

# SAFETY DATA SHEET

Version: 3.0  
Date of Issue: 04 May 2017  
Date of First Issue: 24 August 2012


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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 1: IDENTIFICATION

Product identifier used on the label	H Cement	
Other means of identification	Not applicable	
<b>Recommended use of the chemical and restrictions on use</b>		
Recommended use	PC14 Metal surface treatment products, including galvanic and electroplating products	
Restrictions on use	For professional users only.	
<b>Details of the supplier of the safety data sheet</b>		
Supplier	VISHAY MEASUREMENTS GROUP, INC.	
Address of Supplier	Post Office Box 27777 Raleigh, NC 27611 USA	
Telephone	+1 919-365-3800	
Fax	+1 919-365-3945	
E-Mail (competent person)	<a href="mailto:mm.us@vishaypg.com">mm.us@vishaypg.com</a>	
<b>Emergency telephone number</b>	1-800-424-9300	CHEMTREC (24 hours)

## SECTION 2: HAZARD(S) IDENTIFICATION

<b>Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200</b>			
Physical hazards	Metal Corrosive, Category 1		
Health hazards	Acute toxicity, Category 4 – Oral		
	Acute toxicity, Category 4 – Dermal		
	Acute toxicity, Category 4 – Inhalation		
	Skin Corrosion/Irritation, Category 2		
	Skin Sensitisation, Category 1		
	Eye Damage, Category 1		
	Respiratory sensitization, Category 1		
	Reproductive toxicity, Category 2		
	Germ cell mutagenicity, Category 1		
	Carcinogen, Category 1A		
	Specific target organ toxicity — repeated exposure, Category 1		
	Specific target organ toxicity — single exposure, Category 3		
Environmental hazards	Hazardous to the aquatic environment, Chronic, Category 2		
Hazard Symbol			
Signal Word(s)	DANGER		
Hazard Statement(s)	May be corrosive to metals. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage.		

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May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 Suspected of damaging fertility.  
 May cause cancer.  
 May cause genetic defects.  
 Causes damage to organs through prolonged or repeated exposure.  
 May cause respiratory irritation.  
 Toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 Keep only in original container.  
 Absorb spillage to prevent material damage.  
 Do not breathe dust/fume/gas/mist/vapours/spray.  
 Wash hands and exposed skin thoroughly after handling.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.  
 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 Immediately call a POISON CENTER/doctor.  
 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
 Rinse mouth.  
 IF ON SKIN: Wash with plenty of water.  
 Call a POISON CENTER/doctor if you feel unwell.  
 IF exposed: Call a POISON CENTER or doctor/physician.

Other hazards

None known

Percent of the mixture consists of ingredient(s) of unknown acute toxicity:

0%

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances Not applicable

Mixtures Substances in preparations / mixtures

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Silicon Dioxide	< 25	14808-60-7	238-878-4	Carcinogen, Category 1A Specific target organ toxicity — repeated exposure, Category 1 Specific target organ toxicity — single exposure, Category 3
Phosphoric Acid	< 20	7664-38-2	231-633-2 / 616-646-7	Metal Corrosive, Category 1 Acute toxicity, Category 4 – Oral Skin Corrosion/Irritation, Category 1
Aluminum Oxide	< 10	1344-28-1	215-691-6	Not classified
Chromium (VI) Trioxide	< 5	1333-82-0	215-607-8	Oxidising Solid, Category 1 Acute toxicity, Category 3 – Oral Acute toxicity, Category 2 – Dermal Acute toxicity, Category 2 – Inhalation Skin Corrosion/Irritation, Category 1 Skin Sensitisation, Category 1 Respiratory sensitization, Category 1 Reproductive toxicity, Category 2 Germ cell mutagenicity, Category 1B Carcinogen, Category 1 Specific target organ toxicity — repeated exposure, Category 1 Specific target organ toxicity — single exposure, Category 3

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				Hazardous to the aquatic environment, Acute, Category 1 Hazardous to the aquatic environment, Chronic, Category 1
Aluminum Hydroxide	< 5	21645-51-2	244-492-7	Not classified
Chromium Oxide	< 3	1308-38-9	215-160-9	Not classified
Chromium (III) Hydroxide	< 1	1308-14-1	215-158-8	Not classified

## SECTION 4: FIRST AID MEASURES



### Description of first aid measures

Self-protection of the first aider

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Do not breathe vapour. Avoid all contact. Contaminated clothing should be laundered before reuse.

