



Reinforcement Systems & Masonry Anchoring

NOTES FOR APPROVED INSTALLERS USING
THE CINTEC REINFORCEMENT &
ANCHORING SYSTEM

ICC - ES Manufacturer's Installation Instructions (MPII)

COPYRIGHT

*This manual is the copyright of Cintec International Limited.
No part shall be reproduced in any media format without the
express permission of Cintec International Limited or its
overseas affiliates.*

Table of Contents

THE CINTEC TRAINING COURSE	1
Identity Cards	1
EQUIPMENT REQUIRED FOR THE INSTALLATION OF THE CINTEC ANCHORING SYSTEM	2
INSTALLATION	3
Drilling	3
Grout Mixing	3, 4
Anchor Installation & Insertion	4, 5, 6
Cold Weather Grouting	7
Hot Weather Grouting	8
PROBLEMS ENCOUNTERED DURING INSTALLATION	9
IMPORTANT POINTS TO CONSIDER BEFORE ORDERING ANCHORS	9
CARE OF ANCHORS AND GROUT	10
NOTES AND METHOD STATEMENT FOR GROUT FILLED CARTRIDGES	10
CONSTRUCTION SITE SAFETY CHECK LIST	11
Safe Access	11
Ladders	11
Tubular Scaffolds	11
Machinery	11
Electricity	11
Noise	12
Protective Clothing	12
Welfare	12
Site Cleaning	12
PRESSTEC® GROUT & HEALTH & SAFETY	12
APPENDIX A–MATERIAL SAFETY DATA SHEETS	
APPENDIX B–PRODUCT INFORMATION UPDATES	
APPENDIX D–GROUT INJECTION KIT	

THE CINTEC TRAINING COURSE

References to "Cintec" in this document are to the companies Cintec International Ltd (UK), Cintec America Inc., Cintec Canada Ltd or Cintec Australasia Pty Ltd, or to the product manufactured and marketed by those companies, unless contrary to the context.

The object of this training course is to give the installer a complete knowledge of the Cintec Anchoring System.

During the course you will be shown and given hands on experience in the installation techniques used in the Cintec Anchoring System.

Upon completion of the course, successful trainees will be certificated and issue with an identity card. Your company will then be entered onto our list of approved installers.

IDENTITY CARDS

CINTEC
REINFORCEMENT SYSTEMS

CERTIFIED INSTALLER

.....

SIGNATURE OF CARD HOLDER

EXPIRES 3 YEARS FROM DATE OF SIGNATURE
SEE REVERSE

You will be required to carry this identification card on site while undertaking all work requiring the use of the Cintec Anchoring System.

This card must be shown to all authorized site and Cintec personnel upon request. Failure to carry and produce your identity card may terminate your right to remain an approved installer.

As manufacturers, we carry the responsibility of the product thus giving you the responsibility to carry out the work in a workmanlike manner.

This identification card is valid for three years only, after this time period reassessment will be necessary.

THIS PERSON HAS BEEN TRAINED IN THE INSTALLATION OF THE CINTEC SYSTEM
AND HAS ACHIEVED THE FOLLOWING GRADE

NAME: _____

GRADE 1 Wall Ties _____

GRADE 2 System under 3 meter, 10 foot length _____

GRADE 3 System over 3 meter, 10 foot length _____

GRADE 4 Ground & Rock System _____
(includes grades 1,2,3 and post tensioning)

GRADE 5 Sectioned System up to 30 meter, 100 foot length _____
(includes grades 1,2,3,4 and assembly on site)

THIS CARD REMAINS THE PROPERTY OF CINTEC, CINTEC NORTH AMERICA & CINTEC
REINFORCEMENT SYSTEMS AND MUST BE SURRENDERED FOR INSPECTION UPON
REQUEST BY ALL AUTHORIZED SITE AND CINTEC PERSONNEL

1 613 225 3381 1 800 363 6066

DATE OF SIGNATURE

EXPIRY DATE

OPERATIVE

SIGNATURE OF TRAINING OFFICER

Any new employees joining an approved company must receive training from a Cintec representative before they can install the Cintec Anchoring System.

EQUIPMENT REQUIRED FOR THE INSTALLATION OF THE CINTEC ANCHORING SYSTEM

Potable Water
Water Pipe
Electric Power
Extension
Toolbox (screwdriver, pliers, ASS'T wrench, etc.)
Sharp Knife (exacto)
Electrical tape
High Speed Drill (550 RPM minimum)
Small air compressor (100 psi)
Pressure pot*
Mortar mixing tool*
Injection control valve*
Plastic injection tip*
Sieve / Strainer*
20 liter buckets (2) (clean)*

* Supplied with the injection kit if purchased.



Cintec recommends a pressure pot of at least 10 liters (2.5 US gallons). This can be provided as part of an installation kit for the installation of the Cintec system by Cintec (see Appendix D).

