Safety Data Sheet

Issue date 04-Jun-2018 **Revision date** 04-Jun-2018 **Revision Number** 1

1. IDENTIFICATION

Product identification

Product identifier	Certanium® 889 Cast Iron Stick Rod Electrode
Other means of identification	P12003
Recommended use	Electrode
Restrictions on use	Covered electrode for Shielded Metal Arc Welding (SMAW). These items are only intended for normal welding purposes.

Supplier

Corporate Headquarters:
Cronatron, A Lawson Brand
Lawson Products, Inc.
8770 W.Bryn Mawr Ave.- Suite 900
Chicago, IL 60631
1-866-529-7664

Canadian Distribution Center:
Lawson Canada
7315 Rapistan Court
Mississauga, ON L5N 5Z4
(800) 323-5922

24 Hour Emergency Phone Number (888) 426-4851 (Prosar)

2. HAZARD(S) IDENTIFICATION

Hazard Classification This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

Symbol

Signal word WARNING

Hazard statements

H317 - May cause an allergic skin reaction
H351 - Suspected of causing cancer
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary statements

General

P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children
P103 - Read label before use.

Prevention

P285 - In case of inadequate ventilation wear respiratory protection
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/protective clothing and eye/face protection
P260 - Do not breathe dust/fume/gas/mist/vapors/spray

Response

General

P314 - Get medical advice/attention if you feel unwell.

Storage

Not available

Disposal

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Hazard(s) Not Otherwise Classified (HNOC)

None known.

Physical Hazards Not Otherwise Classified (PHNOC)

When this product is used in a welding process the most important hazards are: heat, radiation, electric shock and welding fumes.

Unknown acute toxicity

None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition

Mixture.

Chemical name	CAS-No	Weight %
Nickel	7440-02-0	30-60
Iron	7439-89-6	15-40
Strontium Carbonate	1633-05-2	5-10
Sodium Silicate	1344-09-8	1-5
Graphite	7782-42-5	1-5
Calcium Fluoride	7789-75-5	1-5
Calcium Carbonate	1317-65-3	1-5
Black Iron Oxide - Magnetite	1309-38-2	1-5
Aluminum	7429-90-5	1-5

4. FIRST-AID MEASURES

Necessary first-aid measures

General Information

Call for medical aid. Employ First Aid techniques recommended by the Red Cross.

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Administer artificial respiration if not breathing. If breathing has stopped, contact emergency medical services immediately.

Ingestion

Seek medical attention.

Skin contact

Wash affected area with soap and water to remove dust or particles. If rash develops, see a physician. For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist.

Eye contact	Flush with a large amount of fresh water for at least 15 minutes to remove dusts or fumes. For radiation burns due to arc flash, see physician.
Most important symptoms (acute)	Not available.
Most important symptoms (over-exposure)	Not available.
Indication of any immediate medical attention and special treatment needed	In case of ELECTRIC SHOCK: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live wire parts or wires. If breathing has stopped, begin artificial respiration and obtain medical assistance immediately. If no detectable pulse, begin Cardiopulmonary Resuscitation. (CPR) and immediately call for medical aid.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Use the extinguishing media recommended for the burning material and fire situation.
Unsuitable extinguishing media	Not available.
Specific hazards	Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding. These products as shipped are non-hazardous, non-flammable, non-explosive, and non-reactive.
Special protective equipment for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Reasonably expected fume constituents of the fume could include complex oxides of iron and nickel.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Solid objects may be picked up and placed in a container. Make sure the solid objects are at room temperature before handling. Gloves should be worn when handling to prevent cuts.
Methods and materials for containment and cleaning up	Do not flush residue into waterways.

