SAFETY DATA SHEET

Version: 3.0
Date of Issue: 18-Apr-2017
Date of First Issue: 24-Oct-2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

SECTION 1: IDENTIFICATION

Product identifier used on the label PBX Cement

Other means of identification

Chemical Name	Mixture
CAS No.	Mixture
EINECS No.	Mixture

Recommended use of the chemical and restrictions on use

Recommended use	PC14 Metal surface treatment products, including galvanic and electroplating products.
Restrictions on use	None known.

Details of the supplier of the safety data sheet

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)	mm.us@vishaypg.com

Emergency telephone number 1-800-424-9300 CHEMTREC (24 hours)

SECTION 2: HAZARD(S) IDENTIFICATION

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards	Not classified
Health hazards	Specific target organ toxicity — repeated exposure, Category 1 Specific target organ toxicity — single exposure, Category 3 Carcinogen, category 1
Environmental hazards	Not classified

Hazard Symbol

Signal Word(s) Danger

Hazard Statement(s)

Causes damage to organs through prolonged or repeated exposure by inhalation.
May cause respiratory irritation.
May cause cancer.

Precautionary Statement(s)

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Use only outdoors or in a well-ventilated area.
Wash hands and exposed skin thoroughly after handling.
Wear protective gloves/eye protection/face protection.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.

Store locked up.
Dispose of contents in accordance with local, state or national legislation.

Other hazards None.

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 Statement(s)
Quartz (SiO2) (crystalline silica)	30 - 50	14808-60-7	238-878-4	Specific target organ toxicity — repeated exposure, Category 1 Specific target organ toxicity — single exposure, Category 3 Carcinogen, category 1
Aluminium oxide	5 - 15	1344-28-1	215-691-6	Not classified
Chromium oxide	< 5	1308-38-9	215-160-9	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. Avoid all contact. Do not breathe vapour. Apply artificial respiration if necessary (do not employ mouth-to-mouth method). It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Inhalation: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Apply artificial respiration if breathing has ceased or shows signs of failing. Get medical advice/attention if you feel unwell.

Skin Contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If irritation (redness, rash, blistering) develops, get medical 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.

Ingestion: If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If symptoms develop, obtain medical attention.

Most important symptoms and effects, both acute and delayed: Causes damage to organs through prolonged or repeated exposure: Lungs. Mechanical irritation of the respiratory tract. Mechanical irritation of the skin and eyes. May cause cancer.

Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

Notes to a physician: IF INHALED: Breathing difficulties may appear with several hours delay.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media: Non-flammable. As appropriate for surrounding fire. Extinguish preferably with dry chemical, sand or carbon dioxide.

Unsuitable extinguishing Media: Do not use water jet. Direct water jet may spread the fire.

Special hazards arising from the substance or mixture	Not flammable. May decompose in a fire giving off toxic fumes.
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	Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure operatives are trained to minimise exposures. Contaminated clothing should be laundered before reuse. Ensure adequate ventilation. Do not breathe dust. Avoid all contact.
Large Spillages	Evacuate the area and keep personnel upwind. Only trained and properly protected personnel must be involved in clean-up operations.
Methods and material for containment and cleaning up	Sweep up spilled substance but avoid making dust. Dry sweeping is not recommended. If necesssary, light water spray will reduce dust for dry sweeping, but over-wetting may produce very slippery walking surfaces. Transfer to a container for disposal. Flush spill area with copious amounts of water.
Large Spillages	A vacuum equipped with HEPA (high efficiency particulate air) filtration is recommended. Only trained and properly protected personnel must be involved in clean-up operations.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Ensure operatives are trained to minimise exposures. Ensure adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe dust. Avoid all contact. In case of insufficient ventilation, wear suitable respiratory equipment. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place. Keep from direct sunlight.
Conditions for safe storage, including any incompatibilities	Keep only in original container. Store in a well-ventilated place. Keep container tightly closed.
Storage temperature	Ambient.
Incompatible materials	Keep away from: Acids, Alkalis and Strong oxidising agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Quartz (SiO2) (crystalline silica)	14808-60-7	-	0.05	-	-	NIOSH
		-	30	-	-	OSHA Total Dust
		-	10	-	-	Respirable Dust
		-	0.025	-	-	ACGIH, A2
Aluminium oxide	1344-28-1		10			NIOSH Total Dust
			5			Respirable Dust
		-	10	-	-	OSHA Total Dust
		-	4	-	-	Inhalable Dust
		-	10	-	-	ACGIH