An equivalent pressure pot may be used but it must be able to be pressurized from 200 kPa to 600 kPa. The outlet on the pressure pot needs to be altered to accept a ½" (1.27 cm) BSP hose adapter with 4 metres (12'0") of reinforced ½" (1.27 cm) tubing and a ½" (1.27 cm) quarter turn ball valve. A ½" (1.27 cm) hose adapter or threaded attachment needs to be screwed into the valve to enable plastic mastic nozzles to be pushed or threaded onto the front of the valve. This assembly will then serve as the grout delivery hose and control valve. For large anchors using grout delivery tubes, quick-connect hose fittings may be used. Contact Cintec for details.

All equipment must be kept in a clean condition. Do not use oil or releasing sprays inside the pressure pot as this may contaminate the grout.

Safety goggles and gloves must be worn at all times when mixing and injecting grout.

INSTALLATION

Drilling

Carefully set out the anchor position using a wax crayon or chalk, as per specifications, or as directed by the structural engineer or supervisor.

Select the drilling method specified: -

Wet diamond - dry diamond - rotary percussion - or other

Drill the hole to the required depth of the anchor and the embedment depth required.

Remove all debris and cores from the borehole and check the depth.

Flush out all bore holes with water or compressed air to remove all dust and debris.

Wash off all stains immediately.

Drilling blind into substrates requires special care. Substrates must be checked to ensure that they are as indicated. If not notify the engineer or supervisor. A particular problem is ending the drill hole in a void larger than the anchors expansion capabilities. Careful checks must be made if this is suspected and the engineer or supervisor informed.

Boreholes in loose material must be sleeved immediately after drilling to facilitate anchor insertion and prevent the need for re-drilling.

Grout mixing

The grout is packed in 25 kg (56 Lbs) bags and is mixed with clean cool water.

The normal mixing ratio is 5 litres (1.32 US Gal) of water to one 25 kg (56 Lbs) bag of grout. One 25 kg (56 Lbs) bag will yield 15.5 litres (4.09 US Gal) of fluid grout when mixed.

The 5 litres (1.32 US Gal) of water can be increased by 10% (500ml OR 0.132086 US Gal) in hot weather (20°C +/68°F) and when the substrate is very dry and porous or the injection process is through very small injection tubes.

Do not increase the water content outside of these parameters, as this will considerably weaken the strength of the set grout.

The grout must be mixed as follows:

Place 4½ litres (1.18877 US Gal) of clean/cold water into a clean mixing bucket and slowly add approx. ¾ of one bag of Presstec grout while mixing.

Add the final ½ litre (0.11351 US Gal) of water and the remaining ¼ bag of grout.

Continually mix the grout for 4 minutes removing all the dry mixture from the sides of the bucket.

Allow the mixture to stand for 5 minutes, during which the mixture will start to thicken, the amount the mixture thickens will depend on the ambient temperature and the temperature of the dry grout and water.

At this stage some or all of the 10% extra water may be added to achieve a smooth creamy texture with no peaks forming on the surface.

HOW TO MIX

See also hot weather and cold weather procedures

4½ LITRES (1.135104 US Gal) OF WATER
=



Very clean bucket or container

+

1/2 LITRE (0.11351 US Gal) OF WATER



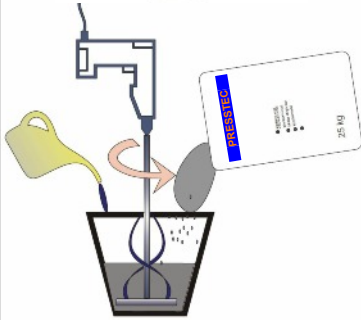
Graduated plastic pitcher

25 KG (56 Lbs) BAG



- Injektions - und verpressmortel
- Injection grout
- Mortier d'injection
- Injektiermortel

25 Kg



Electric mixer capable of 500 rpm



4 minutes of continuous mixing.



Allow to stand for 5 minutes



Re-mix and add up to 10% (550ml or 0.124861 US Gal) of water if required.

Installation then proceeds:

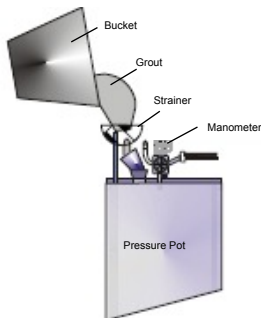
Pour the mixed grout into the pressure pot through the sieve.

Pressurize the pot from 300 kPa to 500 kPa (40-72 psi) dependent on the type and length of anchor being installed.

Cut the plastic mastic nozzle to fit the anchor's orifice. On anchors with injection tubes, prime the tube with water and cut the mastic nozzle to fit over the injection tube.

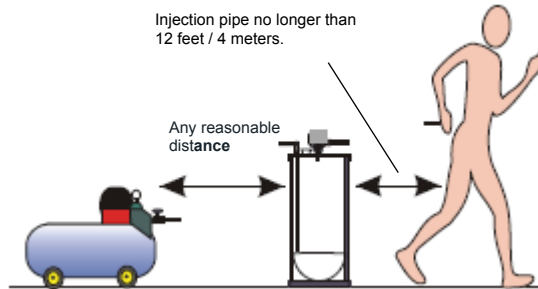
Test the grout flow into a suitable bucket. If the grout flow is continuous and of sufficient pressure the anchor can be injected.

