

STEEL FIRE EQUIPMENT LTD

150 Superior Blvd.
Mississauga, Ontario
L5T 2L2

MATERIAL SAFETY DATA SHEET

Prepared to US OSHA, CMA, ANSI and Canadian WHMIS Standards

PART I What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED): REGULAR DRY CHEMICAL
SYNONYMS: Sodium Bicarbonate, SDC
MANUFACTURER'S NAME: STEEL FIRE EQUIPMENT LTD.
ADDRESS: 150 Superior Blvd
Mississauga, Ontario
L5T 2L2
BUSINESS PHONE: 905.564.1500
DATE OF PREPARATION: January 1, 2009

2. COMPOSITION AND INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS#	% W/W	EXPOSURE LIMITS IN AIR					OTHER
			ACGIH		OSHA			
			TLV mg/m3	STEL mg/m3	PEL mg/m3	STEL mg/m3	IDLH mg/m3	
Sodium Bicarbonate	144-55-8	> 93	ACGIH TLV for particulates, Not Otherwise Classified = 10; OSHA PEL for Particulates Not Otherwise Regulated, Total Dust = 15, Respirable Fraction 5.					
Hydrated Alumina Silicate	1318-94-1	< 3	NE	NE	NE	NE	NE	NE
Attaclay	8031-18-3	< 5	NE	NE	NE	NE	NE	NE
Silicone Oil	63148-57-2	< 1	NE	NE	NE	NE	NE	NE

NE = Not Established, C = Ceiling Level See Section 16 for Definition of Terms Used

Note: All WHMIS required information is included. It is located in appropriate sections on the ANSI 1400.1-1996 format

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This mixture of dry chemicals poses little hazard. Mechanical irritation of the eyes is possible during the use and maintenance of the extinguishing units. Chronic inhalation of any particulate may damage the lungs.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: Over-exposure to this product may cause mild skin irritation, moderate eye irritation, and possible gastric distress. The product is not known to cause chronic illness.

INHALATION: Inhalation of this product should be avoided, but if it occurs, may cause mild irritation of the nose, throat, and other tissues of the respiratory system.

CONTACT WITH SKIN OR EYES: Contact of dust from this product with the eyes may cause moderate irritation, reddening of the affected eye, and discomfort.

SKIN ABSORPTION: No component of this product is known to absorb through the skin.



INGESTION: Ingestion of this product may cause gastric distress. Ingestion of this product can lead to systemic alkalosis.

INJECTION: While injection of this product is unlikely, it may occur as a result of a puncture or cut with a sharp object contaminated with the extinguishing agent. Mild symptoms, similar to those of skin irritation may occur.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. This product poses low, acute health risks.

ACUTE: This extinguishing material presents only a slight risk of causing acute health effects. If such effects occur, they will be in the form of mild irritation of the skin, nose, or throat and mild irritation of the eyes. If ingested, this product may cause an upset stomach.

CHRONIC: This product is not known to cause chronic illnesses or diseases.

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH	(BLUE)		0
FLAMMABILITY	(RED)		0
REACTIVITY	(YELLOW)		0
PROTECTIVE EQUIPMENT			
EYES	RESPIRATION	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications			

PART II What should I do if a hazardous situation occurs?

4. FIRST AID MEASURES

SKIN EXPOSURE: If spilled on skin, immediately begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. If reddening or irritation occurs, victim and rescuers must seek immediate medical attention.

EYE EXPOSURE: If chemical irritates eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes.

INHALATION: If chemical is inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. If reddening or irritation occurs, victim and rescuers must seek immediate medical attention.

INGESTION: If chemical is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTRE FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow.

If exposure causes obvious distress, victim(s) and rescuers must be taken for medical attention. Take copy of label and MSDS to physician or health professional with victim.

5. FIRE FIGHTING MEASURES

FLASH POINT, C (method): Not applicable

AUTOIGNITION TEMPERATURE, C: Not applicable

FLAMMABLE LIMITS (in air by volume %) Lower (LEL): Not applicable

FIRE EXTINGUISHING MATERIALS: None. This product is a fire extinguishing agent.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material may decompose and produce fumes and toxic gases including sulfur oxides, carbon dioxide and carbon monoxide.

