SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:

Product Identifier: Curing Agent
Product Description; Curing Agent for Solidifying Conductive Pourable Backfill
Recommended Use: Curing Agent for SAE Inc. ConduFlow

COMPANY IDENTIFICATION:

SUPPLIER **SAE Inc.**
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BARRIE, ONTARIO, CANADA L4N 8Z5
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SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION of the Substance or Mixture:

Skin Irritation Cat. 2; H315
Eye Damage Cat. 1; H318
Specific Target Organ Toxicity, Single Exposure, Cat. 3; H335
Carcinogenicity Cat. 1; H350 (inhalation)
Specific Target Organ Toxicity, Repeated Exposure, Cat. 1; H372 (inhalation)

LABELLING:

SYMBOLS:

Signal Word: Danger

Hazard Statements

- **H315: Causes skin irritation**
- **H318: Causes serious eye damage**
- **H335: May cause respiratory irritation**
- **H350: May cause cancer by inhalation**
- **H372: Causes damage to lungs through prolonged or repeated exposure by inhalation**

Other Hazards:

- **Dusts from this product, when combined with water or sweat, produce a corrosive alkaline solution.**
- **The potential exists for static build-up and static discharge when moving cement powders through a plastic, nonconductive, or non-grounded pneumatic conveyance system. Static discharge may result in damage to equipment and injury to workers.**

Precautionary Statement

- **P260: Do not breathe dusts**
- **P264: Wash hands thoroughly after handling**
- **P270: Do not eat, drink, or smoke when using this product**
- **P271: Use only outdoors or in a well-ventilated area**
- **P280: Wear protective gloves/clothing/eye protection/face protection.**
- **P302+P352: IF ON SKIN: Wash with plenty of water.**
- **P321: Specific treatment: Caustic burns must be treated promptly by a doctor.**
- **P332+P313: If skin irritation occurs: Get medical advice/attention.**
- **P362+P364: Take off contaminated clothing and wash it before reuse.**
- **P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**
- **P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.**
- **P402: Store in a dry place.**
- **P501: Recycle and or dispose of contents/containers in accordance with local/regional/national/international regulations.**

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Wt. %	GHS Classification
Portland Cement	65997-15-1	90 - 100	Skin Irrit. 2; H315 Eye Dam. 1; H318
Calcium Oxide	1305-78-8	0.3 – 3.0	Skin Irrit. 2; H315 Eye Dam. 1; H318
Crystalline Silica	14808-60-7	0.1 – 1.5	Carc. 1; H350 STOT RE1; H372
Chromate compounds	Not available	<0.1	Not available
Nickel compounds	Not available	<0.1	Not available

SECTION 4 FIRST AID MEASURES

PRECAUTIONS: First aid providers should avoid direct contact with this chemical. Wear chemical protective gloves, if necessary. Take precautions to ensure your own safety before attempting rescue, (e.g. wear appropriate protective equipment).

EYE: Immediately flush eyes with running water for a minimum of 20 minutes by the clock while forcing eyelids open during flushing. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention immediately after flushing. Take care not to rinse contaminated water into the unaffected eye or onto face.

SKIN: Wash affected areas with pH neutral soap and lukewarm running water while removing contaminated clothing. Launder contaminated clothing before reuse. Seek medical attention for rashes, burns, irritation, dermatitis, and prolonged unprotected exposures to wet cement, cement mixtures, or liquids from wet cement. Burns should be treated promptly by a doctor.

INHALATION: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If large amounts were inhaled immediate medical attention is required. Call a poison control center or doctor. Give artificial respiration if not breathing and supply oxygen. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If problems persist, seek medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

INGESTION: Rinse mouth. Do NOT induce vomiting. Obtain medical attention immediately or transport victim to an emergency treatment center.

Most Important Symptoms and Effects, both Acute and Delayed:

Inhalation: High concentrations of airborne dusts are severely irritating to the upper respiratory tract with symptoms such as coughing, sneezing and shortness of breath. Long-term inhalation exposure to dusts containing respirable size crystalline silica can cause silicosis and lung cancer.

Eye Contact: Severely irritating in contact with eyes. Causes eye damage which may be permanent and may cause blindness. Solid particles react with moisture in the eye to form clumps of moist compound which may be difficult to remove.