7. HANDLING AND STORAGE

Precautions for safe handling	Before using this product, contact your doctor to determine if exposure to this product or use of this product will aggravate your medical conditions. Handle with care to avoid cuts and prevent the wire from piercing the skin. Wear gloves. Some individuals may develop an allergic reaction to certain materials. Keep all warning and identification labels on the product. Avoid exposure to dust and do not ingest. Gloves should be worn when handling to prevent cuts. Warn wearers of heart pacemakers or other medical electronic equipment vital to life that welding operations may impede the function of the medical device. Handle with care to avoid damaging the product and keep product dry.
Conditions for safe storage, including any incompatibilities	Keep material sealed and dry before use. After using, keep remaining product sealed and dry and do not remove product identification label or warning label. Do not remove product identification label or warning label.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	OSHA PEL (TWA)	ACGIH OEL (TWA)	NIOSH - TWA
Nickel	1 mg/m³ TWA	1.5 mg/m³ TWA	0.015 mg/m³ TWA 0.015 mg/m³ TWA
Iron	-	-	-
Strontium Carbonate	-	-	-
Sodium Silicate	-	-	-
Graphite	15 mg/m³ TWA 5 mg/m³ TWA	2 mg/m³ TWA	2.5 mg/m³ TWA
Calcium Fluoride	2.5 mg/m³ TWA	2.5 mg/m³ TWA	-
Calcium Carbonate	15 mg/m³ TWA 5 mg/m³ TWA	-	10 mg/m³ TWA 5 mg/m³ TWA
Black Iron Oxide - Magnetite	-	1 mg/m³ TWA	1 mg/m³ TWA
Aluminum	15 mg/m³ TWA 5 mg/m³ TWA	1 mg/m³ TWA	10 mg/m³ TWA 5 mg/m³ TWA 5 mg/m³ TWA 5 mg/m³ TWA

Appropriate engineering controls

Adequate ventilation should be provided to keep exposure levels below current acceptable exposure limits. Read and understand the manufacturer's instructions and precautionary label on this product. Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the workers breathing zone and the general area. Train welder to keep head out of fumes. Monitor fume levels and do not exceed permissible exposure limits or values. Wear head, hand and body protection which help prevent injury from radiation, sparks, heat, and electrical shock. See ANSI Z49.1. When the electrode is consumed, the fume and gas decomposition products are different in percent and form from the ingredients listed in Section 3. Fume and decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction or oxidation of the wire or rod plus those from the base metal and coating. These components are virtually always present as complex oxides and not as metals. Reasonably expected fume constituents of the fume could include complex oxides of iron and nickel.

Individual protection measures, such as personal protective equipment

Eye protection

Wear a helmet or face shield with a filter lens of shade 12 or darker. Provide screens and flash goggles to shield others.

Skin and body protection

Wear head, hand, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At a minimum, this includes welders' gloves and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate themselves from work and ground, especially if clothing and gloves are wet.

Respiratory protection

Use respirable fume respirator or air supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below the TLV's.

Hygiene measures

Do not eat, drink or smoke when using this product.

Canadian Province Occupational Exposure Limits

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick - OEL	Newfoundland & Labrador - OEL	Nova Scotia - OEL	Ontario OEL	Prince Edward Island - OEL	Quebec OEL	Saskatchewan - OEL
Nickel	1.5 mg/m³ TWA	0.05 mg/m³ TWA	1.5 mg/m³ TWA	1 mg/m³ TWA	1.5 mg/m³ TWA	1.5 mg/m³ TWA	1 mg/m³ TWA	1.5 mg/m³ TWA	1 mg/m³ TWAEV	3 mg/m³ STEL 1.5 mg/m³ TWA

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick - OEL	Newfoundland & Labrador - OEL	Nova Scotia - OEL	Ontario OEL	Prince Edward Island - OEL	Quebec OEL	Saskatchewan - OEL
Iron	-	-	-	-	-	-	-	-	-	-
Strontium Carbonate	-	-	-	-	-	-	-	-	-	-
Sodium Silicate	-	-	-	-	-	-	-	-	-	-
Graphite	2 mg/m³ TWA	2 mg/m³ TWA	2 mg/m³ TWA	2 mg/m³ TWA	2 mg/m³ TWA	2 mg/m³ TWA	2 mg/m³ TWA	2 mg/m³ TWA	2 mg/m³ TWAEV	4 mg/m³ STEL 2 mg/m³ TWA
Calcium Fluoride	2.5 mg/m³ TWA	2.5 mg/m³ TWA	2.5 mg/m³ TWA	2.5 mg/m³ TWA	2.5 mg/m³ TWA	2.5 mg/m³ TWA	2.5 mg/m³ TWA	2.5 mg/m³ TWA	2.5 mg/m³ TWAEV	5 mg/m³ STEL 2.5 mg/m³ TWA
Calcium Carbonate	10 mg/m³ TWA	20 mg/m³ STEL 10 mg/m³ TWA 3 mg/m³ TWA	-	10 mg/m³ TWA	-	-	-	-	10 mg/m³ TWAEV	20 mg/m³ STEL 10 mg/m³ TWA
Black Iron Oxide - Magnetite	1 mg/m³ TWA	2 mg/m³ STEL 1 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	1.0 mg/m³ TWAEV	3 mg/m³ STEL 1 mg/m³ TWA
Aluminum	10 mg/m³ TWA 5 mg/m³ TWA	1.0 mg/m³ TWA	1 mg/m³ TWA	10 mg/m³ TWA 5 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	1 mg/m³ TWA	10 mg/m³ TWAEV 5 mg/m³ TWAEV 5 mg/m³ TWAEV	20 mg/m³ STEL 10 mg/m³ STEL 10 mg/m³ TWA 5 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state Solid