Grout is introduced into pressure pot through a sieve

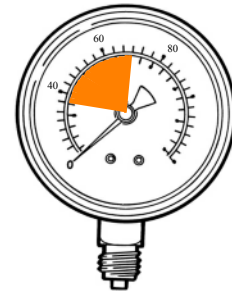


Injection pipe no longer than 12 feet / 4 meters.

Any reasonable distance



Compressor with a minimum of 2.6 cu. ft. and 90 PSI.



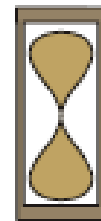
Injection limits between 300 & 500 kPa (40-72 psi)



Hand held grouting gun for small quantities



Center the anchor body in the hole.



Pot life 60 minutes dependent on temperature

ANCHOR INSERTION

Carefully unpack the anchor and check there has been no damage to the fabric sock during transit.

All damages must be reported to Cintec.

Small tears or rips in the sock can be repaired using a needle and strong cotton and/or a hot-melt glue stick.

Do not shorten the length of the sock on the anchor.

At this stage the anchor must be handled with extreme care and should not be unwrapped until required.

Some long anchors require sleeves to protect the anchor during insertion, wherever possible use sleeves.

Immediately prior to insertion wet the anchor completely with clean water and position the sock evenly along the length of the anchor.

Long anchors should be wet after insertion into the borehole

N.B. Do not allow the sock to remain completely saturated with water for a long period as this may cause the fabric sock to shrink.

Place the anchor in the bore hole and carefully push the anchor in, lifting it over any fissures or voids, do not force or twist the anchor into the hole.

Install the anchor to within 50 mm (2") of the face of the brickwork (do not push completely in yet.)

ANCHOR INSTALLATION

Carefully cut the nozzle to fit over the injection tube and position the anchor to the specified depth (minimum 25 mm or 1" beyond face of brickwork).

Prior to the mixing and injection of the grout, the equipment should be primed and checked with clean water to ensure that the injection equipment is working and that there are no blockages.

Turn on the control valve and the grout will flow to the rear of the anchor and inflate the sock along the length of the anchor to the front.

Rotate the anchor slowly and carefully if necessary, in a circular motion to facilitate the grout flow and to ensure the anchor is centred in the borehole upon completion.

At this stage the anchor will be felt to be locking in the borehole and grout milk will appear at the front of the anchor (note the colour change in the sock).

Maintain the pressure until the grout milk has stopped flowing and the sock at the front of the anchor cannot be easily compressed.

Use a sponge or cloth during this process to soak up the excess grout milk and avoid the milk running down the face of the brickwork/stonework.

The grout, anchors and pressure pot must be stored in a container or room with a temperature of no less than 10°C (50°F).

The clean water used for mixing must be within the temperature range of 15°C - 20°C (59°F-68°F).

ANCHOR INSTALLATION

SHORT ANCHORS

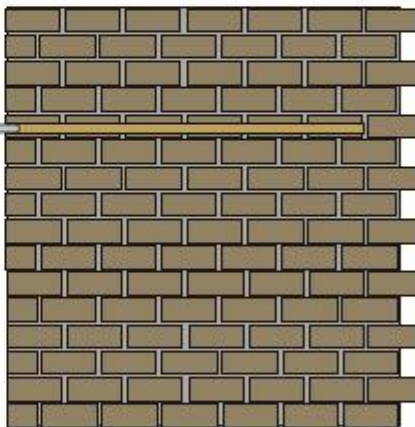
Pre wet short anchors **before** installation



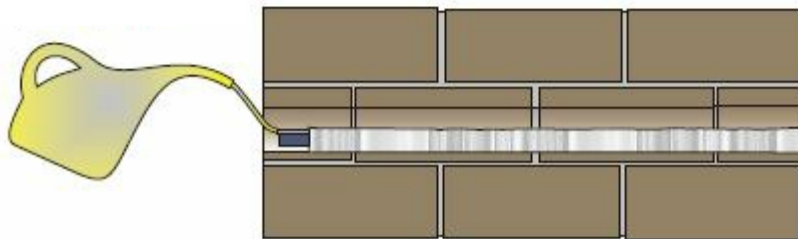
LONG ANCHORS

Pre wet long anchors **after** insertion

Ensure sock is evenly distributed along the full length of the anchor as the anchor is installed. Do not twist or force the anchor as it is pushed into the drilled hole.



Prime any injection tubes with clean water prior to injection.



Any grout or milk on the wall must be washed off immediately. Please note that the anchor is not fully inflated until the grout milk has stopped flowing through the sock. Pressure must be maintained to allow this to be achieved.