Skin Contact: Dusts from this product, when combined with water or sweat, produce a severely irritating alkaline solution and burning of the skin. Symptoms include pain, burns, skin dryness, cracking and eczema. Wet product causes burns with little warning. Discomfort or pain cannot be relied upon to alert a person to a serious injury; symptoms of pain and burn may be delayed for hours. May cause an allergic skin reaction from trace amounts of sensitizing metals in lime.

Ingestion: Severely irritating to the mouth, throat, and gastro-intestinal system if swallowed. Symptoms may include severe pain and burning of the mouth, throat, esophagus and gastrointestinal tract with nausea, vomiting and diarrhea. If aspiration into the lungs occurs during vomiting, severe lung damage may result.

Indication of any Immediate Medical Attention and Special Treatment Needed:

Corrosive material; get immediate medical advice/attention if inhaled, if swallowed or if in eyes.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA:

Use extinguishing media appropriate to the surrounding fire conditions. Use flooding quantities of water as a spray.

UNSUITABLE EXTINGUISHING MEDIA:

Use caution when using water. Do not get water inside closed containers; contact with water will generate heat. Water jet may cause spattering of the corrosive solution. Use caution when using CO2; it may scatter the dry powder.

SPECIAL HAZARDS:

Product is not flammable or combustible. Bulk powder of this product may heat spontaneously when damp with water. Corrosive; reacts with water releasing heat and forming an alkaline solution. Fire fighters should wear self-contained breathing apparatus and full protective clothing. Water will set up product.

SECTION 6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

Wear adequate personal protective equipment, including an appropriate respirator as indicated in Section 8. Isolate spill area, preventing entry by unauthorized persons. Do not touch spilled material. Do not breathe dusts.

ENVIRONMENTAL PRECAUTIONS:

Avoid releases to the environment and prevent material from entering sewers, natural waterways or storm water management systems.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:

Move containers from spill area. Avoid dust generation and prevent wind dispersal. Vacuum dust with equipment fitted with a HEPA filter and place in a closed labelled waste container. Small spills may be picked up with a damp mop.

REFERENCE TO OTHER SECTIONS:

See Section 8 for information on selection of personal protective equipment. See Section 13 for information on disposal of spilled product and contaminated absorbents.

SECTION 7 HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:

Before handling, it is important that engineering controls are operating, protective equipment requirements and personal hygiene measures are being followed. People working with this should be trained regarding its hazards and its safe use. Do not breathe dusts. Wash hands and exposed skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Prevent eye contact: Wear protective gloves/protective clothing and eye protection/face protection.
Static Hazard: Properly ground all pneumatic conveyance systems. The potential exists for static build-up and static discharge when moving cement powders through a plastic nonconductive, or non-grounded pneumatic conveyance system. Static discharge may result in damage to equipment and injury to workers.
Do not enter a confined space that sores or contains Portland cement unless appropriate procedures and protections are in place. Portland cement can build up or adhere to the walls of a confined space and then release or fall suddenly (engulfment).

CONDITIONS FOR SAFE STORAGE:

Store in a dry, well-ventilated area, away from incompatible materials. Keep containers closed. Protect from moisture/humidity. Store in a place accessible by authorized persons only. Store away from food and animal feed. Keep out of reach of children.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS:
Occupational Exposure Limits:

Ingredient	ACGIH TLV (8-hr. TWA)	U.S. OSHA PEL (8-hr. TWA)	Ontario (Canada) TWA
Portland Cement*	1 mg/m3	15 mg/m^3 (total dust) 5 mg/m^3 (respirable)	Refer to ACGIH TLV
Calcium oxide	2 mg/m^3	5 mg/m^3	Refer to ACGIH TLV
Crystalline silica (Quartz)	0.025 mg/m^3 (respirable)	Quartz (total dust): 30 mg/m^3 / (%SiO_2 + 2) Quartz (respirable): 10 mg/m^3 / (%SiO_2 + 2)	0.1 mg/m^3 (respirable) Designated Substance

*value for particulate matter containing no asbestos and less than 1% crystalline silica.

Other Exposure Limits:

NIOSH REL for Portland Cement = 10 mg/m^3 IDLH (Immediately Dangerous to Life or Health) = 5000 mg/m^3
NIOSH REL for Calcium oxide = 2 mg/m^3 IDLH = 25 mg/m^3

EXPOSURE CONTROLS:

Engineering Controls: Handle product in closed system or area provided with appropriate exhaust ventilation. Handle in accordance with good industrial hygiene and safety practice. Ensure regular cleaning of equipment, work area and clothing. If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have equipment available for use in emergencies such as spills or fire.

