



# EnvirAnode® System

## EnvirAnode® System Installation Guide and Safety Data Sheet (SDS)

*Conducrete® is certified to:*





## About this Guide

This guide provides handling and installation instructions for the SAE EnvirAnode® System. It should be used with the design drawing included with the system proposal.

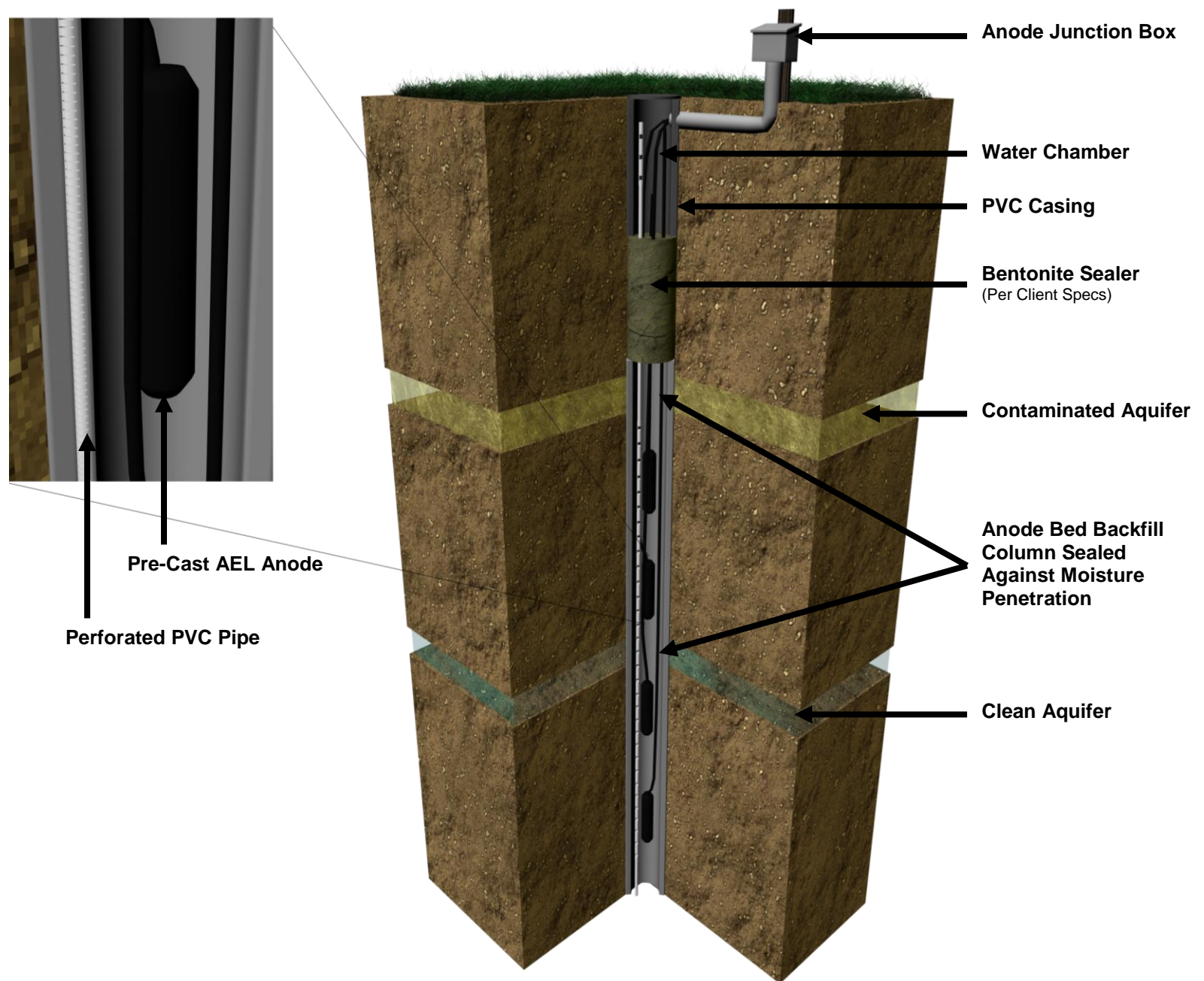
**If a design drawing has not been provided, please contact the system provider or SAE Inc. directly (phone: +705-733-3307 or [info@saeinc.com](mailto:info@saeinc.com)).**

