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Safety Data Sheets

Desolation STEM kit
Total Redox™ - Fuel Cells

This document contains SDS for the following kit items:

Zinc Metal
Sodium Hydroxide
Activated Carbon

Last Updated: June 11, 2015

Crosscutting Concepts, LLC · P.O. Box 349 · Huntington, WV 25708
Phone: 888-221-4344 · Fax: 888-221-4344, Ext. 804

Section 1 - Chemical Product and Company Identification

Name: Zinc metal
Common Synonyms: Zinc strips

Chemtrec Phone: 800-424-9300
National Response Center (emergency use): 800-424-8802

Product Use: Laboratory Reagent

Section 2 - Hazard Identification

SKIN CORROSION/IRRITANT Category 3
WARNING: Causes mild skin irritation
Hazard Symbol: None

Emergency Overview
Effects of overexposure:
Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headached fever, maliase, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investigated.
Ingestion: May be harmul if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain. fever, and chills. May affect behavior/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derrangement in cerebellar function, lightheadness, dizzness, irritability, muscular stiffness, and pain. May also affect blood.
Skin Contact: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss.
Eye Contact: May cause eye irritation.
Chronic Exposure: Not available
Aggravation of Pre-existing Conditions: Not available

Section 3 - Composition / Information on Ingredients

Ingredient	CAS No.	Percent
Zinc Metal	7440-66-6	99+%

Section 4 - First Aid Measures

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.
Eye Contact: 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 if irritation occurs.

Section 5 - Fire-Fighting Measures

Fire: Flammable in the presence of open flames and sparks, of heat, of oxidizing materials, of acids, of alkalis, of moisture.
Explosion: Not available
Fire Extinguishing Media: Apply dry chemical, sand, or special powder extinguishing media.

Special Information: If possible, move material from fire area and cool material exposed to flame. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

Section 6 - Accidental Release Measures

Solid metal is recyclable. Vacuuming recommended for accumulated metal dust. Molten metal should be allowed to solidify prior to clean-up. Return uncontaminated spilled material to the process if possible. Place contaminated and non-recyclable material in suitable labeled containers for later disposal. Treat or dispose of waste material in accordance with all local, regional and national requirements, as applicable.

Section 7 - Handling and Storage

Handling Procedures and Equipment: Wash hands after handling this material. Avoid contact with skin and eyes.
Storage requirements: Keep in a well closed container stored under cool conditions. Protect against physical damage.

Section 8 - Exposure Controls / Personal Protection

OSHA Permissible Exposure Limit: None established
ACGIH Threshold Limit Value: None established
Airborne Exposure Limits: None established.
Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved): For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.
WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Section 9 - Physical and Chemical Properties

Appearance: Lustrous metal solid.
Odor: No odor
Odor Threshold: N/A
pH: Not available
Melting Point: 419°C (786.2°F)
Boiling Point: 907°C (1664.6°F)
Flash Point: No information found.
Evaporation Rate (BuAc=1): No information found.
Flammability: Flammable
Flammability/explosive limits: No information found.
Vapor Pressure (mm Hg): No information found.
Vapor Density (Air=1): No information found.
Relative Density: 7.14
Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone
Partition Coefficient: No information found.
Auto-ignition Temperature: No information found.
Decomposition Temperature: No information found.
Viscosity: N/A