Personal Protection: Workers must comply with the Personal Protective Equipment requirements of the workplace in which this product is handled.

Eye/Face Protection: Wear approved safety glasses with side-shields or chemical safety goggles. Wear a face-shield or full-face respirator when needed to prevent exposure to airborne dusts. Contact lenses should not be worn.

Skin Protection: Wear chemical protective gloves, suit, and boots to prevent skin exposure. Waterproof and cut/abrasion-resistant rubber, such as Heavyweight nitrile gloves, boots and body-covering clothing may be used to prevent dermal exposures to this material and for cleaning and maintenance operations. Evaluate resistance under conditions of use and maintain protective clothing carefully. Contact safety supplier for specifications.

Respiratory Protection: Approved respiratory protective equipment (RPE) is required. An approved respirator, NIOSH 95 rating or higher, must be available in case of accidental releases. Proper respiratory selection should be determined by adequately trained personnel and based on the contaminant(s), the degree of potential exposure and published respirator protection factors.
A respiratory protection program that meets the regulatory requirement, such as OSHA's 29 CFR 1910.134, ANSI Z88.2 or Canadian Standards Association (CSA) Standard Z94.4, must be followed whenever workplace conditions warrant a respirator's use.

Other Protection: Have a safety shower and eyewash station readily available in the work area.
Every attempt should be made to avoid skin and eye contact. Do not get powder inside boots, shoes, or gloves. Do not allow wet, saturated clothing to remain against the skin. Promptly remove clothing and shoes that are dusty or wet. Wash clothing and shoes thoroughly before reuse.
Do not enter a confined space that stores or contains Portland cement unless appropriate procedures and protections are in place. Portland cement can build up or adhere to the walls of a confined space and then release or fall suddenly (engulfment).
Do not eat, drink or smoke where this material is handled, stored and processed. Wash hands thoroughly before eating, drinking and

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION, CONTINUED

smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Environmental Exposure Controls: Emissions from ventilation or work process equipment should be monitored to ensure they comply with the requirements of environmental protection legislation.

SECTION 9 PHYSICAL/CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:	Solid; grey or white powder
Odour:	Odourless
Odour Threshold:	Not applicable
pH:	12 – 13 (ASTM D1293-95)
Melting point/Freezing point:	Not applicable
Initial Boiling Point and boiling range:	Not applicable
Flash point:	Not applicable
Flammability:	Not flammable or combustible
Auto-ignition temperature:	Not available
Upper/lower flammability or explosive limits:	Not applicable
Explosive properties:	Not applicable
Oxidising properties:	Not applicable
Sensitivity to mechanical impact:	Not applicable
Sensitivity to static discharge:	Potential for static build-up and static discharge from powders in plastic, nonconductive or non-grounded pneumatic conveyance systems.
Vapour pressure:	Not applicable
Vapour density:	Not applicable
Relative density:	3.15 (water = 1)
Solubility:	Slightly soluble in water (0.1 – 1%)
Partition coefficient (n-octanol/water):	Not applicable
Decomposition temperature:	Not available
Viscosity:	Not applicable

SECTION 10 STABILITY AND RELIABILITY

REACTIVITY: Reacts slowly with water forming hydrated compounds, releasing heat and a strongly alkaline solution.

CHEMICAL STABILITY: This product is stable in a closed container under normal conditions of storage and use.

POSSIBILITY OF HAZARDOUS REACTIONS: Aqueous solutions are highly alkaline and may corrode aluminum.

CONDITIONS TO AVOID: Avoid unintentional contact with water/moisture and with strong acids and other incompatible materials.

INCOMPATIBLE MATERIALS: Strong acids – Incompatible with strong acids; may react vigorously.
Water – reaction generates heat.
Aluminum – Aluminum powder and other alkali earth elements will react in the presence of water liberating extremely flammable hydrogen gas. Calcium oxide is corrosive to aluminum metal.
Reacts with Ammonium salts

HAZARDOUS DECOMPOSITION PRODUCTS: In contact with water and moisture, generates corrosive calcium hydroxide.

SECTION 11 TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE: Eye and Skin contact, Inhalation of dust.

ACUTE TOXICITY DATA: Data not available for the mixture.