## Contents

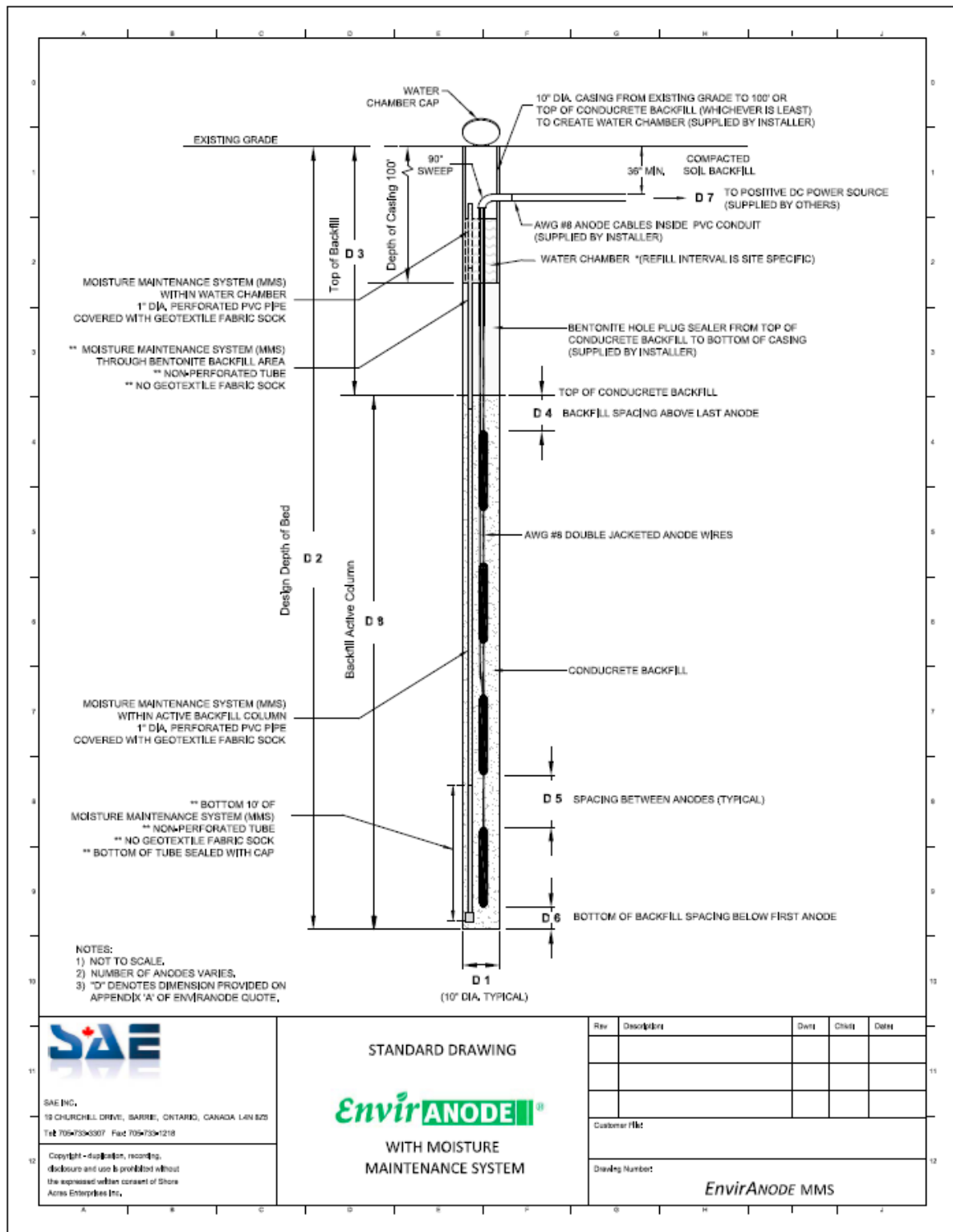
1.0	EnvirAnode® System .....	2
1.1	EnvirAnode® System Overview .....	2
1.2	EnvirAnode® System with MMS .....	3
1.3	Step by Step EnvirAnode® System Installation Instructions .....	4
1.4	EnvirAnode® System – Uncrating/Unpacking .....	5
1.5	EnvirAnode® System – Moisture Maintenance .....	5
a.	MMS Installation Instructions: .....	6
2.0	AEL Anodes .....	7
2.1	AEL Anodes and Cables – Handling & Inspection .....	7
2.2	AEL Anode Installation Step by Step Instructions .....	7
2.3	AEL Centralizers .....	9
3.0	Conducrete® Backfill .....	9
3.1	Mixing Conducrete® .....	10
a.	Equipment Required to Mix Conducrete® .....	10
b.	Mixing Procedure .....	11
3.2	Pumping Conducrete® Backfill/Sealant .....	11
a.	Equipment Required to Pump Conducrete® .....	11
b.	Pumping Procedure .....	12
3.3	Curing of Conducrete® .....	13
3.4	Conducrete Installation for Horizontal Applications .....	13
Appendix A: EnvirAnode® Well Loading Schematic .....		16
Appendix B: EnvirAnode® MATERIAL SAFETY DATA SHEET .....		17
Appendix C: Conducrete® MATERIAL SAFETY DATA SHEET .....		20

## 1.0 *Envir*ANODE<sup>®</sup> System

### 1.1 *Envir*ANODE<sup>®</sup> System with MMS Overview



## 1.2 **EnvirANODE**® System with MMS





### 1.3 Step by Step EnvirAnode® System Installation Instructions

**EnvirAnode® is a sealed system. It is NOT the same as an anode bed with a coke breeze backfill. Conducrete® backfill must be pumped to column height and allowed to cure.**

1. Read all instructions before proceeding.
2. In drilling operations with heavy mud, a full rinse of the bore is to be done when drilling is completed. If this is not possible, attempt to thin the mud to facilitate loading the bore with anodes.
3. A waste water pit and channel to the pit should be excavated close to the top of the vertical well to contain ground water, mud and excess slurry that may rise out of the well during the backfill pumping.
4. If applicable, install the Moisture Maintenance System (see section 1.5)
5. **A tremie pipe MUST be installed from the grout pump on surface to the bottom of the drilled well.** Use one of the methods in section 3.2.a.8 to ensure that the tremie reaches the bottom of the well.
6. Install the anodes. All anode wires should be supported at the borehole top to their specific depths. During and after the pumping of Conducrete®, they must remain centered in the borehole and secured to the surface (see section 2.2 for detailed instructions).
7. **Anodes must not be installed within any type of aquifer.** This ensures no Conducrete® is consumed and the column remains intact to prevent cross-contamination. It is recommended that a minimum of 50' remain free of anode installation, above and below the aquifer.
8. Mix the Conducrete® according to the instructions in section 3.1. Ensure there are no lumps in the Conducrete® slurry that may plug the grout pump or the tremie pipe.
9. Pump the Conducrete® slurry through the tremie pipe to fill the well bore with the specified amount of Conducrete® mixture (see design drawing).
10. The tremie must remain 25' (7.5m) below the top of the Conducrete® slurry. **The tremie must NEVER be raised above the top of the slurry during pumping** (see section 3.2 for detailed instructions).
11. Do not pump the Conducrete® slurry too quickly. If the pumping rate causes the anode wires to slacken, reduce the pumping rate to maintain anode placement. Continuously monitor the pumping rate. If air bubbles are present at any time, the operations should be stopped until the air source is eliminated.



12. Once all Conducrete® has been pumped into the bore, withdraw the tremie pipe taking care not to damage the anodes and the cables or the sides of the well.
13. Flush the residual Conducrete® left on equipment into the wastewater pit and rinse clean with water.
14. Prior to energizing the bed, allow the Conducrete® backfill to cure for 30 days.
15. SAE requires that the first AEL anode be electronically logged, data recorded, and submitted to SAE Inc. within 30 days of original system commissioning. If bore hole is air drilled, SAE requires that the bore hole, after drilling, be filled with water so that the first SAE AEL anode can be logged.

#### 1.4 EnvirAnode® System – Uncrating/Unpacking

AEL anodes weigh 50 pounds each and may require more than one person to handle.