Section 10 - Stability and Reactivity

Reactivity: Reacts in contact with Incompatible Materials

Stability: Stable under ordinary conditions of use and storage, if kept dry and cool.
Hazardous Reactions: No information found
Conditions to Avoid: Incompatible materials, excess heat, moisture.
Incompatible Materials: Incompatible with moisture, acids, halogenated hydrocarbons, NH_4NO_3, barium oxide, $Ba(NO_3)_2$, Cadmium, CS_2, chlorates, Cl_2, CrO_3, F_2, Hydroxylamine, $Pb(N_3)_2$, $MnCl_2$, HNO_3, performic acid, $KClO_3$, KNO_3, N_2O_2, Selenium, $NaClO_3$, Na_2O_2, Sulfur, Te, water, $(NH_4)_2S$, As_2O_3, CS_2, $CaCl_2$, chlorinated rubber, catalytic metals, halocarbons, o-nitroanisole, nitrobenzene, nonmetals, oxidants, paint primer base, pentacarbonoyliron, transition metal halides, seleninyl bromide, HCl, H_2SO_4, (Mg +$Ba(NO_3)_2$ +BaO_2), (ethyl acetoacetate +tribromoneopentyl alcohol. Contact with Alkali Hydroxides(Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide, etc) results in evolution of hydrogen. Ammonium nitrate + zinc + water causes a violent reaction with evolution of steam and zinc oxide.
Hazardous Decomposition Products Not available
Hazardous Polymerization: Will not occur.

Section 11- Toxicological Information

Toxicological Data:
No data found. The toxicological properties of this substance have not been fully investigated.
OSHA: Non-carcinogenic
IARC: Non-carcinogenic

Section 12 - Ecological Information

No information available

Section 13 - Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 - Transport Information

IATA: Not regulated
DOT: Not regulated

Section 15 - Regulatory Information

Federal and State Regulations:
New York release reporting list: Zinc Metal Rhode Island RTK hazardous substances: Zinc Metal Pennsylvania RTK: Zinc Metal Florida: Zinc Metal Michigan critical material: Zinc Metal Massachusetts RTK: Zinc Metal New Jersey: Zinc Metal California Director's List of Hazardous Substances: Zinc Metal TSCA 8(b) inventory: Zinc Metal TSCA 12(b) one time export: Zinc Metal SARA 313 toxic chemical notification and release reporting: Zinc Metal CERCLA: Hazardous substances.: Zinc Metal: 200 g.
Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.
Other Classifications:
WHMIS (Canada): Not Available
DSCL (EEC):
R15- Contact with water liberates extremely flammable gases.
HMIS (U.S.A.):
Health Hazard: 1
Fire Hazard: 1
Reactivity: 1
Personal Protection: E
National Fire Protection Association (U.S.A.):
Health: 0
Flammability: 1
Reactivity: 1
Specific hazard:
Protective Equipment:

Gloves.

Section 16 - Other Information

Updated June 11, 2015

WHMIS: SDS prepared according to hazard criteria of controlled products regulations (CPR) and SDS contains all information required by CPR and GHS.

The above information has been developed based upon currently available scientific data. New information may be developed from time to time which may render the conclusions of this report obsolete. Therefore, no warranty is extended as to the applicability of this information to the user's intended purpose or for the consequences of its use or misuse. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Crosscutting Concepts, LLC shall not be held liable for any damage resulting from handling or from contact with the above product.

Safety Data Sheet

Crosscutting Concepts, LLC · P.O. Box 349 · Huntington, WV 25708
Phone: 888-221-4344 · Fax: 888-221-4344, Ext. 804

Section 1 - Chemical Product and Company Identification

Name: Sodium Hydroxide
Common Synonyms: Caustic Soda

Chemical Formula: NaOH
Chemtrec Phone: 800-424-9300
National Response Center (emergency use): 800-424-8802

Product Use: Laboratory Reagent

Section 2 - Hazard Identification

SKIN CORROSION/IRRITANT Category 1
DANGER: Causes severe skin burns and eye damage
Symbol: Corrosive

Emergency Overview
DANGER! HARMFUL OR FATAL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.
Effects of overexposure:
Inhalation: Slightly hazardous in case of inhalation (lung sensitizer). Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath.
Ingestion: Severe over-exposure can result in death.
Skin Contact: Very hazardous in case of skin contact (corrosive, irritant, permeator). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Eye Contact: Inflammation of the eye is characterized by redness, watering, and itching.
Chronic Exposure: The substance is toxic to lungs. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Aggravation of Pre-existing Conditions: No information found

Section 3 - Composition / Information on Ingredients

Ingredient	CAS No.	Percent
Sodium Hydroxide	1310-73-2	100%

Section 4 - First Aid Measures

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately. Finish by rinsing thoroughly with running water to avoid a possible infection.