Odor None

Odor threshold Not available

pH Not applicable

Melting point/range °C >1000

Melting point/range °F >1800

Boiling point/range °C Not available

Boiling point/range °F Not available

Flash point °C / °F Not available

Evaporation rate Not available

Flammability (Solid, Gas) Not available

Lower explosion limit Not available

Upper explosion limit Not available

Vapor pressure Not applicable

Vapor density	Not available
Relative density	Not available
Solubility	Not available
Partition coefficient (n-octanol/water)	Not available
Autoignition temperature °C	Not available
Autoignition temperature °F	Not available
Decomposition temperature °C	Not available
Decomposition temperature °F	Not available
Viscosity	Not available

10. STABILITY AND REACTIVITY

Reactivity	Contact with chemical substances like acids or strong bases could cause generation of gas.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Not available.
Conditions to avoid	Not available.
Incompatible materials	Contact with chemical substances like acids or strong bases could cause generation of gas.
Hazardous decomposition products	Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. Refer to applicable national exposure limits for the fume compounds. Reasonably expected fume constituents of the fume could include complex oxides of iron and nickel. The employer should contact an occupational health professional for doing fume monitoring to determine fumes emitted and to ensure compliance to the applicable country limits. Other country exposure limits may be different and the appropriate country standards should be used.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	Dermal. Inhalation. Eyes.
Symptoms	Welding fumes cannot be classified simply. Their composition and quantity are dependent upon the metal being welded, the process, procedures and electrodes being used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include:. Coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and the amount of ventilation, position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (group 2B). Pre-existing respiratory or allergic conditions may be aggravated in some individuals (i.e. asthma, emphysema). Overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat or eyes. Primary route of entry is the respiratory system. Iron, iron oxide, manganese: remove from overexposure and apply artificial respiration if needed. Fluoride

compounds produced may cause eye and skin burns, and pulmonary edema bronchitis. Exposure to extremely high levels of fluorides can cause abdominal pain, diarrhea, muscular weakness, and convulsions. In extreme cases it can cause loss of consciousness and death. Nickel, Nickel oxide: May cause metallic taste, nausea, tightness in chest, fever, and allergic reactions. Ingestion not an expected route of entry, but if ingested product could cause serious injury. Arc Rays can injure eyes. Spatter and molten metal can cause burn injuries. Electric shock can kill. Skin cancer has been reported from arc radiation. May cause an allergic skin reaction. Warn wearers of heart pacemakers or other medical electronic equipment vital to life that welding operations may impede the function of the medical device.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Long term exposure may lead to siderosis (iron deposits in lungs) and is believed by some investigators to affect pulmonary functions. Primary route of entry is the respiratory system. Long term overexposure to iron fumes can cause deposits of iron in the lungs (siderosis). Lungs will clear in time when exposure to iron and its compounds cease. Overexposure to fluorides can cause serious bone erosion, excessive calcification of the bone and calcification of the ribs, pelvis, and spinal column. May cause skin rash. Long term overexposure to nickel compounds may cause lung fibrosis, edema or pneumoconiosis. May cause skin rash.