With large injection orifices, a suitable plug must be placed in the injection port immediately after removing the nozzle.

STUDDING AND SOLID BAR (REBAR) ANCHORS, THE NORMAL INSTALLATION STILL APPLIES, BUT THE FOLLOWING METHOD NEEDS TO BE ADOPTED TO FACILITATE THE INSTALLATION.

When inserting the anchor, ensure that the injection tube is towards the top of the borehole – NEVER force or twist the anchor into the hole.

COLD WEATHER GROUTING

The installer shall ensure that the minimum temperature of the grout at the time of injection is 7°C (44.6°F) and the temperature of the injected grout does not fall below 5°C (41°F) for a period of twenty-four hours from the beginning of inflation.

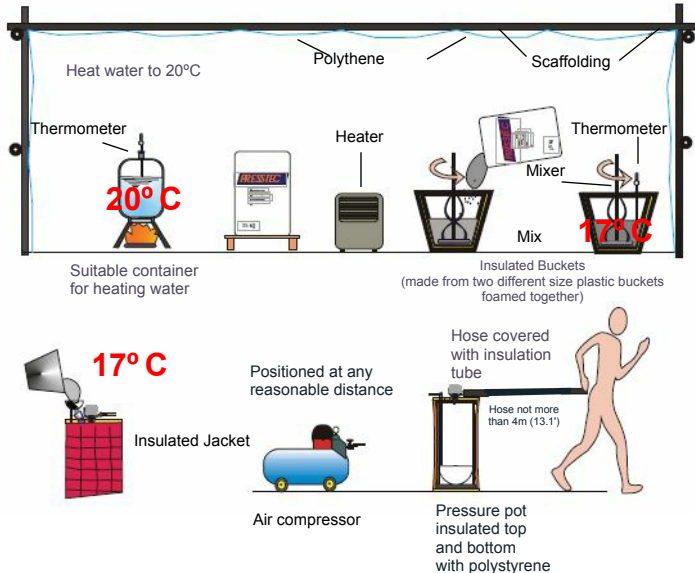
Core holes must be at a minimum of 5°C (41°F) prior to anchor installation and maintained above a 5°C (41°F) for at least 24 hours after installation. If this is impracticable, cold weather procedures must be adopted with the consent of Cintec.

The cold weather procedures are as follows:

- The pressure pot and delivery hose should be lagged with a suitable insulating material.
- The grout, anchors and pressure pot must be stored in a container or room with a temperature of no less than 10°C (50°F).
- The clean water used for mixing must be within the temperature range of 15°C - 20°C (59°F-68°F).
- The bore hole temperature must not be below 5°C (41°F) and no ice must be present on the surface of the borehole.
- A suitable shelter needs to be used for the mixing process.
- A screen needs to be erected around the installation area to avoid any wind chill.
- After drilling the borehole, install a suitable plug to maintain a constant core temperature.
- Insert the anchor in the borehole just prior to inflation (as per normal installation methods).
- Mix the grout as per instructions using the heated water and sieve into the insulated pot.
- The pressure pot and delivery hose should be lagged with a suitable insulation material.
- Inflate the anchor as normal.
- Immediately after inflation, install insulation in the front of the borehole.

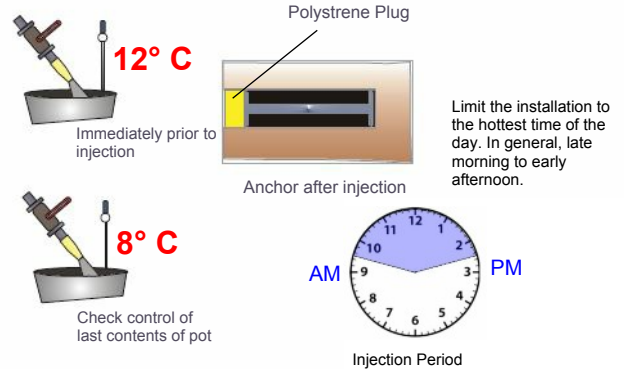
COLD WEATHER
 Allow the outside temperature to rise before injecting the grout, i.e. do not inflate first thing in the morning or last thing in the afternoon.
 Please note that these procedures must be carried out with extreme care and should not be used unless a representative from Cintec is present.

Shelter prefabricated from scaffolding and polythene sheets to mixing area and anchor installation area to form a wind break.



The temperature of the grout during the injection must never be lower than 8 ° C.

