



Type	Document Name (optional)	
Safety Data Sheet	580-08501 Soil Kit Standards containing Nickel Compounds	January 13, 2014

Safety Data Sheets for XRF Soil Standards

Safety Data Sheets (SDS) are a requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200.

This Hazard Communication Standard does not apply to anything defined by OSHA as an "article". OSHA has defined "article" as a manufactured item other than a fluid or particle which:

- Is formed to a specific shape or design during manufacture
- Has end use function(s) dependent in whole or in part upon its shape or design during end use
- Under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

Because all of our soil standards are defined as "articles", they are exempt from the requirements of the Hazard Communication Standard, labeling and Safety Data Sheets are technically not required. Thermo Fisher PAI feels it is prudent that safety information of the contents is given to the end user. A description of the manufacturing of these articles is listed in Section 1 of the Safety Data Sheet for the inner contents of these soil standards.

There are also rock samples in the 580-08501 Mining Kit which are also considered articles. One of these is Galena which is a form of lead sulfide. Lead sulfide is a less hazardous form of Lead as compared to Lead Oxide and Lead Acetate. The National Center for Environmental Health of the Center of Disease Control has indicated that skin contact with Galena is not hazardous. However, to avoid any potential ingestion, people should wear nitrile or latex gloves while handling these samples and wash their hands with soap and water after removing these gloves.

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier

Part #	Standard Name
180-710	NCS DC73010 Chromium Ore
180-711	ECRM 610-1 Iron Ore Powder
180-720	GBM 310-12 Multi-metal Ore Powder
180-721	CAN PTC-1B Noble Metal Ore Powder

Product Name and Part Numbers: These soil samples are part of soil sample kit 580-08501

These standards consist of 10g of various soils or ores. The standards consist of a three part sample cup consisting of two rings and a cap. The bottom ring and top cap snap into the middle ring. Inserted between the bottom and middle ring is a sheet of Mylar which allows X-rays to penetrate the sample. On top of the mylar sheet within the middle ring is the soil/silica material covered in the Safety Data Sheet. After filling, the top cap is placed on the cover. Per normal and proper use of these standards in XRF calibration, there should be minute to no exposure to the materials within this soil/ore cup.

Manufacturer/Supplier:

Thermo Scientific Portable Analytical Instruments
2 Radcliff Road
Tewksbury, MA 01876
Phone: +1 978-670-7460
Fax: +1 978-670-7430
www.thermoscientific.com/pai

Section 2: Hazard Identification

Classification of the substance or mixture:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Carcinogenicity (Category 2) H351
Specific target organ toxicity – repeated exposure, Inhalation (Category 2), H373
Skin Sensitizer (Category 1) H317

GHS label elements, including precautionary statements

Pictogram



Signal Word

DANGER

Hazard Statement(s)

H351	Suspected of Causing Cancer
H373	May cause damage to organs through prolonged or repeated exposure if inhaled
H340	Suspected of causing genetic defects
H317	May cause an allergic skin reaction

Precautionary Statement(s)

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood
P260	Do not breathe/dust/fume/gas/mist/vapors/spray
P272	Contaminated clothing must not be allowed out of the workplace
P281	Use personal protective equipment as required
P308+P313	IF exposed or concerned: Get medical advice/attention
P363	Wash contaminated clothing before reuse
P405	Store locked up
P501	Dispose of contents/container in accordance with local/regional/national/international regulations

Section 3: Composition/Information on Ingredients

Substances: Soil/Ore Calibration Standards Containing Silicon Dioxide and Naturally Occurring Nickel Compounds.

Synonyms: Silica/ Quartz/ Sand/Cristobalite/

Formula: O₂Si Molecular Weight: 60.08 g/mol

CAS-No. : 14808-60-7, various for Nickel Compounds

EC-No. : 238-878-4, various for Nickel Compounds

Hazardous Components

Component	Classification	Concentration
Silicon Dioxide Naturally Occurring Nickel Minerals (Pentlandite or Millerite)	Carc.1B STOT RE 2; H351, H373	0.3-71.38%
	STOT RE 2, Skin Sensitizer 1, Carcinogen 1A Mutagen 2, H351, H357, H317, H340	0.18-11.3%

These samples may contain less than 0.1% of various compounds of Lead, Arsenic, Selenium, and other heavy metals. Chromium ore contains over 10% of non-hazardous naturally occurring trivalent chromium. Please consult the appropriate certification statement of the materials, when disposing these soil standards as waste.

Section 4: First Aid Measures

Inhalation: Bring exposed personnel to fresh air and seek medic

Skin Contact: Immediately wash with water and soap and rinse thoroughly. Seek medical advice if irritation occurs.

After eye contact: Rinse opened eye for fifteen minutes under running water or eyewash. Seek medical advice

After ingestion: Seek medical treatment if adverse effects occur

Section 5: Fire Fighting Measures

Extinguishing Media

Suitable Extinguishing Agents: Dry Chemical, Carbon Dioxide

Special Hazards during fire

If this product is involved in a fire the following can be release:

Silicon Dioxide

Nickel Oxides

Chromium (III) Oxides

Advice for Firefighters

Protective Equipment: Wear SCBA respirator and fully protective impervious suit.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

Wear appropriate protective equipment while cleaning up spills: safety glasses, nitrile gloves, and protective clothing

Do not sweep material. Use wet cleaning methods or HEPA filtered vacuum. Dispose spilled material and contaminated clean-up material per local regulations.