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

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. Have available eyewash bottle with clean water.
Individual protection measures, such as personal protective equipment (PPE)	General hygiene measures for the handling of chemicals are applicable. Do not breathe dust. Avoid contact with skin, eyes or clothing. 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 eye protection with side protection.
Skin protection 	Hand protection: Wear impervious gloves. 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: Wear dust-resistant protective clothing.
Respiratory protection 	Do not use in areas without adequate ventilation. In case of inadequate ventilation wear respiratory protection. An approved dust mask should be worn if dust is generated during processing or handling. A suitable respirator must always be worn.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Green odourless powder.
Odor	No odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	Not available.
Initial boiling point and boiling range	Not available.
Flash Point	Not applicable.
Evaporation rate (Butyl acetate = 1)	Not applicable.
Flammability (solid, gas)	Non-flammable.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	4.0 (H2O=1)
Solubility(ies)	Negligible.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Stable under normal conditions.
Conditions to avoid	Keep away from heat and direct sunlight. Keep at a temperature not exceeding (℃): 48.9℃
Incompatible materials	Keep away from: Acids, Alkalis and Strong oxidising agents.
Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects (Substances in preparations / mixtures)

Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 5 mg/l.
Acute toxicity - Skin Contact	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Based upon the available data, the classification criteria are not met.
Respiratory or skin sensitization	Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
Carcinogenicity	Carcinogen, Category 1: May cause cancer.
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	Specific target organ toxicity — single exposure, Category 3: May cause respiratory irritation.
STOT - repeated exposure	Specific target organ toxicity — repeated exposure, Category 1: Causes damage to organs through prolonged or repeated exposure by inhalation.
Aspiration hazard	Based upon the available data, the classification criteria are not met.

Information on likely routes of exposure

Inhalation	Possible – accidental exposure
Ingestion	Unlikely – accidental exposure
Skin Contact	Unlikely – accidental exposure
Eye Contact	Unlikely – accidental exposure

Early onset symptoms related to exposure	May cause respiratory irritation.
Delayed health effects from exposure	Causes damage to organs through prolonged or repeated exposure by inhalation. May cause cancer.

Other information

NTP Report on Carcinogens	Quartz (SiO2) (crystalline silica) – Listed; Group K: Known To Be Human Carcinogens
IARC Monographs	Quartz (SiO2) (crystalline silica) - Group 1: Carcinogenic to humans.
OSHA Designated Carcinogen	Not Listed

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Based upon the available data, the classification criteria are not met. Estimated Mixture LC50 >100 mg/l (Fish)
Persistence and degradability	Not persistent.

Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	No data for the mixture as a whole.
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	Send after pre-treatment to an appropriate hazardous waste incinerator facility according to legislation. Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

	ADR/RID	**IMDG**	**IATA**
UN number	UN 3316	UN 3316	UN 3316
UN proper shipping name	CHEMICAL KIT (When shipped with PBX Solvent)	CHEMICAL KIT (When shipped with PBX Solvent)	CHEMICAL KIT (When shipped with PBX Solvent)
Transport hazard class(es)	9	9	9
Packing group	II	II	II
Environmental hazards	Not classified as a Marine Pollutant/ Environmentally hazardous substance	Not classified as a Marine Pollutant/ Environmentally hazardous substance	Not classified as a Marine Pollutant/ Environmentally hazardous substance
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.		
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)	Quartz (SiO2) (crystalline silica): Subject to 25,000 lb reporting threshold Aluminium oxide: Subject to 25,000 lb reporting threshold Chromium oxide: Subject to 25,000 lb reporting threshold
EPCRA/SARA Section 302 Extremely Hazardous Substances	Not listed
EPCRA Section 313 Toxics Release Inventory (TRI) Program	Aluminium oxide: De Minimis limit: 1% Chromium oxide: Chromium III compound - De Minimis limit: 1%
NIOSH Occupational Carcinogen List	Quartz (SiO2) (crystalline silica): Listed
OSHA List of highly hazardous chemicals, toxics and reactives	Not listed
NTP Report on Carcinogens (RoC) List	Quartz (SiO2) (crystalline silica): Group K: Known To Be Human Carcinogens
Poison Prevention Packaging Act	Not listed