Explosion Sensitivity to Mechanical Impact: Not sensitive

Explosion Sensitivity to Static Discharge: Not sensitive

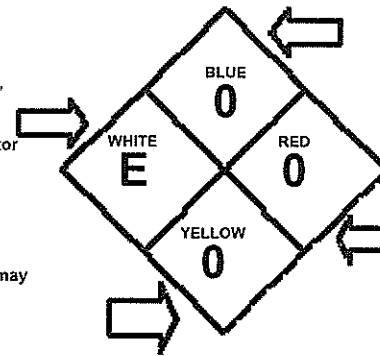
SPECIAL FIRE FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment.

Upper (LEL): Not applicable

PERSONAL PROTECTION A
Safety glasses
B Safety Glasses,
Gloves
C Safety Glasses,
Gloves, Apron
D Face Shield, Gloves,
Apron
E Safety Glasses,
Gloves, Respirator

REACTIVITY
4 May Detonate
3 Shock and Heat may
detonate
2 Violent Chemical
Change
1 Unstable if heated 0
Stable

NFPA RANKING



HEALTH HAZARD 4
Deadly
3 Extreme Danger 2
Hazardous
1 Slightly Hazardous 0
Normal Material

FIRE HAZARD
FLASH POINTS
4 Below 73 F 3
Below 100 F
2 Above 100 F, not
exceeding 200 F 1
Above 200F 0
Will not burn

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of spill, clear the affected area, protect people, and respond with trained personnel. If it is determined that exposure guidelines for nuisance particulates – 10mg/m3 (total particulates) or 5mg/m3 (respirable particulates) is exceeded, use

Level C: triple gloves (rubber gloves with nitrile gloves, over latex gloves), chemically resistant suit and boots, hard hat, and air purifying respirator with a HEPA filter. Sweep up the spilled solid and place all spill residue in a double plastic bag and seal. Dispose of in accordance with Federal, Provincial, and local hazardous waste disposal regulations (see Sections 13).

PART III How can I prevent hazardous situations from occurring?

7. HANDLING AND STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: Avoid getting chemicals ON YOU or IN YOU. Wash hands after handling chemicals. Do not eat or drink while handling chemicals or recharging fire extinguishers.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Avoid breathing dusts generated by this product.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment using soapy water before maintenance begins. Collect all rinsates and dispose of according to applicable Federal, Provincial, or local procedures.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERED CONTROLS: Use with adequate ventilation. Use a mechanical fan or vent area to outside.

RESPIRATORY PROTECTION: Respiratory protection is not expected to be needed. Maintain airborne contaminant concentrations below guidelines for nuisance particulates: 10 mg/m³ (total particulates) or 5 mg/m³ (respirable particulates). If respiratory protection is needed, use only protection authorized in 29CFR 1910.134, or applicable Provincial regulations. Use supplied air respiratory protection if oxygen levels are below 19.5%.

EYE PROTECTION: Safety glasses

HAND PROTECTION: Wear rubber gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 of this MSDS.

BODY PROTECTION: Use body protection appropriate for task.

9. PHYSICAL AND CHEMICAL PROPERTIES

VAPOR DENSITY: Not applicable **EVAPORATION RATE (n-BuAc=1):** Not applicable

SPECIFIC GRAVITY: Approximately 0.9 **MELTING POINT RANGE:** Decomposes

SOLUBILITY IN WATER: Not soluble. Water repellent coating **BOILING POINT:** Not applicable

VAPOR PRESSURE, mm Hg@20 C: Not applicable **pH (10% solution):** Approx. 8.3-9

APPEARANCE AND COLOUR: This material is a finely divided, white powder

HOW TO DETECT THIS SUBSTANCE (warning properties): This product does not have any specific warning properties.

10. STABILITY AND REACTIVITY

STABILITY: Stable

DECOMPOSITION PRODUCTS: Carbon monoxide and carbon dioxide

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong acids.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Incompatible materials

PART IV Is there any other useful information about this material?