- Each AEL anode and wire should be lifted and laid out in order of anode number.
- Check each anode number and wire length, along with the number of Conducrete® bags provided against the design drawing.
- Anode wires must not be allowed to be stepped on or damaged by moving equipment. If the anode wire is damaged in any way, do not install the anode in a deep anode bed. For surface anode beds, the anode wire damaged section should be repaired with an epoxy insulation kit.
- Anode wire spools **MUST** be used for loading the hole.
- Prior to locating the mixing and pumping equipment, be mindful of wind direction as some dust may be present downwind of these operations.
- Conducrete® should be positioned near the mixing equipment for easy loading. Each bag weighs 55lb. Please handle with care.
- Conducrete® should be protected from moisture if stored outside prior to installation.
- In the event that damage is observed, inform SAE/supplier and/or shipper. DO NOT install any material that is suspected to be damaged.

#### 1.5 EnvirAnode® System – Moisture Maintenance

In specific locations with very dry soil, the EnvirAnode® System is designed to include a Moisture Maintenance System (“MMS”). Please refer to your design drawing to determine whether an MMS is included in the scope of the installation.



The MMS is a vertical PVC pipe with slots cut in it for the maintenance of a water column inside the Conducrete® backfill. The MMS requires a chamber of water above the active zone to allow it to receive and maintain head pressure on the Conducrete® column. Please see the installation instructions below.

a. MMS Installation Instructions:

The MMS is assembled by joining pipe sections one at a time, and by covering each pipe segment with the supplied sock material to exclude the penetration of muds and Conducrete® inside the MMS. Here are the steps:

1. Check all of the MMS pipe for cracks - especially in the edge of the cut slots. Do not use any pipes with significant cracks.
2. After the well bore has been rinsed, or is deemed ready to fill with the EnvirAnode® System, the MMS is the first item to be installed in the bore.
3. Assemble the first piece of SOLID pipe with a cap on the bottom. Lower the first SOLID capped section into the well bore allowing the pipe to slowly fill with water as it is inserted.
4. Following the insertion of the first SOLID section of MMS, the first AEL anode and tremie may be inserted along with the MMS SLOTTED pipe.
5. All SLOTTED pipe must be inside a section of the sock material, securing it at each end with zip ties (cut off any ends at the clamp), or duct tape.
6. Once the sock material has been secured to all pipes. Slowly push the assembly into the well bore.
7. Repeat step 5 & 6 for each of the SLOTTED pipe sections of the specified MMS to the top of the active column bore.
8. Above the active column there is a SOLID sections of MMS until the water chamber and then SLOTTED in the water chamber. Please refer to section 1.2 for MMS configuration.
9. At this time the MMS will be standing upright in the well bore from the bottom to the top of the surface.
10. Upon complete installation of the EnvirAnode® System, the head of the MMS pipe (the visible portion at top of well bore) must be cut in such a way to keep it within the cap of the surface casing, but below the anode wire take off to the shunt box.
11. The water chamber should be filled within 2 weeks of back filling the well bore. This will allow the Conducrete® to remain wet during the 30 day cure process.
12. Note that the chamber's top water level should not allow water to enter the anode wire take off to the shunt box.
13. Monitor water level in the chamber and keep filled.

## 2.0 AEL Anodes

AEL anodes weigh 50 pounds each and handling them may require more than one person.

### 2.1 AEL Anodes and Cables – Handling & Inspection

- DO NOT pickup anodes by lifting the anode cables. Anodes must be picked up using both hands under the anode.
- DO NOT roll anodes during handling prior to installation. The twisting motion on the anode cable may result in premature failure of the anode cable at the anode to cable interface and must be avoided.
- Cotton gloves should be worn when handling the AEL anodes to avoid contaminating the surface. Surface contamination can result in underperformance of the anode.
- Keep the AEL anodes in packing material until they are lifted in place. Do not lay the AEL anodes on the ground.
- Visually inspect the 6" nearest to the head of the anode to ensure that no necking or deformities caused by twisting or rolling are evident.
- Additional inspection to check for invisible cable insulation damage may be done using a Holiday Detector. Holiday test for anode cables shall be done at no higher than 18 KV, immediately prior to installation. Repair any detected wire holidays prior to lowering the anodes into the well bore.

### 2.2 AEL Anode Installation Step by Step Instructions

1. If applicable, install anode centralizers as per the instructions in section 2.3. Centralizers are only used in specific situations and may not be included in this packaging.
2. Use extreme care during anode installation to ensure that there is no damage to the anode or the anode wires.
3. In drilling operations with heavy mud, a full rinse of the bore is to be done once the drilling is completed. If this is not possible, attempt to thin the mud to facilitate loading the bore with anodes.
4. An "A" frame, pipe structure will be centered over the well and used to lower the anodes into the borehole. Please see Appendix A for installation drawing.