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. IF exposed or concerned: Get medical advice/attention. If unconscious, place in recovery position and get medical attention immediately. Apply artificial respiration if necessary. Do not employ mouth-to-mouth method.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. If skin irritation or rash occurs: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention.

Eye Contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if eye irritation develops or persists. Obtain prompt consultation, preferably from an ophthalmologist.

Ingestion

IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Drink two glasses of water. Do not induce vomiting. Allow the patient to drink 5 - 10 g ascorbic acid (not effervescent tablets) dissolved in water. This dose can be repeated several times. Obtain medical attention.

### Most important symptoms and effects, both acute and delayed

Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of damaging fertility. May cause cancer. May cause genetic defects. Causes damage to organs through prolonged or repeated exposure. May cause respiratory irritation.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically

Notes to a physician:

IF IN EYES: Chemical eye burns may require extended irrigation.

IF SWALLOWED: Get medical attention immediately. Allow the patient to drink 5 - 10 g ascorbic acid (not effervescent tablets) dissolved in water. This dose can be repeated several times.

IF ON SKIN: If the skin becomes scratched or wounded, dab it with saturated gauze pads or compresses using a freshly made up ascorbic acid solution (10 g in 100 g water).

## SECTION 5: FIRE-FIGHTING MEASURES

### Extinguishing media

Suitable Extinguishing Media

As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical.

Unsuitable extinguishing Media

Do not use water jet. Direct water jet may spread the fire.

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**Special hazards arising from the substance or mixture**

May decompose in a fire giving off toxic fumes. May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, metal oxides/oxides and Oxides of phosphorus.

**Special protective equipment and precautions for fire fighters**

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid all contact. Use personal protective equipment as required. See Section: 8. Avoid breathing vapours.

**Environmental precautions**

Avoid release to the environment. Do NOT wash away into sewer. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

**Methods and material for containment and cleaning up**

Adsorb spillages onto sand, earth or any suitable adsorbent material. Neutralize with: slaked lime (calcium hydroxide), sodium carbonate, calcium carbonate or sodium bicarbonate. Use only non-sparking tools. Transfer to a container for disposal. Dispose of this material and its container as hazardous waste.

## SECTION 7: HANDLING AND STORAGE

**Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure adequate ventilation. Avoid all contact. Do not breathe vapour. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

**Conditions for safe storage, including any incompatibilities**

Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, sources of ignition and direct sunlight.

Storage temperature

Ambient. 5 - 25°C

Storage life

Stable under normal conditions.

Incompatible materials

Keep away from: Combustible materials, Alkalis, Reducing agents, Strong oxidising agents, Acids and metals. Keep away from water.

Reacts violently with strong alkalis. Direct contact with alkalis may produce hydrogen gas. Hydrogen gas is released in contact with most metals. Exothermic reaction with water. May be corrosive to metals.

Suitable containers:

Keep only in original container.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Limits**

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SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Quartz (SiO <sub>2</sub> ) (crystalline silica)	14808-60-7	-	0.05	-	-	NIOSH
		-	30	-	-	OSHA Total Dust
		-	10	-	-	Respirable Dust
		-	0.025	-	-	ACGIH, A2
Phosphoric Acid	7664-38-2	-	1	-	3*	NIOSH
		-	1	-	-	OSHA
		-	1	-	3	ACGIH
Aluminium Oxide	1344-28-1	-	15	-	-	NIOSH, OSHA Total Dust
		-	5	-	-	Respirable Dust
Chromium III compounds	1333-82-0	-	0.001	-	-	NIOSH, Ca
		-	0.005	-	-	OSHA
		-	0.5	-	-	ACGIH, A4

Note: OSHA PELs 1910.1000 TABLE Z-1/3/ NIOSH RELs / ACGIH TLVs

\*15 minutes average value

Ca - Potential occupational carcinogen

A2: Suspected Human Carcinogen: Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogenic in experimental animals at dose(s) , by route(s) of exposure, at site(s), of histological type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is primarily when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans.