Numerical measures of toxicity

Chemical name	Inhalation LC50:	Dermal LD50:	Oral LD50:
Nickel	-	-	> 9000 mg/kg (Rat)
Iron	-	-	= 30 g/kg (Rat)
Strontium Carbonate	-	-	> 14 g/kg (Rat)
Sodium Silicate	-	> 4640 mg/kg (Rabbit)	= 1960 mg/kg (Rat)
Graphite	-	-	> 10000 mg/kg (Rat)
Calcium Fluoride	-	-	= 4250 mg/kg (Rat)
Calcium Carbonate	-	-	-
Black Iron Oxide - Magnetite	-	-	> 10000 mg/kg (Rat)
Aluminum	-	-	-

ATEmix (dermal) Not available

ATEmix (oral) Not available

ATEmix (inhalation-gas) Not available

ATEmix (inhalation-vapor) Not available

ATEmix (inhalation-dust/mist) Not available

Carcinogenicity

Chemical name	ACGIH OEL - Carcinogens	IARC	OSHA RTK Carcinogens	NTP
Nickel	-	Group 1 Group 2B	Listed	Known Reasonably Anticipated
Iron	-	-	-	-
Strontium Carbonate	-	-	-	-
Sodium Silicate	-	-	-	-
Graphite	-	-	-	-
Calcium Fluoride	A4	Group 3	-	-
Calcium Carbonate	-	-	-	-

Chemical name	ACGIH OEL - Carcinogens	IARC	OSHA RTK Carcinogens	NTP
Black Iron Oxide - Magnetite	-	-	-	-
Aluminum	A4	-	-	-

Canadian Province carcinogenicity limits

Chemical name	Alberta - Carcinogen	British Columbia - Carcinogen	Manitoba - Carcinogen	New Brunswick - Carcinogen	Nova Scotia - Carcinogen	Quebec - Carcinogen
Nickel	-	IARC 2B	ACGIH A5	-	ACGIH A5	-
Iron	-	-	-	-	-	-
Strontium Carbonate	-	-	-	-	-	-
Sodium Silicate	-	-	-	-	-	-
Graphite	-	-	-	-	-	-
Calcium Fluoride	-	-	ACGIH A4	ACGIH A4	ACGIH A4	-
Calcium Carbonate	-	-	-	-	-	-
Black Iron Oxide - Magnetite	-	-	-	-	-	-
Aluminum	-	-	ACGIH A4	-	ACGIH A4	-

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish
Nickel	0.18: 72 h Pseudokirchneriella subcapitata mg/L EC50 0.174 - 0.311: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	1.3: 96 h Cyprinus carpio mg/L LC50 semi-static 100: 96 h Brachydanio rerio mg/L LC50 10.4: 96 h Cyprinus carpio mg/L LC50 static
Iron	-	13.6: 96 h Morone saxatilis mg/L LC50 static
Strontium Carbonate	-	-
Sodium Silicate	-	301 - 478: 96 h Lepomis macrochirus mg/L LC50 3185: 96 h Brachydanio rerio mg/L LC50 semi-static
Graphite	-	-
Calcium Fluoride	-	-
Calcium Carbonate	-	-
Black Iron Oxide - Magnetite	-	-
Aluminum	-	-

Persistence and degradability Not available.

Bioaccumulation

Chemical name	CAS-No	Partition coefficient (log Kow)
Nickel 7440-02-0	7440-02-0	-
Iron 7439-89-6	7439-89-6	-
Strontium Carbonate 1633-05-2	1633-05-2	-

Chemical name	CAS-No	Partition coefficient (log Kow)
Sodium Silicate 1344-09-8	1344-09-8	-
Graphite 7782-42-5	7782-42-5	-
Calcium Fluoride 7789-75-5	7789-75-5	-
Calcium Carbonate 1317-65-3	1317-65-3	-
Black Iron Oxide - Magnetite 1309-38-2	1309-38-2	-
Aluminum 7429-90-5	7429-90-5	-

Mobility in soil Not available.

Other adverse effects Welding consumables and materials can degrade into the components used to manufacture the product. Avoid exposure to conditions that could lead to accumulation in soils and groundwater.