Bore hole temperature must be a minimum 5°C (41°F)



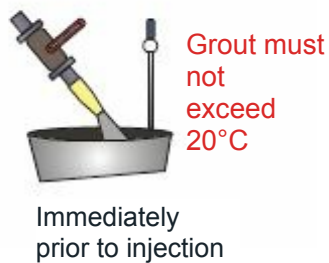
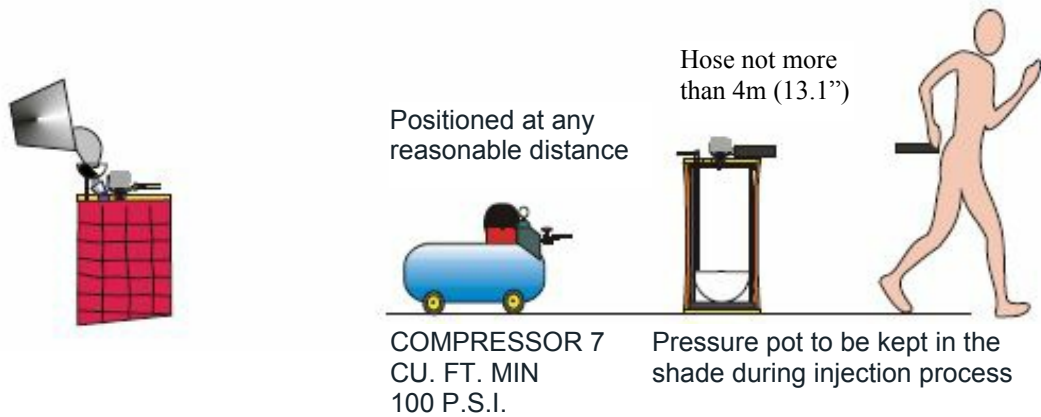
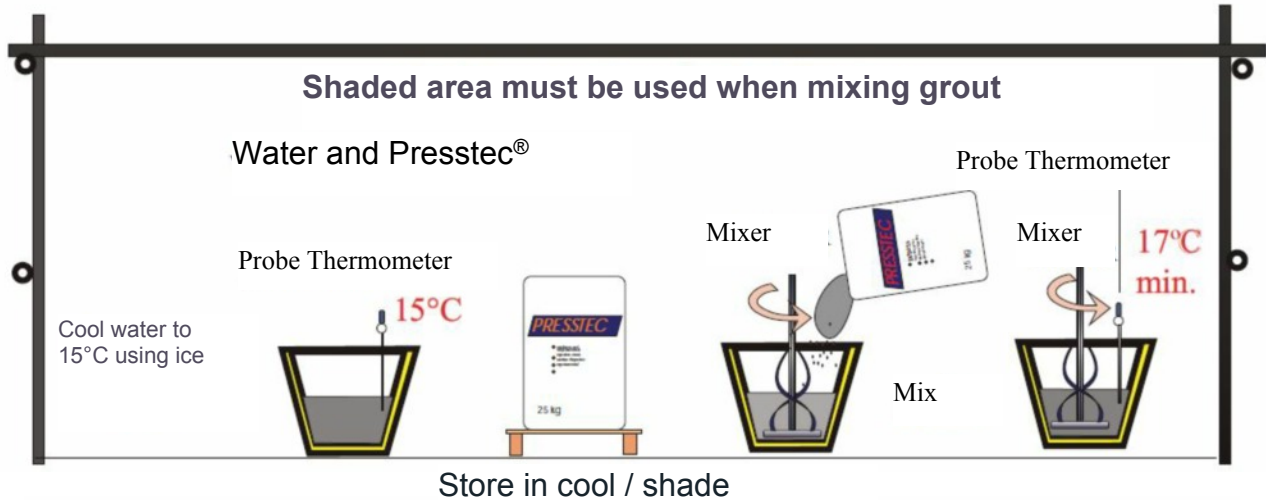
Grout Mix Report

Date: _____
 Batch number: _____
 Water temperature: _____
 Final mixing temperature: _____
 Temperature prior to injection: _____
 Final pot batch temperature: _____

HOT WEATHER GROUTING

In very hot climates the maximum temperature of the grout at time of injection must not exceed 20°C(68°F). If the temperature exceeds this, the clean water used for mixing must be cooled to 15°C (59°F).

The pressure pot and the bore hole must be shielded from direct sunlight. In extreme conditions the pressure pot must be placed in a vat of cooled water or ice.



PROBLEMS ENCOUNTERED DURING INSTALLATION

Grout blockage can occur in the hose and control valve if left in direct sunlight or the mixed grout has not been sieved correctly.

The anchor will not inflate if the sock has been ripped during installation. Remove the anchor from the borehole and check the sock, small tears can be repaired and the anchor reinstalled; if the damage is more severe remove the grout and fabric sock and wash off the anchor completely. Notify Cintec who will arrange a repair procedure.

Anchor fails to fill, only partially fills, fails to reach surface of borehole.

There are a number of factors to consider here, check all the following possibilities:

- Grout mixture too thick either by incorrect mixing or outside the working time of the mixed grout (usually between 45 minutes and 1 hour, dependent on conditions.)
- Grout has passed its shelf life. Check date on side of bag.
- Anchor installed in a borehole of larger diameter than that for which it was designed. Check original order.
- Large voids are present tensioning the sock at the front of the anchor. A larger sock may be required.
- Insufficient pressure in the pot. Shut off the air from the compressor and check that the pressure pot is maintaining a constant pressure. If it is dropping, check for leaks. Remember, what is shown on the gauge is not necessarily what is in the pot because the air can be passing into the pot and straight out through any leaks.
- The sock has twisted during installation, preventing the grout passing the twist. Do not force or twist the anchor while inserting.
- Sock not distributed evenly before insertion, therefore there is too much sock at the front of the borehole preventing complete inflation.
- Failure to wet the sock. This is very important in porous substrates and in dry/hot weather conditions.