A4: Not Classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of the lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

(If the list of chemicals in the above table is not the same as that in Section 3, state: The other components listed in Section 3 do not have occupational exposure limits.)

### Biological Exposure Indices

Not established

### Appropriate engineering controls

Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Eyewash bottles containing clean water or saline solution. Wash thoroughly after handling.

### Individual protection measures, such as personal protective equipment (PPE)

General hygiene measures for the handling of chemicals are applicable. Avoid all contact. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place.

Eye/face protection



Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).

Skin protection



Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Body protection: Chemical protection suit, boots and plastic gloves.

Respiratory protection

Do not use in areas without adequate ventilation. In case of inadequate ventilation wear respiratory protection. A suitable mask with filter type P may be appropriate.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Green Slurry.
Odor	No odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	Not available.
Initial boiling point and boiling range	104.4°C (Mixture)
Flash Point	Not applicable.
Evaporation rate (Butyl acetate = 1)	1 (BuAc = 1) (Mixture)
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	23.7 mmHg @ 20°C
Vapour density	<1 (Air = 1)
Relative density	Not available.
Solubility(ies)	Miscible
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

## SECTION 10: STABILITY AND REACTIVITY

<b>Reactivity</b>	May be corrosive to metals.
<b>Chemical stability</b>	Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Reacts violently with strong alkalis. Direct contact with alkalis may produce hydrogen gas. Hydrogen gas is released in contact with most metals. Exothermic reaction with water. At high temperature formation of phosphorous oxides.
<b>Conditions to avoid</b>	Keep away from water.
<b>Incompatible materials</b>	Keep away from: Combustible materials, Alkalis, Reducing agents, Strong oxidising agents, Acids and metals.
<b>Hazardous decomposition product(s)</b>	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, and possibly chromium. Thermal decomposition may yield phosphoric oxide.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on toxicological effects (Substances in preparations / mixtures)

<b>Acute toxicity - Ingestion</b>	Acute toxicity, Category 4; Harmful if swallowed. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 1135.2 mg/kg bw/day.
<b>Acute toxicity - Inhalation</b>	Acute toxicity, Category 4; Harmful if inhaled. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 16.7 mg/l.
<b>Acute toxicity - Skin Contact</b>	Acute toxicity, Category 4; Harmful in contact with skin. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 1900 mg/kg bw/day.
<b>Skin corrosion/irritation</b>	Skin Corrosion/Irritation, Category 2; Causes skin irritation.
<b>Serious eye damage/irritation</b>	Eye Damage, Category 1; Causes serious eye damage.
<b>Skin sensitization</b>	Skin Sensitisation, Category 1; May cause an allergic skin reaction.
<b>Respiratory sensitization</b>	Respiratory sensitization, Category 1; May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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<b>Germ cell mutagenicity</b>	Germ cell mutagenicity, Category 1; May cause genetic defects.
<b>Carcinogenicity</b>	Carcinogen, Category 1A; May cause cancer.
<b>Reproductive toxicity</b>	Reproductive toxicity, Category 2; Suspected of damaging fertility.
<b>STOT - single exposure</b>	Specific target organ toxicity — single exposure, Category 3; May cause respiratory irritation.
<b>STOT - repeated exposure</b>	Specific target organ toxicity — repeated exposure, Category 1; Causes damage to organs through prolonged or repeated exposure.
<b>Aspiration hazard</b>	Based upon the available data, the classification criteria are not met.
<b>Information on likely routes of exposure</b>	
Inhalation	Possible – accidental exposure
Ingestion	Unlikely – accidental exposure
Skin Contact	Possible – accidental exposure
Eye Contact	Unlikely – accidental exposure
<b>Early onset symptoms related to exposure</b>	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.
<b>Delayed health effects from exposure</b>	Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Suspected of damaging fertility. May cause cancer. May cause genetic defects. Causes damage to organs through prolonged or repeated exposure.
<b>Other information</b>	
NTP Report on Carcinogens	Chromium Trioxide: Chromium hexavalent compound - Known to be a human carcinogen
IARC Monographs	Silicon dioxide: Group K - Known To Be Human Carcinogens Silicon dioxide: Group 1 - Carcinogenic to humans
OSHA Designated Carcinogen	Chromium Trioxide: Chromium (VI) compound - Group 1 - Carcinogenic to humans All chemicals are not listed