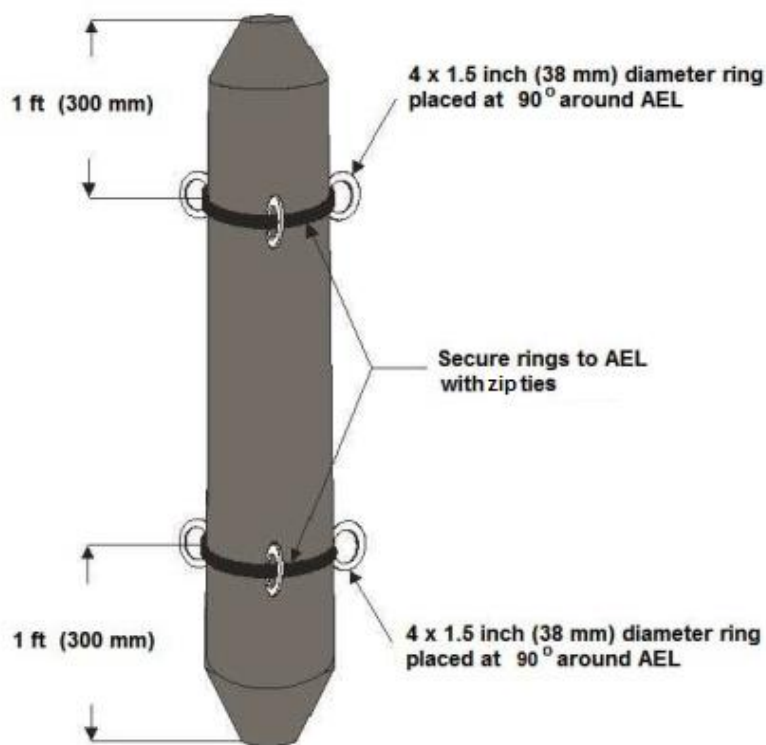


5. Standard anode wire lengths are provided. The design drawing provides the required lengths of wire to be cut to achieve the design wire lengths.
6. Prior to lowering, each anode and wire should be laid out in order of anode number near the well bore. Anode #1, the anode with the longest cable length, is the first to go into the bore.
7. The tremie pipe should be put into position prior to loading the anodes, or it can be loaded with Anode #1 (please see section 3.2.a.8).
8. The first SAE AEL anode must be logged and data recorded every 5' throughout the length of the active column. If a borehole is drilled with an air drill, the borehole must be filled with water prior to loading the first anode, and the first anode then logged every 5' through the length of the active column.
9. Review the well log with SAE to determine if the design anode installation depth needs to be changed. Anodes may be raised or lowered from the design depth based on this review.
10. The anode wires will be used to lower the anodes (one at a time) into the well bore to the proper depth (please see design drawing). The anode wire spool **MUST** be used for loading the hole, mounted on an A-frame support. Please see Appendix A for installation drawing. Before unspooling the wire, ensure that the anode number is visible and/or marked on the wire.
11. A cable wire meter must be used to ensure the anodes are lowered to the required depth in the hole.
12. To avoid kinking or stressing the wire as the anode is lowered, lay the wire over a large diameter PVC pipe (2.5" diameter) that has been positioned over the well bore.
13. As you are lowering the anode, do not allow the wire to scrape along the sides of the bore hole or the ground at any time.
14. As each anode is placed at the correct depth, each wire should remain over the PVC pipe in its number order and be secured.
15. All anodes shall be positioned before the pumping of the Conducrete® backfill can begin.
16. Once the Conducrete® backfilling is complete, the "A" frame structure should be left in place for at least 12 hours. If the frame must be removed prior to commissioning testing of the bed (30 days after installation), ensure that the anode wires remain secured in order to prevent the anodes from moving from their specified depth in the well bore.

## 2.3 AEL Centralizers

If required, install anode centralizer rings on the anodes according the following procedure:

1. Centralizers consist of: 8 (eight) rings and 2 (two) zip ties.
2. Place 4 (four) rings, oriented vertically, and placed at 90° around the anode approximately 1 foot (300mm) below the top of the anode.
3. Secure the rings to the anode by placing 1 zip tie through the center of the 4 rings, around the anode and then pull the zip tie tight to the AEL.
4. Repeat Steps 2 and 3 above for the lower set of rings placing them approximately 1 foot (300mm) above the bottom of the anode.
5. Cut off the zip tie ends flush with their locking tab and eliminate any exposed sharp edges that may scrape anode wires passing by these areas.



## 3.0 Conducrete® Backfill

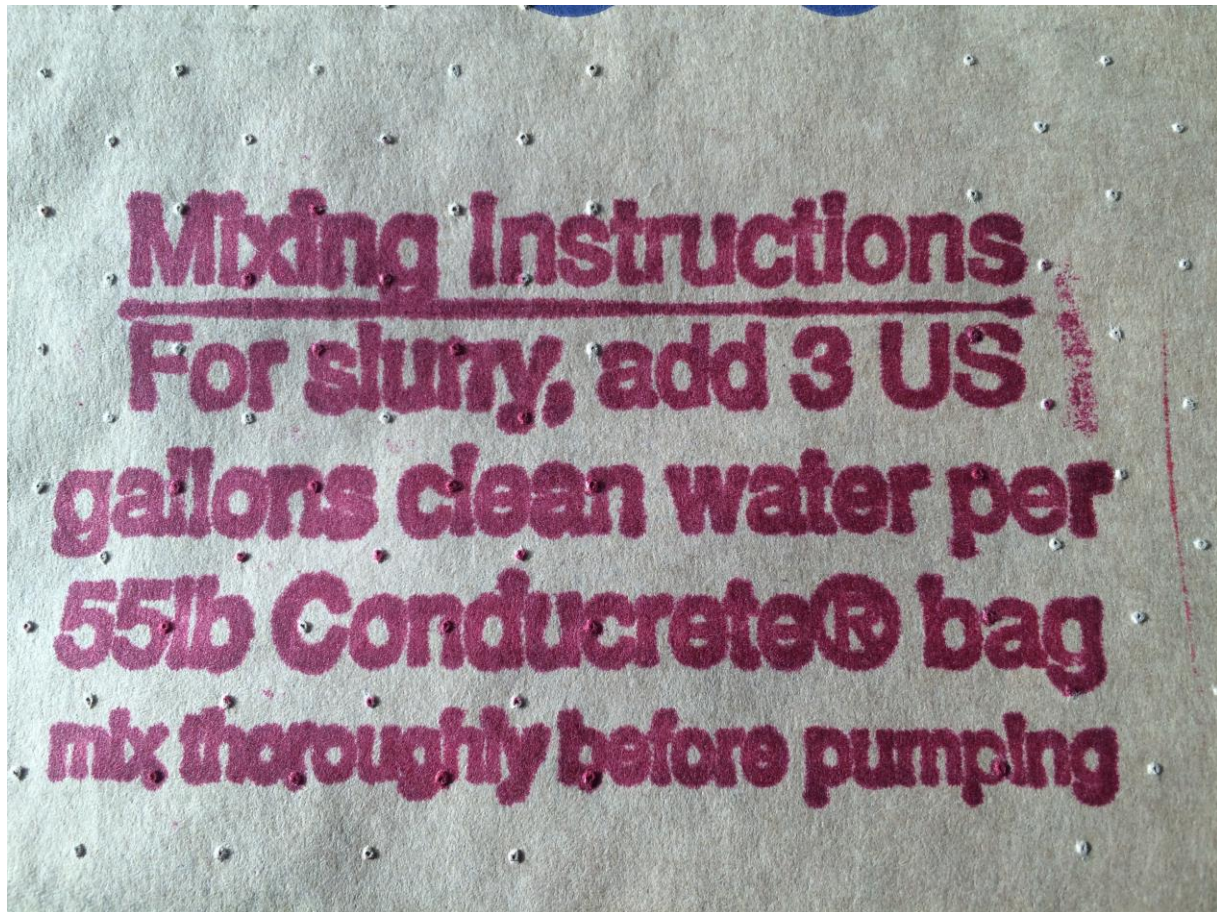
Conducrete® backfill is required to be mixed in a specific ratio:

1 bag (55 pounds) of Conducrete® per **3.0** US gallons (16 Liters) of water **OR**

1 bag (55 pounds) of Conducrete® per **4.2** US gallons (16 Liters) of water.  
The required volume of water per 1 Conducrete® bag is described in section 3.1  
Conducrete® must be pumped without entrained air or additional water used for  
drive. It is not traditional backfill and must be mixed and pumped appropriately.