Section 5 - Fire-Fighting Measures

Fire: Not considered to be a fire hazard.
Explosion: Slightly explosive in the presence of heat
Fire Extinguishing Media: Use any media suitable for surrounding fire.
Special Remarks on Fire Hazards:
sodium hydroxide + zinc metal dust causes ignition of the latter. Under proper conditions of temperature, pressure and state of division, it can ignite or react violently with acetaldehyde, ally alcohol, allyl chloride, benzene-1,4-diol, chlorine trifluoride, 1,2 dichlorethylene, nitroethane, nitromethane, nitroparaffins, nitropropane, cinnamaldehyde, 2,2-dichloro-3,3-dimethylbutane. Sodium hydroxide in contact with water may generate enough heat to ignite adjacent combustible materials. Phosphorous boiled with NaOH yields mixed phosphines which may ignite spontanously in air. sodium hydroxide and cinnamaldehyde + heat may cause ignition. Reaction with certain metals releases flammable and explosive hydrogen gas.
Special Remarks on Explosion Hazards:
Sodium hydroxide reacts to form explosive products with ammonia + silver nitrate. Benzene extract of allyl benzenesulfonate prepared from allyl alcohol, and benzene sulfonyl chloride in presence of aquesous sodium hydroxide, under vacuum distillation, residue darkened and exploded. Sodium Hydroxde + impure tetrahydrofuran, which can contain peroxides, can cause serious explosions. Dry mixtures of sodium hydroxide and sodium tetrahydroborate liberate hydrogen explosively at 230-270 deg. C. Sodium Hydroxide reacts with sodium salt of trichlorophenol + methyl alcohol + trichlorobenzene + heat to cause an explosion. (Sodium hydroxide)

Section 6 - Accidental Release Measures

Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7 - Handling and Storage

Handling Procedures and Equipment: Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.
Storage requirements: Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic. Deliquescent. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis, moisture.

Section 8 - Exposure Controls / Personal Protection

OSHA Permissible Exposure Limit: TWA: 2 CEIL: 2 (mg/m3)
ACGIH Threshold Limit Value: STEL: 2 (mg/m3) (TLV)
Airborne Exposure Limits: None established.
Consult local authorities for acceptable exposure limits.
Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved): For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.
WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Section 9 - Physical and Chemical Properties

Appearance: Solid white beads

Odor: No odor
Odor Threshold: N/A
pH: 13.5 (1% solution in water)
Melting Point: 323°C (613°F)
Boiling Point: 1388°C (2530°F)
Flash Point: No information found.
Evaporation Rate (BuAc=1): No information found.
Flammability: Nonflammable
Flammability/explosive limits: No information found.
Vapor Pressure (mm Hg): No information found.
Vapor Density (Air=1): No information found.
Relative Density: 2.13
Solubility: Easily soluble in cold water
Partition Coefficient: No information found.
Auto-ignition Temperature: No information found.
Decomposition Temperature: No information found.
Viscosity: N/A