IMPORTANT POINTS TO CONSIDER BEFORE ORDERING ANCHORS

The anchor system is engineered for the specific installation, therefore as much information as possible about the type of substrate and possible voids etc. is required to enable us to manufacture the exact anchor to meet your requirements.

The minimum embedment depth of any anchor is 75 mm (3") unless test anchors have been installed to determine the load achievable with a reduced embedment.

The max length of an 8 mm (5/16") or 10 mm (3/8") CHS (circular hollow section) anchor in a 20 mm (3/4") hole is 500mm (20").

For lengths between 500 mm (20") and 1000 mm (39"), a 24 mm (1") hole is required for a 10 mm (3/8") CHS.

The general rule is that the borehole must be twice the diameter of the anchor body utilized. This is only applicable up to certain lengths and the hole size must be increased on longer anchors.

The guidelines are as follows:

8mm (5/16") CHS	20mm (3/4") borehole up to 500mm (20")
10mm (3/8") CHS	20mm (3/4") borehole up to 500mm (20")
10mm (3/8") CHS	25mm (1") borehole up to 1000mm (39")
10mm (3/8") CHS	32mm (1 1/4") borehole up to 2000mm (6'6")
15mm (5/8") x 15mm (5/8") SHS	32mm (1 1/4") borehole up to 3000mm (9'9")
20mm (3/4") x 20mm (3/4") SHS	40mm (1 1/2") borehole up to 3000mm (9'9")
30mm (1 3/16") x 30mm (1 3/16") SHS	60mm (2 1/2") borehole up to 4000mm (13'0")
M10 (3/8") studding	32mm (1 1/4") borehole up to 1000mm (39")
M12 (1/2") studding	32mm (1 1/4") borehole up to 1000mm (39")
M16 (5/8") studding	40mm (1 1/2") borehole up to 3000mm (9'9")
M20 (3/4") studding	50mm (2") borehole up to 4000mm (13'0")

CARE OF ANCHORS AND GROUT

The anchors and fixings are supplied with the correct amount of grout. Care must be taken not to waste grout. The anchors, fixings and grout should be stored safely away from all work areas until needed.

GROUT

Store grout in a dry place off the ground. NEVER allow the grout to become damp, or wet, or store in a place where the temperature can drop below 5°C (41°F).

NB – The marriage of steel and fabric is very delicate and the anchors must be treated accordingly to ensure that no damage to the fabric sock occurs. DO NOT leave anchors lying around on the ground or on scaffolding. NEVER use anchors to test the hole depth.

NOTES AND METHOD STATEMENT FOR GROUT FILLED CARTRIDGES

1. Use small clean container E.G. plastic paint bucket and measuring jug.
2. Remove back plug from container, pour grout contents into the mixing pot, gradually add small amount of clean water stirring until the consistency is a smooth medium thick cream.
3. Mix for at least four minutes with a whisk then allow to stand for a further four minutes and whisk again.
4. Pour the mixed grout back into the container and replace back plug securely.
5. Remove nozzle to remove inner plug and replace nozzle.
6. Place container into master gun, insert nozzle into back of anchor and proceed to pump.
7. Pump until trigger is stiff, hold for 10 seconds, release safety catch and withdraw slowly from the anchor.
8. Repeat the same process for each anchor.

NB – If you use a re-usable mastic/grout gun. These hold approximately ½ litre (0.11351 US Gal) of grout. Therefore 220 ml (0.058118 US Gal) of water to 1 kg (2.2 lbs) of grout is enough for one fill, which will pump 5 RAC standard anchors. The water ratio can be altered slightly dependent on weather conditions. Mix as above for at least four minutes, allow to stand for four minutes, mix for a further minute.

Stages

- | | |
|--------|--|
| Step 1 | Measure 220 ml (0.06 US Gal) of water into a clean container and slowly add 1 kg (2.2 lbs) of grout, whisk thoroughly for four minutes and allow to stand for a further four minutes and whisk again. The mixture should be smooth and creamy with no lumps. |
| Step 2 | Pour mixed grout into front of gun and replace tap assembly. |
| Step 3 | Turn off tap and pressurize gun. |
| Step 4 | Push nozzle on anchor and open valve. When anchor is full, keep pressure on for 10 seconds, close valve and remove nozzle. |

If you use a metal grout gun, grout on occasions collects at the base. To overcome this problem, do not fully empty the gun, and remove excess grout. Swill all parts in a clean bucket of water between each mix.

NB – Metal hand grout guns must be washed and fully cleaned and thoroughly dried, after use. DO NOT oil cylinder as this would contaminate the grout.