### 3.1 Mixing Conducrete® into a Slurry

Conducrete® bags with the stamp shown below are to be mixed at a ratio of 1 bag (55 pounds) of Conducrete® per 3.0 US gallons (16 Liters) of water.



Conducrete® bags that **do not** have this stamp clearly displayed are to be mixed at a ratio of 1 bag (55 pounds) of Conducrete® per **4.2** US gallons (16 Liters) of water.

a. Equipment Required to Mix Conducrete®

A mixing trough is required to mix powdered Conducrete® and water into a slurry. The mixing system may be either:

- a. A paddle mixing system.

- b. A pumping cycling system that will extract the mixture from the trough and circulate it back into the trough in a closed circuit system.
- c. Batch mixing with concrete mixers into holding/recirculating tanks.

b. Mixing Procedure

- Conducrete® must be batch mixed with a paddle style, or a pumping cycling mixing system with the proper measured water to Conducrete® ratio.
- It is recommended that a screen (grate) be placed over hopper or mixing trough before pouring dry Conducrete® mix into hopper.
- Mix the powdered Conducrete® into slurry with clean water at a rate of (\*\*if not marked with stamp shown above\*\*) 1 bag (55 pounds) of Conducrete® per 4.2 US gallons (16 Liters) of water. Careful measurement of water used in the mixture is required to avoid excess water.
- Care must be taken to avoid adding air to the product in the mixing process. The backfill material level must be above the mixing paddles so that air does not enter the backfill material.
- Bubbles must be avoided in the mixing operation to maintain the high density of the mixture.
- Ensure all powdered Conducrete® is blended with the water and that no dry powder exists before pumping.
- Ensure that there are no lumps in the Conducrete® slurry that may plug the grout pump or the tremie pipe. Constant agitation is required in batch mixing or recirculating tank operations to assure no clumps are formed prior to pumping.

## 3.2 Pumping Conducrete® Backfill/Sealant

a. Equipment Required to Pump Conducrete®

### **Pumping System**

The pumping system used to pump Conducrete® must be designed to pump grout and other cement materials and must meet the following requirements:

- Capable of generating up to 400 PSI.
- Accept a minimum 1½" (38.1mm) pipe or hose and be equipped with proper connectors.

### **Tremie Pipes and Hoses**

Tremie pipes must meet the following requirements:

1. Minimum size of 1 ½" (38.1mm) to a maximum size of 2½" (63.5mm).
2. Ribbed tremie pipes are not recommended.
3. Observe all safety codes to avoid over pressurizing the tremie being used.



4. To avoid damaging the anode wires, the connections made to the tremie should be wrapped with plastic sheeting or duct tape to cover any exposed bolts, hose clamps, or sharp edges.
5. Any relief valves used to protect the tremie from overpressure should discharge into the waste water pit at the surface.
6. Tremie pipes must be equipped with the proper connectors and be in good working order without kinks or leaks.
7. The tremie pipe must be long enough to reach the bottom of the drilled well and attach to the pumping system.
8. To help ensure that the tremie pipe can be installed to the bottom of the well, either:
  - a. Lower the tremie pipe alongside the #1 (lowest) anode. The tremie can be attached to the anode temporarily with breakable tape; or,
  - b. A 3' or longer length of steel pipe of the same diameter as the tremie pipe can be connected to the down-hole end of the tremie pipe with proper connectors. The open end of the steel pipe must be free of burrs or sharp edges to ensure anodes and the wires are not damaged when the tremie pipe is extracted from the anode bed. Any clamps used should have any exposed sharp edges covered with plastic wrap or duct tape to assure protection of the anode wires.

b. Pumping Procedure

- Pump the Conducrete® slurry through the tremie pipe to fill the well bore with the specified amount of Conducrete® mixture (please see design drawing).
- The tremie **must remain 25' below the top of the Conducrete® slurry.**
- Do not pump the Conducrete® slurry too quickly. If the pumping rate causes the anode wires to slacken, reduce the pumping rate to maintain anode placement (please see detailed instructions below).
- Continuously monitor the pumping rate. If air bubbles are present at any time, the operations should be stopped until the air source is eliminated.
- Once all Conducrete® has been pumped into the bore, withdraw the tremie pipe from the well bore taking care not to damage the anode cables or the sides of the well.
- The tremie pipe must not be left inside the column of Conducrete® once pumping is completed. The tremie pipe must be removed as not to potentially affect the integrity of the solid Conducrete® column.



- Flush the residual Conducrete® left on equipment into the wastewater pit and rinse clean with water.
- Please note that the following precautions should be taken to prevent the tremie from being difficult to remove after pumping:
  - The correct water to Conducrete® ratio is followed.
  - Pumping operations should be completed in less than 2 hours to avoid set up of the backfill.
  - The use of ribbed pipe or hose is not recommended.

#### **Pumping Flow Rate:**

Care must be taken to adjust pump flow rate so that the anode cables do not slacken during the backfill procedure:

1. Take note of the tension on the anode cables at surface prior to pumping.
2. During pumping, if the cables become slack, decrease the pumping rate.
3. Continue to monitor anode cable tension during the entire backfill procedure and adjust flow accordingly.

### **3.3 Curing of Conducrete®**

The Conducrete® backfill shall be allowed to cure for **30 days** prior to energizing the anode bed.