Section 7: Handling and Storage

Handling:

Keep container tightly sealed

Store in cool, dry place in tightly closed containers

Ensure good ventilation in the workplace

Open and handle container with care

Storage:

Keep container tightly sealed

Store in cool dry place with container orientated upright.

Section 8: Exposure Controls / Personal Protection

Ingredients with workplace control parameters:

Components	OSHA PEL	NIOSH REL	ACGIH TLV
Silicon oxide 14808-60-7	See Quartz listing	0.05 mg/m ³ (respirable dust)	0.025 mg/m ³ (respirable fraction)
Nickel and its compounds other than Nickel Carbonyl in minerals such as Pentlandite or Millerite	1 mg/ m ³	0.015 mg/ m ³	1.5 mg/ m ³

Exposure Controls:

Personal Protective Equipment and Protective Measures

Though not required for normal use of soil standards, protective equipment such as eye protection, gloves, and protective clothing should be worn while cleaning up any spilled material.

The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately Wash hands before breaks and at the end of work.

Section 9: Physical and Chemical Properties

Form:	Powder, granules, soil	Color:	Various shades of brown black and grey
Odor:	None	Odor Threshold:	N/A
Freezing Point:	N/A	Melting Point:	N/A
Boiling Point:	N/A	Flashpoint:	N/A
Evaporation Rate:	N/A	Flammability:	Non-Flammable
Explosive Limits:	None	Vapor Pressure:	N/A
Vapor Density:	N/A	Relative Density:	N/A
Solubility:	N/A	Partition Coefficient: (n-octanol/water):	N/A
Autoignition Temperature:	N/A	Decomposition Temperature:	N/A
Viscosity	N/A		

Section 10: Stability and Reactivity

Reactivity: Stable at normal temperature and pressure

Chemical Stability: Stable at normal temperatures and pressures

Conditions to be avoided: None if used and stored according to specifications

Possibility of hazardous reactions: No Dangerous Reactions known

Incompatible materials: Fluorine, Oxygen difluoride, Chlorine trifluoride and all acids

Hazardous Decomposition products: Silicon oxide, Hydrogen sulfide, Chromium Oxides and oxides of carbon, nitrogen and sulfur

Section 11: Toxicological Information

Information on toxicological effects

Acute toxicity

Oral: data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity

Limited evidence of carcinogenicity in human studies.

IARC: 1 - Group 1: Carcinogenic to humans (Quartz and Nickel Compounds)

ACGIH:

- A5 (not suspected as a human carcinogen) for metallic nickel,
- A4 *not classifiable as a human carcinogen) for soluble nickel,
- A1 (confirmed human carcinogen) for insoluble nickel,
- A1 for nickel subsulfide

NTP: Known to be human carcinogen (Quartz)

Reproductive toxicity: no data available

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure:

Inhalation - May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: no data available

Additional Information: RTECS: VV7330000

Prolonged inhalation of crystalline silica may result in silicosis, a disabling pulmonary fibrosis characterized by fibrotic changes and miliary nodules in the lungs, a dry cough, shortness of breath, emphysema, decreased chest expansion, and increased susceptibility to tuberculosis. In advanced stages, loss of appetite, pleuritic pain, and total incapacity to work. Advanced silicosis may result in death due to cardiac failure or destruction of lung tissue. Crystalline silica is classified as group 1 "known to be carcinogenic to humans" by IARC and "sufficient evidence" of carcinogenicity by the NTP., The chronic health risks are associated with respirable particles of 3-4 um over protracted periods of time. Currently, there is a limited understanding of the mechanisms of quartz toxicity, including its mechanisms for lung carcinogenicity. Additional studies are needed to determine whether the cell transforming activity of quartz is related to its carcinogenic potential.

Liver - Irregularities - Based on Human Evidence

Section 12: Ecological Information

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects: no data available

Section 13: Disposal Considerations

Waste treatment methods

Product: Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging: Dispose of as unused product.

Section 14: Transport Information

DOT (US): Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

Section 15: Regulatory Information

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This Material contains at least 0.1% of Nickel Compounds Category N495 under SARA 313

SARA 311/312 Hazards: Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No	Revision Date
Quartz	14808-60-7	4/1/1994

Pennsylvania Right To Know Components

	CAS-No	Revision Date
Quartz	14808-60-7	4/1/1994

New Jersey Right To Know Components

	CAS-No	Revision Date
Quartz	14808-60-7	4/1/1994
Nickel Compounds	Various	4/1/1994



California Prop.65 Components

WARNING! This product contains a chemical known in the state of California to cause Cancer. (Quartz and Nickel Compounds)

CAS-No
14808-60-7

Revision
Date
4/1/1994

Section 16: Product and Company Identification

HMIS Rating

Health hazard: 0

Chronic Health Hazard: *

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 0

Fire Hazard: 0

Reactivity Hazard: 0

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Thermo Fisher Scientific and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.