Failure to carry out above will result in rusty equipment.

CONSTRUCTION SITE SAFETY CHECK LIST

The information that follows is derived from Cintec experience worldwide. It is supplied in good faith, but is not intended to be used in place of any statutory requirements. Occupational Health and Safety regulations that apply in the area in which the installation is being carried out must be adhered to at all times.

Safe access

- Can everyone reach their place of work safely, i.e. are there good roads, gangways, passage ways passenger hoists, staircases, ladders and scaffolds?
- Are all walkways level and free from obstructions such as stored material and wastes?
- Are there adequate barriers or other edge protection to stop falls from open edges of buildings, gangways etc.?
- Are holes and openings securely fenced off or provided with covers?
- Is there adequate artificial lighting when work is carried out after dark or inside buildings?
- Is the site tidy and are materials stored safely?
- Are there proper arrangements for collecting and disposing of scrap?
- Have nails in timber been hammered down or removed?

Ladders

- Are ladders the right equipment to use for the job or should a scaffold be provided?
- Are all ladders in good condition?
- Are ladders secured near the top (even if they will be used for only a short time)?
- If ladders cannot be secured at the top, are they secured near the bottom, weighted or footed to prevent slipping?
- Do the ladders rise the required minimum distance above their landing places or the highest rungs used (refer to appropriate regulations)? If not, are there adequate handholds?
- Are the ladders properly positioned for access?

Tubular scaffolds

- Is there proper access to the scaffold platform?
- Are all uprights provided with base plates (and, where necessary, timber sole plates) or prevented in some way or other from slipping or sinking?
- Have any uprights, ledges, braces or struts been removed?
- Is the scaffold secured to the building in enough places to prevent collapse?
- If any ties have been removed since the scaffold was erected have additional ties been provided to replace them?
- Are the working platforms fully covered?
- Are boards free from obvious defects such as knots and are they arranged to avoid tipping or tripping?
- Are there effective barriers or warning notices to stop people using an incomplete scaffold e.g. one that isn't fully boarded?
- Where the scaffold has been designed and constructed for loading with materials, are these evenly distributed?
- Does a competent person inspect the scaffold regularly i.e. at least once a week and always after bad weather?
- Are the results of inspection recorded (including any defects that were put right during the inspections) and the records signed by the person who carried out the inspections?
- Is there safe access to the excavation e.g. a sufficiently long ladder? Are there barriers to stop people falling in? Is the excavation affecting the stability of neighbouring buildings? Are stacked materials, spoil or plant stored near the edge of the excavation likely to cause a collapse to the site? If vehicles tip into the excavation, are properly secured stop blocks provided?

Machinery

- Are there any dangerous parts e.g. exposed gears, chain drives, projecting engine shafts?
- Are the dangerous parts adequately guarded?
- Are guards secured and in good repair?

Electricity

- Are all portable electric tools and equipment run from a power supply with earth leakage circuit breaker protection?
- Can you see any signs of damage or interference with equipment, wires and cables? Where required, have power tools been checked and tagged by a licensed electrician?
- Are all connections to power points made by proper plugs?
- Are connections to plugs properly made so that the cable grip holds the cable firmly and prevents the earth wire from being pulled out?
- Are there any overhead power lines? Where anything might touch the lines or cause arcing (cranes, tipper lorries, scaffolding etc.), has the electricity supply been turned off or other precautions taken to prevent such contact with the lines?
- Have underground electricity cables been located (with a cable locator and cable plans), marked and precautions taken to avoid contact with them?

Noise

- Are breakers fitted with muffs?
- Is other plant or machinery fitted with silencers?
- Do workers wear ear protection if they have to work in very noisy surroundings?

Protective Clothing

- Is equipment provided to protect the head, nose, eyes, hands and feet?
- Does the equipment meet at least the minimum standard required by law?
- Do workers wear their protective equipment?

Welfare

- Has a suitable toilet been provided?
- Is there a clean washbasin, soap and towel?
- Is wet weather gear provided for those who have to work in wet conditions?
- Is there a site hut where workers can sit and make tea?
- Is there a first aid box?

Site Cleaning

Site tidiness is the foundation of safety and of a job well done.

Always keep your immediate surroundings clean and clear of debris and unwanted plant. This must sound obvious, but surprisingly few people adopt this procedure. Just taking a few minutes care by putting away unwanted tools and equipment will give more room, work space and a clean and level base to work from, saving you time in the long run. This means that it is safer for you and your workmates. They do not slip, trip or step on articles that have been dropped. A clean site is a well run site.

PRESSTEC® GROUT HEALTH & SAFETY

Presstec® grout has been assessed in accordance with the classification, packaging and labeling requirements of regulations pertaining to dangerous substances in various countries and Cintec takes the view that it is not a dangerous or hazardous substance. Precautions common to the handling of Portland cement, slaked lime and products containing them are applicable to the handling of Presstec® grout.