Skin corrosion/irritation: Causes skin irritation. May cause caustic burns when in prolonged

SECTION 11 TOXICOLOGICAL INFORMATION, CONTINUED

	contact with the skin. Irritating or corrosive to mouth, throat and gastro-intestinal tract.
Serious eye damage/irritation:	Causes serious eye damage and possible blindness. Damage may be permanent if treatment is not immediate.
Specific Target Organ Toxicity Single Exposure:	Breathing dusts causes respiratory irritation. Inflammation of the respiratory passages, ulceration and perforation of the nasal septum and pneumonia has been attributed to the inhalation of dust containing calcium oxide.
Aspiration Hazard:	This material is corrosive; if aspiration into the lungs occurs during vomiting, severe lung damage may result.
CHRONIC TOXICITY:	
Specific Target Organ Toxicity Repeated Exposure:	Prolonged and repeated breathing of dust may cause lung disease. The extent and severity of lung injury correlates with the length of exposure and dust concentration. Inflammation of the respiratory passages, ulceration and perforation of the nasal septum and pneumonia has been attributed to the inhalation of dust containing calcium oxide. Contains crystalline silica**.** Long-term exposure to fine airborne crystalline silica dust may cause silicosis a form of pulmonary fibrosis that can cause shortness of breath, cough and reduced lung function. Particles with diameters less than 1 micrometer are considered most hazardous.
Respiratory and/or Skin Sensitization:	Product may contain trace concentrations (<0.1%) of Chromate and Nickel compounds that can cause an allergic skin reaction. Further skin contact may result in inflammation, rash and itching. Not known to be a respiratory sensitizer.
Germ Cell Mutagenicity:	Not available.
Reproductive Effects:	Not available.
Developmental Effects:	Not available.
Effects on or via Lactation:	Not available.
Carcinogenicity:	Portland cement is not classifiable as a human carcinogen. Crystalline silica is considered a hazard by inhalation. IARC has classified crystalline silica as a Group 1 substance, carcinogenic to humans. This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity.
Interactions with Other Chemicals:	Not available.

SECTION 12 ECOLOGICAL INFORMATION

TOXICITY	Harmful to aquatic life. Contact with water forms an alkaline solution. Avoid release to the environment. Data for Calcium oxide: 96 hour LC_{50} freshwater fish *Cyprinus carpio* = 1070 mg/L (static) Chronic 46 day NOEC freshwater fish *Oreochromis niloticus* juvenile (fledgling, hatchling, weanling) = 100 mg/L
PERSISTENCE AND DEGRADABILITY:	Not available.
BIOACCUMULATION POTENTIAL:	Not available.
MOBILITY IN SOIL:	Not available.
OTHER ADVERSE EFFECTS:	Not available

SECTION 13 DISPOSAL CONSIDERATIONS

DISPOSAL METHODS:

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Untreated waste should not be released to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe manner. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff, and contact with soil, waterways, drains and sewers.

SECTION 14 TRANSPORT INFORMATION

UN Number	Cement is not covered by international transport regulations (IMDG, UN Model Regulations).
UN proper shipping name	Not applicable
Transport Hazard Class(es)	Not applicable
Packing Group	Not applicable
Environmental Hazards	Not available
Special Precautions for User	Not available
U.S. Hazardous Materials Regulation (DOT 49CFR):	Not regulated except for transport by aircraft.
Canada Transportation of Dangerous Goods (TDG) Regulations:	Not regulated except for transport by aircraft.

SECTION 15 REGULATORY INFORMATION

SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE:

USA

TSCA STATUS:	Substances are listed on the TSCA inventory or are exempt.
OSHA HazCom 2012 Hazards:	Skin Irritation – Cat. 2 Eye Damage – Cat. 1 Specific Target Organ Toxicity, Single Exposure – Cat. 3 Carcinogenicity – Cat. 1 (inhalation) Specific Target Organ Toxicity, Repeated Exposure – Cat. 1 (inhalation)

CANADA

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the SDS contains all the information required by the *Controlled Products Regulations*.

WHMIS 1988 Classification:	D2A – Other toxic effects (Untested mixture containing crystalline silica). E – Corrosive – Mixture containing calcium oxide; pH > 12
NSNR Status:	Substances are listed on the DSL or are exempt.

SECTION 16 OTHER INFORMATION

Revision Date: July 28, 2017.

Additional Information: This safety data sheet is believed to provide a useful summary of the hazards of ConduFlow Curing Agent as it is commonly used, but cannot anticipate and provide all of the information that might be needed in every situation.
The information provided herein was believed by SAE Inc. to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use.