### **3.4 Conducrete Installation for Horizontal applications**

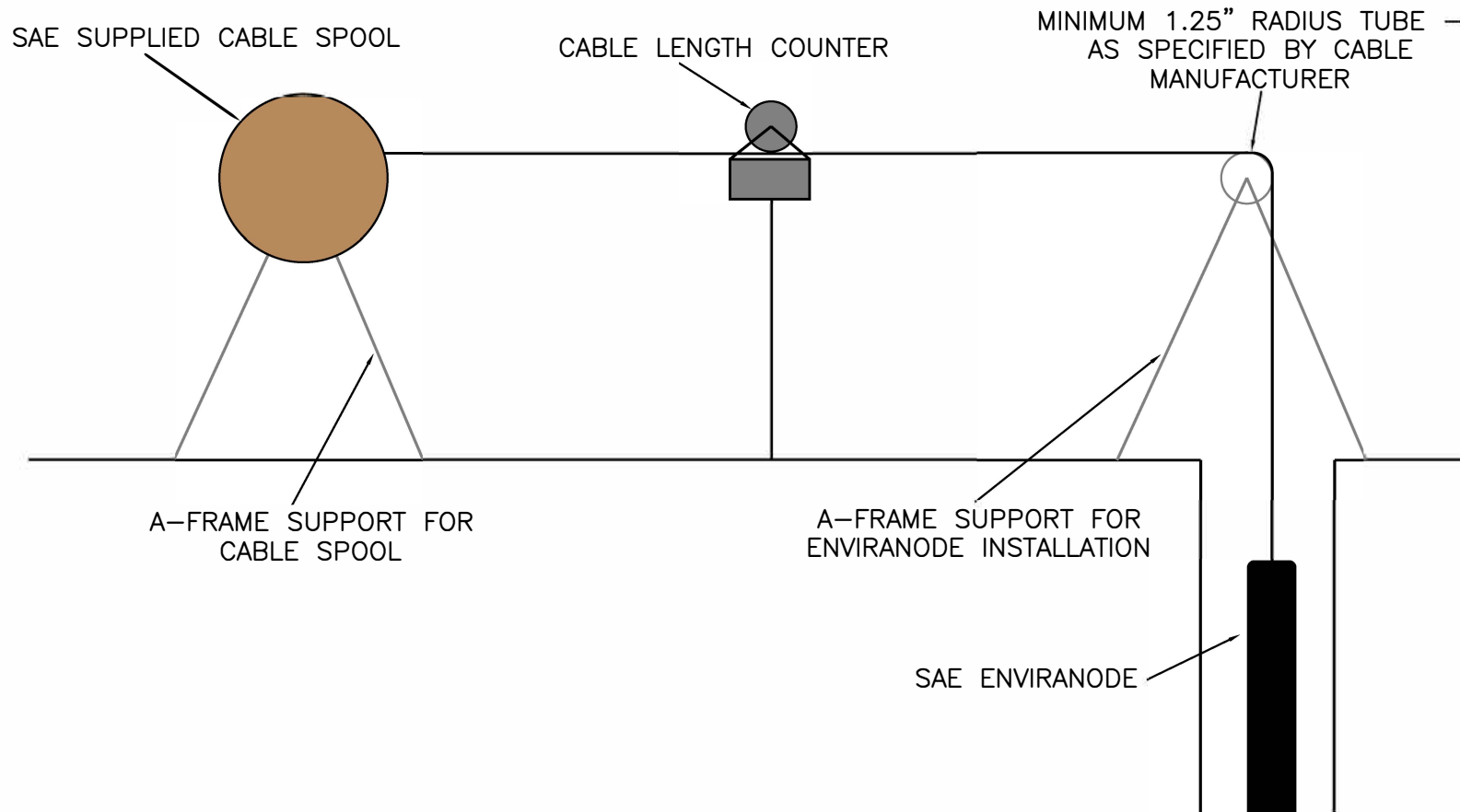
1. Read all of these instructions before handling Conducrete.
2. Read the enclosed MSDS sheet and ensure all personnel handling Conducrete are equipped with the recommended PPE.
3. Excavate trench to designed depth, width and length.
4. Smooth bottom of trench.
5. Place conductor in center of trench.
6. Place dry Conducrete over the conductor. Cover the conductor with the specified depth of Conducrete.
7. Ensure the conductor is completely immersed in Conducrete.
8. Ensure the conductor is approximately centered in the Conducrete horizontally and vertically.





9. Carefully place the first 4 inches (10 cm) of native backfill over the Conducrete by hand tools.
10. Backfill the remaining height of native backfill by conventional methods and compact to specification.

## SAE ENVIRANODE WELL LOADING SCHEMATIC



Scale: NTS

Site Information:

Customer:

File:

Drawing Title:

WELL LOADING SCHEMATIC

Drawing Number:

Rev	Description:	Dwn:	Chkd:	Date:
0	WELL LOAD	RB	CH	05/2018

## Appendix B: EnvirAnode® MATERIAL SAFETY DATA SHEET

SECTION 1		PRODUCT AND COMPANY IDENTIFICATION	
<b>PRODUCT:</b>		Product Identifier:	EnvirAnode ®
		Product Description:	Black Solid Sacrificial Anode
		Recommended Use:	Cathodic Protection
<b>COMPANY IDENTIFICATION:</b>			
<b>SUPPLIER</b>		<b>SAE Inc.</b> 691 Bayview Dr. BARRIE, ONTARIO, CANADA L4N 9A5 + (705) 733-3307 <a href="http://www.saeinc.com">www.saeinc.com</a>	
SECTION 2		HAZARDS IDENTIFICATION	
Carbon		<b>CAS. NO.</b> 64743-05-01	<b>ACUTE LETHALITY</b> Not available.
Hydrated Lime		1305-62-0	LD50 oral (rat) 7340mg/kg
<b>CLASSIFICATION:</b>		NON-HAZARDOUS	
EC CLASSIFICATION:		Not classified as dangerous under EC criteria.	
HEALTH HAZARDS:		Not a health hazard when used under normal conditions.	
ENVIRONMENTAL HAZARDS:		Not classified as dangerous for the environment.	
<b>LABELLING:</b>			
<b>SYMBOLS:</b> None			
<b>Signal Word:</b> None			
<b>Hazard Statements:</b> Not applicable.		<b>Precautionary Statements</b> This product is considered inert and is not considered hazardous.	
SECTION 3		COMPOSITION / INFORMATION ON INGREDIENTS	
		Mixture of carbon and hydrated lime.	
SECTION 5		FIRE FIGHTING MEASURES	
<b>FLASH POINT:</b>		May burn if exposed to temperatures above 600 deg F (300 deg C)	
<b>SPECIAL FIRE FIGHTING PROCEDURES:</b>		Fire fighters should wear self-contained breathing apparatus and full protective clothing as normal.	
<b>EXPLOSION DATA:</b>		Not applicable.	
SECTION 6		ACCIDENTAL RELEASE MEASURES	
<b>SPILL or LEAK PROCEDURE:</b>		Use normal housekeeping procedures. Shovel, sweep or vacuum particles or dust.	
SECTION 7		HANDLING AND STORAGE	
<b>HANDLING PROCEDURES AND EQUIPMENT:</b>		Fragile. Care must be used when handling anode. Anode may fracture or break if dropped.	
<b>STORAGE REQUIREMENTS:</b>		Store in a dry, well-ventilated area, out of the elements. Protect containers from damage or water.	
SECTION 8		EXPOSURE CONTROLS / PERSONAL PROTECTION	