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following data is available for components of this product greater than 1% by weight in concentration.

SODIUM BICARBONATE

Skin irritancy – human: 30 mg for 3 days mild irritation

Eye irritancy – rabbit: 100 mg for 30 seconds mild irritation TDLo

(intraperitoneal – mouse) 40 mg/kg teratogen

LD50 (oral, infant) 1260 mg/kg pulmonary and kidney damage

LD50 (oral, rat) = 4220 mg / kg

SUSPECTED CANCER AGENT: This product's ingredients are not found on the following lists: FEDERAL OSHA Z LIST, NTP,CAL/OSHA.

IRRITANCY OF PRODUCT: This product may cause mild skin and respiratory irritation and moderate eye irritancy.

SENSITIZATION TO THE PRODUCT: This product is not known to cause sensitization.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human system.

Mutagenicity: This product is not known to cause mutagenic effects

Teratogenicity: This product is not known to cause teratogenic effects

Reproductive Toxicity: This product is not known to cause reproductive toxicity effects

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Prolonged contact with this product may cause pre-existing dermatitis to become aggravated. Persons sensitive to pulmonary irritation upon exposure to high concentrations of dust should use appropriate engineering controls or respiratory protection when recharging fire extinguishers.

RECOMMENDATION TO PHYSICIANS: Treat patient symptoms. This product should not cause any notable clinical symptoms.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: No adverse environmental consequences are expected

EFFECT OF MATERIAL ON PLANTS OR ANIMALS: None currently known

EFFECT OF CHEMICAL ON AQUATIC LIFE: Not expected to harm aquatic life

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, Provincial, and local regulations. This chemical, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. Residue from fires extinguished with this material may be hazardous.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE US DEPARTMENT OF TRANSPORTATION

<u>PROPER SHIPPING NAME:</u>	Not applicable
<u>HAZARD CLASS NUMBER AND DESCRIPTION:</u>	Not applicable
<u>UN IDENTIFICATION NUMBER:</u>	Not applicable
<u>PACKING GROUP:</u>	Not applicable
<u>DOT LABEL(S) REQUIRED:</u>	Not applicable
<u>EMERGENCY RESPONSE GUIDE NUMBER:</u>	Not applicable
<u>MARINE POLLUTANT:</u>	Not applicable

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY TRANSPORT CANADA "TRANSPORTATION OF DANGEROUS GOODS" REGULATIONS.

15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: No component of this product is subject to the reporting requirements of Section 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

SARA Threshold Planning Quantity: Not applicable

TSCA INVENTORY STATUS: All components are listed on the TSCA inventory

CERCLA REPORTABLE QUANTITY (RO): Not applicable

OTHER FEDERAL REGULATIONS: Not applicable

STATE REGULATORY INFORMATION: Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska – Designated Toxic and Hazardous Substances: None
Massachusetts – Substance List: Mica Dust, Ammonium Sulfate
Pennsylvania – Hazardous Substance List: None

California – Permissible Exposure Limits for Chemical Contaminants: None
Minnesota – List of Hazardous Substances: None

Rhode Island - Hazardous Substance List: Mica Dust, Ammonium Sulfate
Florida- Substance List – Mica Dust, Ammonium Sulfate
Missouri – Employer Information / Toxic Substance List: None
Texas – Hazardous Substance List: None

Illinois – Toxic Substance List – None.
North Dakota – List of Hazardous Chemicals, Reportable Quantities. None
West Virginia – Hazardous Substance List: None
Kansas – Section 302/313 List: None
Wisconsin – Toxic and Hazardous Substance: None.

CALIFORNIA PROPOSITION 65: No component is listed on the California Proposition 65 lists.

Labelling: CAUTION! May cause skin or eye irritation. Avoid contact with skin or eyes. In the event of contact, rinse affected part of your body with water for at least 15 minutes. Seek medical attention if reddening or irritation occurs. Keep container tightly closed. Store in a cool, dry location away from incompatible materials. Clean up spills promptly. This product will not contribute to the intensity of a fire.