US State Regulations

California State, Proposition 65 List	Quartz (SiO2) (crystalline silica): Listed
California State, Safer Consumer Products Regulations	Quartz (SiO2) (crystalline silica): Candidate Chemicals List
Maine State, Toxic Chemicals in Children's Products Act	Quartz (SiO2) (crystalline silica): COC list. CHC list
New Jersey State Worker and Community RTK Act	Quartz (SiO2) (crystalline silica): RTKHSL. SHHSL Aluminium oxide: RTKHSL Chromium oxide: RTKHSL
Pennsylvania State, Worker and Community RTK Act	Quartz (SiO2) (crystalline silica): Hazardous Substance List Aluminium oxide: Hazardous Substance List. Environmental Hazard List Chromium oxide: Hazardous Substance List. Environmental Hazard List
Rhode Island State, Hazardous Substances RTK Act	Quartz (SiO2) (crystalline silica): Hazardous Substance List Aluminium oxide: Hazardous Substance List Chromium oxide: Chromium (III) compound - Hazardous Substance List

Non-Regional

IARC Monographs, List of Classificationsonal	Quartz (SiO2) (crystalline silica): Group 1

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.

Version	3.0
Revision Date	18-Apr-2017
Date of First Issue	24-Oct-2012

References:
Existing Safety Data Sheet (SDS)
Existing ECHA registration(s) for Aluminium oxide (CAS#: 1344-28-1) and Chromium oxide (CAS#: 1308-38-9)
EU C&L Inventory listing for Silicon dioxide (CAS#: 14808-60-7)

Literature References:

1. Silica, Some Silicates, Coal Dust and para-Aramid Fibrils, IARC MONOGRAPHS ON THE EVALUATION OF CARCINOGENIC RISKS TO HUMANS, Volume 68 (1997)
2. Ziskind M, Jones RN, Weill H, 1976, Silicosis. American review of respiratory disease, 113:643–665.

Website: http://www.epa.govt.nz/search-databases/Pages/ccid-details.aspx?SubstanceID=2971

GHS Classification of the substance or mixture	Classification Procedure
Specific target organ toxicity — repeated exposure, Category 1	Threshold Calculation
Specific target organ toxicity — single exposure, Category 3	Threshold Calculation
Carcinogen, category 1	Threshold 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

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

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.

Disclaimers
Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Vishay Precision Group gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Vishay Precision Group accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Vishay Precision Group, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “VPG”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

The product specifications do not expand or otherwise modify VPG’s terms and conditions of purchase, including but not limited to, the warranty expressed therein.

VPG makes no warranty, representation or guarantee other than as set forth in the terms and conditions of purchase. **To the maximum extent permitted by applicable law, VPG disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.**

Information provided in datasheets and/or specifications may vary from actual results in different applications and performance may vary over time. Statements regarding the suitability of products for certain types of applications are based on VPG’s knowledge of typical requirements that are often placed on VPG products. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. You should ensure you have the current version of the relevant information by contacting VPG prior to performing installation or use of the product, such as on our website at vpgsensors.com.

No license, express, implied, or otherwise, to any intellectual property rights is granted by this document, or by any conduct of VPG.

The products shown herein are not designed for use in life-saving or life-sustaining applications unless otherwise expressly indicated. Customers using or selling VPG products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify VPG for any damages arising or resulting from such use or sale. Please contact authorized VPG personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.