**OCCUPATIONAL EXPOSURE LIMITS:****REGULATION RESPECTING CONTROL OF CHEMICAL AND BIOLOGICAL AGENTS (Ont. Reg. 833)**

	<b>TWAEV</b>	<b>STEV</b>	<b>CEV</b>
Carbon	3.3 mg/m <sup>3</sup>		
Lime	5 mg/m <sup>3</sup>		

**PERSONAL PROTECTIVE EQUIPMENT:**

<b>EYES:</b>	Not applicable.
<b>SKIN:</b>	Not applicable.
<b>RESPIRATORY:</b>	Not applicable.

<b>SECTION 9</b>	<b>PHYSICAL/CHEMICAL PROPERTIES</b>
------------------	-------------------------------------

<b>PHYSICAL STATE:</b>	Solid
------------------------	-------

<b>SOLUBILITY IN WATER:</b>	Non-soluble
-----------------------------	-------------

<b>APPEARANCE AND ODOUR:</b>	Solid black or grayish state, no odor
------------------------------	---------------------------------------

<b>SECTION 10</b>	<b>STABILITY AND RELIABILITY</b>
-------------------	----------------------------------

<b>STABILITY:</b>	This product is stable and inert.
-------------------	-----------------------------------

<b>INCOMPATIBLE MATERIALS:</b>	Not applicable.
--------------------------------	-----------------

<b>CONDITIONS of REACTIVITY:</b>	Product is considered stable.
----------------------------------	-------------------------------

<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	In normal combustion, CO <sub>2</sub> and CO will be released.
--	--

<b>SENSITIVITY to MECHANICAL IMPACT:</b>	No
--	----

<b>SENSITIVITY to STATIC DISCHARGE:</b>	No
---	----

<b>SECTION 11</b>	<b>TOXICOLOGICAL INFORMATION</b>
-------------------	----------------------------------

<b>ACUTE EFFECTS:</b>	This product is not toxic.
-----------------------	----------------------------

<b>EYE:</b>	Not applicable.
-------------	-----------------

<b>SKIN:</b>	Not applicable.
--------------	-----------------

<b>INHALATION:</b>	Not applicable.
--------------------	-----------------

<b>INGESTION:</b>	Not applicable.
-------------------	-----------------

<b>CHRONIC EFFECTS:</b>	Not applicable.
-------------------------	-----------------

<b>SECTION 12</b>	<b>ECOLOGICAL INFORMATION</b>
-------------------	-------------------------------

For questions regarding toxicological and ecological information refer to contact information in Section 1.

<b>SECTION 13</b>	<b>DISPOSAL CONSIDERATIONS</b>
-------------------	--------------------------------

<b>WASTE DISPOSAL:</b>	Reuse or dispose of waste and containers in accordance with local, provincial or federal regulations.
------------------------	---

<b>SECTION 14</b>	<b>TRANSPORTATION</b>
-------------------	-----------------------

This product is not classified as a Hazardous Material under U.S. DOT or Canadian TDG regulations. This material is not classified as dangerous under ADR, RID, ADN, IMDG and IATA regulations.

<b>SECTION 15</b>	<b>REGULATORY INFORMATION</b>
-------------------	-------------------------------

<b>Toxic Substances Control Act of 1976 (TSCA):</b>	Not subject to TSCA
---	---------------------



**CERCLA/Superfund:**

This product is not listed as a CERCLA hazardous substance.

**RCRA:**

If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

---

**SECTION 15**

---

**OTHER INFORMATION**

---

Updated:

June 2016

## Appendix C: Conducrete® MATERIAL SAFETY DATA SHEET

### SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT:

Product Identifier: Conducrete® DM100  
 Product Description: Grey Conductive Carbonaceous Concrete  
 Recommended Use: Grounding Conductive Concrete Material

#### COMPANY IDENTIFICATION: SUPPLIER

**SAE Inc.**  
 691 Bayview Dr.  
 BARRIE, ONTARIO, CANADA L4N 9A5  
 + (705) 733-3307  
 www.saeinc.com

### SECTION 2 HAZARDS IDENTIFICATION

	CAS. NO.	ACUTE LETHALITY
Carbon	7440-44-0	LD50 ivn-mus 440/mg/kg
Portland Cement	65997-15-1	Not available

**CLASSIFICATION:** NON-HAZARDOUS  
**EC CLASSIFICATION:** Not classified as dangerous under EC criteria.  
**HEALTH HAZARDS:** Not a health hazard when used under normal conditions.  
**ENVIRONMENTAL HAZARDS:** Not classified as dangerous for the environment.



#### LABELLING:

**SYMBOLS:** Caution



**Signal Word:** Caution

#### Hazard Statements

- H316: Causes mild skin irritation
- H320: Causes eye irritation
- H335: May cause respiratory irritation

#### Precautionary Statements

- P264: Wash hands thoroughly after handling
- P280: Wear protective gloves/clothing/eye protection/face protection.
- P284: In case of inadequate ventilation wear NIOSH 95 approved dust respirator.
- P305+P351+P338: If in eyes; Rinse continuously with water for several minutes. Remove contact lenses, if present. Continue rinsing.
- P337+P313: If eye irritation persists: Get medical advice/attention.
- P402: Store in a dry place.

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Mixture of carbon and Portland cement.

### SECTION 4 FIRST AID MEASURES

**EYE:** Immediately flush eyes with running water for a minimum of 20 minutes by the clock while forcing eyelids open during flushing. Obtain medical attention immediately after flushing.