TARGET ORGANS: Skin, eyes

WHIMS SYMBOLS: Not applicable

16. OTHER INFORMATION

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Steel Fire Equipment Ltd. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Steel Fire Equipment Ltd. assumes no responsibility for injury to the vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore vendee assumes the risk in his use of the material.

DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS# - This is the chemical abstract number which uniquely identifies each constituent. It is used for computer related searching.

EXPOSURE LIMITS IN AIR:

ACGIH – American Conference of Government Industrial Hygienists, a professional association which establishes exposure limits.

TLV – Threshold limit value – an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effects. The duration must be considered, including the 8 hour Time Weighted Average (TWA), the 15 minute Short Term Exposure Limit, and the instantaneous Ceiling Level. Skin absorption effects must also be considered.

OSHA – US Occupational Safety and Health Administration

PEL – Permissible Exposure Limit – this exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The **IDLH** Immediately Dangerous to Life and Health Level represents a concentration from which one can escape within 30 minutes without suffering escape preventing or permanent injury. The **DFG** – **MAK** is the Republic of Germany's Maximum Exposure Level, similar to the US PEL. **NIOSH** is the National Institute of Occupational Safety and Health which is the research arm of the US Occupational Safety and Health Administration (OSHA). **NIOSH** issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established an entry of **NE** is made for reference.

FLAMMABILITY LIMITS IN AIR – Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). **LEL** – the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** – the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION

Possible health hazards are derived from human data, animal studies or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are:

LD50 – Lethal Dose (solids and liquids) which kills 50% of the exposed animals

LC50 – Lethal Concentration (gasses) which kills 50% of the exposed animals

Ppm – concentration expressed in parts of material per million parts of air or water

Mg/m³ – concentration expressed in weight of substance per volume of air

Mg/kg – quantity of material, by weight, administered to a test subject, based on their body weight in kg.

Data from several sources are used to evaluate the cancer causing potential of the material. The sources are:

IARC – the International Agency for Research on Cancer

NTP – the National Toxicology Program

RTECS – The Registry of Toxic Effects of Chemical Substances, OSHA and CAL/OSHA

IARC and **NTP** rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Sub rankings (2A, 2B, etc) are also used. Other measures of toxicity include:

TDLo – the lowest dose to cause a symptom

TD₀, **LDLo**, and **LDo** – the lowest dose to cause death.

REGULATORY INFORMATION

This section explains the impact of various laws and regulations on the material.

EPA is the US Environmental Protection Agency
WHMIS is the Canadian Workplace Hazard Information System

DOT and CTC are the US Department of Transportation and the Canadian Transportation Commission, respectively.

SARA – Superfund Amendments and Reauthorization Act

TSCA – The toxic Substance Control Act

California Proposition 65 – California Safe Drinking Water Act

CERCLA – the Comprehensive Environmental Response, Compensation and Liability Act

This section also includes information on the precautionary warnings which appear on the materials package label.

FIRE EXTINGUISHER
Cautions and Warnings

Fire extinguishers are designed and produced for the specific purpose of providing a safe and efficient safety tool to be used only in the fighting of fires. Improper or careless use may cause severe bodily injury and / or property damage.

Contents are under pressure which is necessary to deliver the contained extinguishing agent to the fire source. Please take note of the following safety information:

- Contents under pressure. Do not puncture, incinerate, or discharge into another person's face
- Do not store at high temperatures above 120 degrees Fahrenheit or 49 degrees Celsius
- **Keep away from children**
- Avoid inhaling the extinguishing agent. Avoid inhaling smoke and fumes – all fires release toxic substances that are harmful. **DO NOT** remain in a closed area after use; evacuate the area immediately and ventilate thoroughly before re-entering.
- Although extinguishing agents are non toxic when used properly, contact with them may cause irritation to eyes, nose, throat, and other allergic symptoms.

Refer to specific extinguishing agent material safety data sheet for additional information.

**AVOID INHALING SMOKE AND FUMES; ALL FIRES RELEASE TOXIC
SUBSTANCES THAT ARE HARMFUL. DO NOT REMAIN IN CLOSED AREA
AFTER USE. VENTILATE CLOSED AREAS BEFORE RETURNING.**