Section 10 - Stability and Reactivity

Reactivity: Highly reactive with metals. Reactive with oxidizing agents, reducing agents, metals, acids, alkalis. Reactive with water.
Stability: Unstable around excess heat, incompatible materials, water/moisture, moist air
Hazardous Reactions: No information found
Conditions to Avoid: Incompatible materials.
Incompatible Materials: Metals, oxidizing agents, reducing agents, metals, acids, alkalis, water
Hazardous Decomposition Products: No information found
Hazardous Polymerization: Will not occur.
Special Remarks on Reactivity:
Hygroscopic. Much heat is evolved when solid material is dissolved in water. Therefore cold water and caution must be used for this process. Generates considerable heat when a sodium hydroxide solution is mixed with an acid Sodium hydroxide solution and octanol + diborane during a work-up of a reaction mixture of oxime and diborane in tetrahyrofuran is very exothermic, a mild explosion being noted on one occassion. Reactive with water, acids (mineral, non-oxidizing, e.g. hydrochloric, hydrofluoric acid, muriatic acid, phosphoric), acids (mineral, oxidizing e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), acids (organic e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, foraldehyde), carbamates (e.g. carbanolate, carbofuran), esters (e.g. butyl acetate, ethyl acetate, propyl formate), halogenated organics (dibromoethane, hexachlorobenzene, methyl chloride, trichloroethylene), isocyanates (e.g. methyl isocyanate), ketones (acetone, acetophenone, MEK, MIBK), acid chlorides, strong bases, strong oxidizing agents, strong reducing agents, flammable liquids, powdered metals and metals (i.e aluminum, tin, zinc, hafnium, raney nickel), metals (alkali and alkaline e.g. cesium, potassium, sodium), metal compounds (toxic e.g. berylium, lead acetate, nickel carbonyl, tetraethyl lead), mitrides (e.g. potassium nitride, sodium nitride), nitriles (e.g. acetonitrile, methyl cyanide), nitro compounds (organic e.g. nitrobenzene, nitromethane), acetic anhydride, hydroquinone, chlorohydrin, chlorosulfonic acid, ethylene cyanohydrin, glyoxal, hydrosulfuric acid, oleum, propiolactone, acylonitrile, phorosous pentoxide, chloroethanol, chloroform-methanol, tetrahydroborate, cyanogen azide, 1,2,4,5 tetrachlorobenzene, cinnamaldehyde. Reacts with formaldehyde hydroxide to yield formic acid, and hydrogen.

Section 11- Toxicological Information

Toxicological Data:
LD50/LC50: No information found
Under investigation as a mutagen.

Section 12 - Ecological Information

Ecological impact information not found

Section 13 - Disposal Considerations

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14 - Transport Information

DOT Classification: Class 8: Corrosive material
Identification: Sodium hydroxide, solid UNNA: 1823 PG: II

Section 15 - Regulatory Information

Federal and State Regulations:
Illinois toxic substances disclosure to employee act: Sodium hydroxide Illinois chemical safety act: Sodium hydroxide New York release reporting list: Sodium hydroxide Rhode Island RTK hazardous substances: Sodium hydroxide Pennsylvania RTK: Sodium hydroxide Minnesota: Sodium hydroxide Massachusetts RTK: Sodium hydroxide New Jersey: Sodium hydroxide Louisiana spill reporting: Sodium hydroxide California Director's List of Hazardous Substances: Sodium hydroxide TSCA 8(b) inventory: Sodium hydroxide CERCLA: Hazardous substances.: Sodium hydroxide
Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.
Other Classifications:
WHMIS (Canada): CLASS E: Corrosive solid.
HMIS (U.S.A.):
Health Hazard: 3
Fire Hazard: 0
Reactivity: 2
Personal Protection: B
National Fire Protection Association (U.S.A.):
Health: 3
Flammability: 0
Reactivity: 1
Specific hazard:
Protective Equipment:Gloves, goggles.

Section 16 - Other Information

Updated June 11, 2015

WHMIS: SDS prepared according to hazard criteria of controlled products regulations (CPR) and SDS contains all information required by CPR and GHS.