## SECTION 12: ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. Estimated Mixture LC50 > 1 ≤ 10 mg/l (Fish)
<b>Persistence and degradability</b>	The methods for determining the biological degradability are not applicable to inorganic substances.
<b>Bioaccumulative potential</b>	No data for the mixture as a whole.
<b>Mobility in soil</b>	The product is predicted to have moderate mobility in soil.
<b>Other adverse effects</b>	None known.

## SECTION 13: DISPOSAL CONSIDERATIONS

<b>Waste treatment methods</b>	Do not release undiluted and unneutralised to the sewer. Dispose of this material and its container as hazardous waste. Containers must be decontaminated in accordance with all applicable regulations.
<b>Additional Information</b>	Dispose of contents in accordance with local, state or national legislation.

## SECTION 14: TRANSPORT INFORMATION

	<b>ADR/RID</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN number</b>	UN 1760	UN 1760	UN 1760
<b>UN proper shipping name</b>	CORROSIVE LIQUID N.O.S	CORROSIVE LIQUID N.O.S	CORROSIVE LIQUID N.O.S
<b>Transport hazard class(es)</b>	8	8	8
<b>Packing group</b>	III	III	III
<b>Environmental hazards</b>	Environmentally	Classified as a Marine	Environmentally

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Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	hazardous substance Not applicable.	Pollutant	hazardous substance
Special precautions for user	See Section: 2		

## SECTION 15: REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### US Federal Regulations

TSCA (Toxic Substance Control Act)

Silicon dioxide: Subject to 25,000 lb reporting threshold  
Phosphoric Acid: Subject to 25,000 lb reporting threshold  
Aluminium Oxide: Subject to 25,000 lb reporting threshold  
Chromium Trioxide: Subject to 25,000 lb reporting threshold  
Aluminium Hydroxide: Subject to 25,000 lb reporting threshold  
Chromium Oxide: Subject to 25,000 lb reporting threshold  
Chromium (III) Hydroxide: Subject to 25,000 lb reporting threshold  
All chemicals are not listed

EPCRA/SARA Section 302 Extremely Hazardous Substances

EPCRA Section 313 Toxics Release Inventory (TRI) Program

Aluminium Oxide: De Minimis limit: 1%  
Chromium Trioxide: Chromium VI compound - De Minimis limit: 0.1%  
Chromium Oxide: Chromium III compound - De Minimis limit: 1%  
Silicon dioxide  
All chemicals are not listed

NIOSH Occupational Carcinogen List  
OSHA List of highly hazardous chemicals, toxics and reactives

All chemicals are not listed

NTP Report on Carcinogens (RoC) List

Chromium Trioxide: Chromium hexavalent compound - Known to be a human carcinogen

Poison Prevention Packaging Act

Silicon dioxide: Group K - Known To Be Human Carcinogens  
All chemicals are not listed

#### US State Regulations

California State, Proposition 65 List

Chromium Trioxide: Chromium (VI) compound - Safe harbor level - NSRL: 0.001 (inhalation) ug/day; MADL: 8.2 (oral) ug/day

California State, Safer Consumer Products Regulations

Silicon dioxide: Candidate Chemicals List  
Phosphoric Acid: Candidate Chemicals List  
Chromium Trioxide: Initial Candidate Chemicals List