**SKIN:** Wash affected areas with soap and running water while removing contaminated clothing. Launder contaminated clothing before reuse.

**INHALATION:** Remove to fresh air. Give artificial respiration if not breathing. Get immediate medical attention.





**INGESTION:** Get immediate medical attention. If conscious, give 2 glasses of water or milk. Do not give anything by mouth to an unconscious or convulsing person. Do not induce vomiting.

<b>SECTION 5 FIRE FIGHTING MEASURES</b>	
<b>FLASH POINT:</b>	Carbonic matter: May burn if exposed to temperatures above 1290 deg F (700 deg C)
<b>SPECIAL FIRE FIGHTING PROCEDURES:</b>	Fire fighters should wear self-contained breathing apparatus and full protective clothing. Water will set up product.
<b>EXPLOSION DATA:</b>	Powders and dusts may cause an explosion hazard under certain conditions; these conditions are unlikely during normal use.

<b>SECTION 6 ACCIDENTAL RELEASE MEASURES</b>	
<b>SPILL or LEAK PROCEDURE:</b>	Avoid all personal contact. Wear protective equipment listed in Section 8. Shut off source of leak if safe to do so. Contain spill. Shovel, sweep or vacuum up spilled material. Avoid producing dust. Shovel into containers.

<b>SECTION 7 HANDLING AND STORAGE</b>	
<b>HANDLING PROCEDURES AND EQUIPMENT:</b>	Avoid all personal contact with this product. Avoid breathing dusts by wearing a NIOSH 95 approved dust respirator. Do not use this product in a confined space without adequate local exhaust ventilation. Washing facilities should be readily available when using this product. Wash thoroughly after handling.
<b>STORAGE REQUIREMENTS:</b>	<p>Store in a dry, well-ventilated area. Protect containers from damage or water.</p> <p>Do not store near food and beverages or smoking materials. Conducrete® must be stored in unopened bags clear of the ground in cool, dry conditions.</p> <p>Storage should be such that no dampness or moisture is allowed to reach Conducrete® either from the ground, walls or from the environment. This becomes particularly important during the humid season and in coastal regions when atmospheric air contains higher amount of moisture in it.</p> <p>Do not store Conducrete® in a building where walls, roof and floor are not completely weather proof.</p> <p>Do not stack against the wall. Do not store Conducrete® bags directly the floor; place on a wooden pallet or plastic sheet. Plastic is effective as a barrier to keep the Conducrete® from absorbing moisture.</p> <p>Do not keep bags on the ground for temporary storage at work site. Pile on raised dry platform e.g. skid and cover with plastic. If no skid is available place Conducrete® on plastic sheet.</p> <p>Conducrete® bags can be torn or otherwise damaged by careless or rough handling, by sharp edges, by nails sticking out of the wooden pallets, by dropping from excessive heights, by the forks of forklift trucks, etc. Conducrete® bags being transported on trucks should also be protected from rain, drizzle, sea spray, and splashes from puddles and potholes, etc.</p> <p>Shelf life is limited by direct contact with moisture and or elevated levels of humidity.</p>

<b>SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION</b>	
<b>OCCUPATIONAL EXPOSURE LIMITS:</b>	

**REGULATION RESPECTING CONTROL OF CHEMICAL AND BIOLOGICAL AGENTS (Ont. Reg. 833)**



Portland cement,  
Respirable containing no  
asbestos and <1%  
Crystalline silica

**TWAEV**

1.0 mg/m<sup>3</sup>

**STEV**

**CEV**

**ENGINEERING CONTROLS:**

General mechanical and local exhaust ventilation to maintain airborne concentrations below occupational exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT:**

**EYES:**

Chemical goggles or safety glasses.

**SKIN:**

Rubber gloves and long sleeves.

**RESPIRATORY:**

Wear a NIOSH 95 approved dust respirator appropriate for airborne concentrations or dust mask.

**SECTION 9**

**PHYSICAL/CHEMICAL PROPERTIES**

**PHYSICAL STATE:**

Solid

**SOLUBILITY IN WATER:**

Insoluble

**APPEARANCE AND ODOUR:**

Gray powder, no odor.

**SECTION 10**

**STABILITY AND RELIABILITY**

**STABILITY:**

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

**INCOMPATIBLE MATERIALS:**

May react with some metals, oxidants, acids, bromates, chlorates and iodates.

**CONDITIONS of REACTIVITY:**

Product is not considered dangerously reactive.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

Heating or burning of the product releases toxic and irritating vapors and gases.

**SENSITIVITY to MECHANICAL IMPACT:**

No

**SENSITIVITY to STATIC DISCHARGE:**

No

**SECTION 11**

**TOXICOLOGICAL INFORMATION**

**ACUTE EFFECTS:**

This product is alkaline and can cause burns when moist. Contact with this product should be avoided, eye, skin and mucous membrane irritant.

**EYE:**

Direct eye contact with the product may cause injuries.

**SKIN:**

Contact with the product may result in irritation and/or dermatitis. Perspiration on the skin combined with this product may be sufficient to cause burns.

**INHALATION:**

Inhalation of dust from this product may result in irritation.

**INGESTION:**

Ingestion is likely to cause irritation and cramps, possibly nausea and diarrhea.

**CHRONIC EFFECTS:**

Prolonged or repeated contact may cause irritation and/or dermatitis. Hypersensitive individuals may develop an allergic dermatitis.

**SECTION 12**

**ECOLOGICAL INFORMATION**

For questions regarding toxicological and ecological information refer to contact information in Section 1.

**SECTION 13**

**DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL:**

Reuse or dispose of waste and containers in accordance with local, provincial or federal regulations.



---

<b>SECTION 14</b>	<b>TRANSPORTATION</b>
-------------------	-----------------------

---

This product is not classified as a Hazardous Material under U.S. DOT or Canadian TDG regulations. This material is not classified as dangerous under ADR, RID, ADNR, IMDG and IATA regulations.

---

<b>SECTION 15</b>	<b>REGULATORY INFORMATION</b>
-------------------	-------------------------------

---

**Toxic Substances Control Act of 1976 (TSCA):** Not subject to TSCA

**CERCLA/Superfund:** This product is not listed as a CERCLA hazardous substance.

**RCRA:** If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

---

<b>SECTION 16</b>	<b>OTHER INFORMATION</b>
-------------------	--------------------------

---

**Updated:** June 2016