13. DISPOSAL CONSIDERATIONS

Disposal information Dispose of any grinding dust and waste resides in accordance with EPA or local regulations. Plastic materials, cardboard, and wire can be recycled. Do not flush residue into waterways.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORTATION INFORMATION

Shipping Descriptions

DOT
Proper shipping name Not regulated

TDG
Proper shipping name Not regulated

IATA
Proper shipping name Not regulated

IMDG/IMO
Proper shipping name Not regulated

Marine Pollutants

Chemical name	CAS-No	USDOT Marine Pollutant	Canada TDG Marine Pollutant	IMDG Marine Pollutant
Nickel	7440-02-0	-	-	-
Iron	7439-89-6	-	-	-
Strontium Carbonate	1633-05-2	-	-	-
Sodium Silicate	1344-09-8	-	-	-
Graphite	7782-42-5	-	-	-
Calcium Fluoride	7789-75-5	-	-	-
Calcium Carbonate	1317-65-3	-	-	-
Black Iron Oxide - Magnetite	1309-38-2	-	-	-
Aluminum	7429-90-5	-	-	-

15. REGULATORY INFORMATION

State regulations

U.S. state Right-to-Know regulations

Chemical name	CAS-No	Massachusetts - RTK	New Jersey - RTK	Pennsylvania - RTK
Nickel	7440-02-0	X	X	X
Iron	7439-89-6	-	-	-
Strontium Carbonate	1633-05-2	-	-	-
Sodium Silicate	1344-09-8	-	-	-
Graphite	7782-42-5	X	X	X
Calcium Fluoride	7789-75-5	-	X	-
Calcium Carbonate	1317-65-3	X	X	X
Black Iron Oxide - Magnetite	1309-38-2	-	-	-
Aluminum	7429-90-5	X	X	X

California Prop. 65

Chemical name	CAS-No	California Prop. 65
Nickel	7440-02-0	Carcinogen
Iron	7439-89-6	-
Strontium Carbonate	1633-05-2	-
Sodium Silicate	1344-09-8	-
Graphite	7782-42-5	-
Calcium Fluoride	7789-75-5	-
Calcium Carbonate	1317-65-3	-
Black Iron Oxide - Magnetite	1309-38-2	-
Aluminum	7429-90-5	-

California Proposition 65 — Warning: This product contains or produces a chemical known to the State of California to cause birth defects (or other reproductive harm) and cancer

U.S. Federal Regulations

US EPA SARA 313

Chemical name	CAS-No	CERCLA/SARA Hazardous Substances RQ	SARA 313 - Threshold Values
Nickel	7440-02-0	100 lb 45.4 kg	0.1 %
Iron	7439-89-6	-	-
Strontium Carbonate	1633-05-2	-	-
Sodium Silicate	1344-09-8	-	-
Graphite	7782-42-5	-	-
Calcium Fluoride	7789-75-5	-	-
Calcium Carbonate	1317-65-3	-	-
Black Iron Oxide - Magnetite	1309-38-2	-	-
Aluminum	7429-90-5	-	1.0 %

US EPA SARA 311/312 hazardous categorization Not available

International inventories All components of this product are listed on the following inventories: U.S.A. (TSCA 8(b)), Canada (DSL/NDSL) or are exempt.

Chemical name	DSL/NDSL	Inventory - United States - Section 8(b) Inventory (TSCA)	U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification
Nickel	X	X	-
Iron	X	X	-
Strontium Carbonate	X	X	-
Sodium Silicate	X	X	-
Graphite	X	X	-
Calcium Fluoride	X	X	-
Calcium Carbonate	X	X	-
Black Iron Oxide - Magnetite	X	X	-
Aluminum	X	X	-

Legend X - Listed

16. OTHER INFORMATION

NFPA

Health 2
Flammability 0
Instability 0

HMIS

Health 2
Flammability 0
Physical hazards 0

Notice: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA).

Prepared by Regulatory Affairs

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Revision note

Key to abbreviations

ACGIH (American Conference of Governmental Industrial Hygienists)
ATE (Average Toxicity Estimate)
DSL/NDSL (Domestic Substance List/Non-Domestic Substance List)
HMIS (Hazardous Materials Identification System)
IARC (International Agency for Research on Cancer)
IATA (International Air Transport Association)
IMDG/IMO (International Maritime Dangerous Goods/International Maritime Orgnaization)
NFPA (National Fire Protection Association)
NTP (National Toxicology Program)

OEL (Occupational Exposure Level)
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
PEL (Permissible Exposure Limit)
TSCA (Toxic Substance Control Act)
USEPA (United States Environmental Protection Agency)

Disclaimer

The information accumulated herein is believed to be accurate, but is not warranted to be, whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

End of Safety Data Sheet