Maine State, Toxic Chemicals in Children's Products Act

Silicon dioxide: COC list. CHC list  
Chromium Trioxide: COC list

New Jersey State Worker and Community RTK Act

Silicon dioxide: RTKHSL. SHHSL  
Phosphoric Acid: RTKHSL. SHHSL  
Aluminium Oxide: RTKHSL  
Chromium Trioxide: RTKHSL. SHHSL  
Chromium Oxide: RTKHSL  
Chromium (III) Hydroxide: Chromium compound - RTKHSL

Pennsylvania State, Worker and Community RTK Act

Silicon dioxide: Hazardous Substance List  
Phosphoric Acid: Hazardous Substance List. Environmental Hazard List  
Aluminium Oxide: Hazardous Substance List. Environmental Hazard List  
Chromium Trioxide: Hazardous Substance List. Special Hazardous Substance List  
Chromium Oxide: Chromium compound - Hazardous Substance List. Environmental Hazard List  
Chromium (III) Hydroxide: Chromium compound - Hazardous Substance List. Environmental Hazard List

Rhode Island State, Hazardous Substances RTK Act

Silicon dioxide: Hazardous Substance List  
Phosphoric Acid: Hazardous Substance List  
Aluminium Oxide: Hazardous Substance List  
Chromium Trioxide: Hazardous Substance List  
Chromium Oxide: Chromium (III) compound - Hazardous Substance List

#### Non-Regional

IARC Monographs, List of Classifications

Silicon dioxide: Group 1  
Chromium Trioxide: Chromium (VI) compound - Group 1



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## SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated substance / mixture classification. New SDS Regulation compliant with HazCom 2012 format, all sections have been updated to include new information. Please review SDS with care.

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### References:

Existing Safety Data Sheet (SDS), EU Data: Harmonised Classification(s) for Phosphoric Acid (CAS# 7664-38-2) and Chromium (VI) trioxide (CAS# 1333-82-0), Existing ECHA registration(s) for Phosphoric Acid (CAS# 7664-38-2), Aluminum Oxide (CAS# 1344-28-1), Chromium (VI) trioxide (CAS# 1333-82-0), Aluminum Hydroxide (CAS# 21645-51-2) and Chromium Oxide (CAS# 1308-38-9), and the Classification and Labelling Inventory for Silicon Dioxide (CAS# 14808-60-7) and Chromium (III) Hydroxide (CAS# 1308-14-1).

GHS Classification of the substance or mixture	Classification Procedure
Metal Corrosive, Category 1	Estimated Physico-chemical properties of substance
Acute toxicity, Category 4	Acute Toxicity Estimate Mixture Calculation
Skin Corrosion/Irritation, Category 2	Threshold Calculation
Skin Sensitisation, Category 1	Threshold Calculation
Eye Damage, Category 1	Threshold Calculation
Respiratory sensitization, Category 1	Threshold Calculation
Reproductive toxicity, Category 2	Threshold Calculation
Germ cell mutagenicity, Category 1	Threshold Calculation
Carcinogen, Category 1A	Threshold Calculation
Specific target organ toxicity — repeated exposure, Category 1	Threshold Calculation
Specific target organ toxicity — single exposure, Category 3	Threshold Calculation
Hazardous to the aquatic environment, Chronic, Category 2	Summation Calculation

### LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists  
BEI: Biological Exposure Indices (ACGIH)  
IARC: International Agency for Research on Cancer  
Irr: Irritation  
NIOSH: National Institute of Occupational Safety and Health  
NTP: National Toxicology Program  
OSHA: The Occupational Safety & Health Administration  
PBT: Persistent, Bioaccumulative and Toxic  
PEL: Permissible exposure limit

REL: Recommended exposure limit  
SCL: Specific Concentration Limit  
Skin<sup>o</sup>: Risk of overexposure via dermal contact  
STEL: Short Term Exposure Limit  
TLV: Threshold Limit value  
TSCA: Toxic Substance Control Act  
TWA: Time Weighted Average  
URT: Upper respiratory tract  
vPvB: very Persistent and very Bioaccumulative

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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