTERHALOGENS, HALOGENS, OXIDIZING AGENTS, ACIDS, ALKALI METALS

DANGEROUS REACTIONS: REACTS VIOLENTLY WITH INTERHALOGENS
HAZARDOUS

DECOMPOSITION PRODUCTS: CO, CO₂ EVOLVED WHEN EXPOSED TO O₂ AT TEMPERATURES ABOVE 500 °C

10. TOXICOLOGICAL INFORMATION

CARCINOGENICITY: NO CLASSIFICATION DATA ON CARCINOGENIC PROPERTIES OF THIS MATERIAL IS AVAILABLE FROM THE EPA, IARC, NTP, OSHA, OR ACGIH.

ADDITIONAL INFORMATION: TO THE BEST OF OUR KNOWLEDGE THE ACUTE AND CHRONIC TOXICITY OF THIS SUBSTANCE IS NOT FULLY KNOWN.

11. TRANSPORT INFORMATION

CARBON

PROPER SHIPPING NAME: FLAMMABLE SOLIDS, ORGANIC, N.O.S.

UN NUMBER: 1325

HAZARD CLASS: 4.1

PACKING GROUP: III

ADR//RID CLASS: 4.1 F3) FLAMMABLE SOLIDS, SELF-REACTIVE SUBSTANCES AND SOLID DESENSITISED EXPLOSIVES

IMDG CLASS: 4.1

ICAO/IATA CLASS: 4.1

12. OTHER INFORMATION

THIS SAFETY DATA SHEET SHOULD BE USED IN CONJUNCTION WITH TECHNICAL SHEETS. IT DOES NOT REPLACE THEM. THE INFORMATION GIVEN IS BASED ON OUR KNOWLEDGE OF THIS PRODUCT, AT THE TIME OF PUBLICATION. IT IS GIVEN IN GOOD FAITH. THE ATTENTION OF THE USER IS DRAWN TO THE POSSIBLE RISKS INCURRED BY USING THE PRODUCT FOR ANY OTHER PURPOSE OTHER THAN THAT FOR WHICH IT WAS INTENDED. THIS DOES NOT IN ANY WAY EXCUSE THE USER FROM KNOWING AND APPLYING ALL THE REGULATIONS GOVERNING HIS ACTIVITY. IT IS THE SOLE RESPONSIBILITY OF THE USER TO TAKE ALL PRECAUTIONS REQUIRED IN HANDLING THE PRODUCT. THE AIM OF THE MANDATORY REGULATIONS MENTIONED IS TO HELP THE USER TO FULFILL HIS OBLIGATIONS REGARDING THE USE OF HAZARDOUS PRODUCTS.