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Section 1 - Chemical Product and Company Identification

Name: Carbon
Common Synonyms: Activated Carbon, Activated Charcoal

Molecular Weight: 61.83
Chemical Formula: H3BO3
Chemtrec Phone: 800-424-9300
National Response Center (emergency use): 800-424-8802

Product Use: Laboratory Reagent

Section 2 - Hazard Identification

SKIN CORROSION/IRRITANT Category 3: Mild irritant
DANGER: Causes mild skin irritation
Hazard Symbol: None

Emergency Overview
Effects of overexposure:
Inhalation: The substance is toxic to mucous membranes. The substance may be toxic to lungs.
Ingestion: The substance is toxic to mucous membranes.
Skin Contact: Causes mild skin irritation.
Eye Contact: Causes mild eye irritation.
Chronic Exposure: Repeated or prolonged exposure to the substance can produce target organs damage.
Aggravation of Pre-existing Conditions: No information found

Section 3 - Composition / Information on Ingredients

Ingredient	CAS No.	Percent
Activated Carbon	7440-44-0	100%

Section 4 - First Aid Measures

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.
Eye Contact: 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 if irritation occurs.

Section 5 - Fire-Fighting Measures

Fire: Not considered to be a fire hazard.
Explosion: Not considered an explosion hazard.
Fire Extinguishing Media: Use any media suitable for surrounding fire.
Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

Section 6 - Accidental Release Measures

Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Section 7 - Handling and Storage

Handling Procedures and Equipment Avoid prolonged contact with eyes and skin. Keep away from ignition

sources. Use in well ventilated areas.
Storage requirements: Keep in a cool and ventilated area away from combustible materials. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8 - Exposure Controls / Personal Protection

OSHA Permissible Exposure Limit: 3.5 (mg/m3)
ACGIH Threshold Limit Value: 3.5 (mg/m3) TLV
TWA: 4 (mg/m3) [United Kingdom (UK)]. TWA: 10 (mg/m3) [United Kingdom (UK)] Total. TWA: 2 (mg/m3) [Canada].
Airborne Exposure Limits: None established.
Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved): For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.
WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Section 9 - Physical and Chemical Properties

Appearance: Black solid
Odor: No odor
Odor Threshold: N/A
pH: No information found
Melting Point: 3500°C (6332°F)
Boiling Point: No information found
Flash Point: No information found.
Evaporation Rate (BuAc=1): No information found.
Flammability: Nonflammable
Flammability/explosive limits: No information found.
Vapor Pressure (mm Hg): No information found.
Vapor Density (Air=1): No information found.
Relative Density: 0.4-0.7
Solubility: Insoluble in water
Partition Coefficient: No information found.
Auto-ignition Temperature: No information found.
Decomposition Temperature: No information found.
Viscosity: N/A

Section 10 - Stability and Reactivity

Reactivity: No information found.
Stability: Stable under ordinary conditions of use and storage. Unstable around heat, ignition sources, incompatible materials
Hazardous Reactions: No information found
Conditions to Avoid: Incompatible materials.
Incompatible Materials: Contact with strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate may result in rapid combustion. Avoid contact the strong acid. Incompatible with unsaturated oils, 2-Nitrobenzaldehyde,

strong oxidizers such as fluorine, chlorine trifluoride, and potassium peroxide.
Hazardous Decomposition Products: No information found
Hazardous Polymerization: Will not occur.

Section 11- Toxicological Information

Toxicological Data:
No LD50 data found. May cause damage to mucous membranes and lungs, adverse reproductive effects.

Section 12 - Ecological Information

Product and products of degradation are generally non-toxic to environment

Section 13 - Disposal Considerations

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14 - Transport Information

IATA: Not regulated
DOT: Not regulated

Section 15 - Regulatory Information

Federal and State Regulations:
Rhode Island RTK hazardous substances: Charcoal, Activated TSCA 8(b) inventory: Charcoal, Activated
Other Regulations:
OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.
Other Classifications:
WHMIS (Canada): Not controlled under WHMIS (Canada).
DSCL (EEC): This product is not classified according to the EU regulations. Not applicable.
HMIS (U.S.A.):
Health Hazard: 1
Fire Hazard: 0
Reactivity: 0
Personal Protection: E
National Fire Protection Association (U.S.A.):
Health: 1
Flammability: 0
Reactivity: 0
Specific hazard:
Protective Equipment: Safety glasses. Gloves. Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Section 16 - Other Information

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