The only precaution that needs to be taken when handling Presstec® grout is the common sense one of elementary hygiene. Unnecessarily prolonged contact on the skin, particularly when damp, should be avoided. Gloves should be worn when handling Presstec® grout bags. If Presstec® grout is in contact with skin, it should be washed of as soon as possible. If Presstec® grout enters the eye it should be immediately washed out thoroughly with clean water and medical treatment sought immediately. Eye protection and respiratory protection should be worn when working in dusty conditions.

Presstec® grout powder mixed with water releases alkali. Concrete or mortar adhering to the skin should be removed as soon as possible by washing with soap and water. Delay may cause skin irritation. Waterproofing gloves, eye protection, (safety) gum boots, full length trousers, long sleeved shorts and other suitable protective clothing should be worn when working with mortar.

Material Safety Data Sheets

Appended is the European Community "C.O.S.H.H." sheet is provided as the M.S.D.S in accordance with the format provisions of Section 6 of the Code of Practice for the Preparation of Material Safety Data Sheets.

These notes are for guidance only. If you have any queries on the Cintec Anchoring System please contact us at the address below.

CINTEC International Limited
Cintec House, 11 Gold Tops,
Newport, South Wales, NP20 4PH,
Tel: 044 (0) 1633 246614
Fax: 044 (0) 1633 246110

Cintec America Inc
200 International Circle, Suite 5100
Hunt Valley, Maryland, 21030
Tel: 1 410-761-0765
Fax: 613-224-9042

Cintec Canada Limited
38 Auriga Drive, Suite 2
Nepean, ON K2E 8A5
Tel: 613-225-3381
Fax: 613-224-9042

Appendix B

CINTEC PRODUCT INFORMATION UPDATE

NO 1/99: ALTERATIONS OF ANCHORS

We have recently experienced a number of instances where the anchors have been physically altered on site without our knowledge or approval. This is an extremely dangerous practice and apart from breaching the conditions of warranty, there is a possibility that the anchors would not meet their performance specifications. We fully understand that, periodically, problems will occur on site, but we ask that you contact us on such occasions so that checks can be made to ensure the anchors perform to the required specifications and the new dimensions can be entered into our records.

NO 1/02: PRESSTEC® GROUT – HEALTH & SAFETY AT WORK

While working on site, an operative was injecting an anchor with Presstec® grout and some of the grout splashed into his eye. The eye was damaged and the operative is now undergoing surgery. He was not wearing protective goggles.

It is essential that personnel wear goggles while mixing or working with Presstec Grout®. This requirement is specified in the COSHH Statement, is emphasised during training carried out by Cintec staff and is clearly laid down in the Training Manual.

Presstec 2000 and Presstec Standard

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 02/11/2014 Version: 1.0

02/11/2014 EN (English US) 1/7



Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product Identifier

Product Form: Mixture

Product Name: Presstec 2000 and Presstec Standard

1.2. Intended Use of the Product

Use of the Substance/Mixture: Building Material

1.3. Name, Address, and Telephone of the Responsible Party

Company

Cintec Reinforcement Systems

T 1-410-761-0765 - F 1-800-461-1862

solutions@cintec.com

1.4. Emergency Telephone Number

Emergency Number : Company: 1-613-225-3381 (8:30-16:30 EST)

Information centre specializing in Symptoms of Poisoning Telephone: 1-800-222-1222

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Skin Irrit. 2 H315

Eye Dam. 1 H318

Skin Sens. 1 H317

Carc. 1A H350

STOT SE 3 H335

STOT RE 1 H372

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :



GHS05



GHS07



GHS08

Signal Word (GHS-US)

: Danger

Hazard Statements (GHS-US)

: H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H350 - May cause cancer
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary Statements (GHS-US) :

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, respiratory protection.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Presstec 2000 and Presstec Standard

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



P308+P313 - If exposed or concerned: Get medical advice/attention.
P310 - Immediately call a POISON CENTER or doctor/physician.
P312 - Call a POISON CENTER/doctor/physician if you feel unwell.
P314 - Get medical advice and attention if you feel unwell.
P321 - Specific treatment (see section 4).
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362 - Take off contaminated clothing and wash before reuse.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to local, regional, national, and international regulations.

2.3. Other Hazards

Other Hazards Not Contributing to the Classification: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Repeated or prolonged exposure to respirable (airborne) crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss. Product becomes alkaline when exposed to moisture or water. Exposure can cause chemical burns, or severe irritation of the mucous membranes, skin, eyes, and other exposed areas.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

Full text of H-phrases: see section 16

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Cement, portland, chemicals	(CAS No) 65997-15-1	58	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335
Quartz	(CAS No) 14808-60-7	41	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372
Limestone	(CAS No) 1317-65-3	41	Not classified
Proprietary Additive	Proprietary	<1.0	Not classified

The specific chemical identity and/or exact percentage of composition has been withheld as a trade secret.

Full text of H-phrases: see section 16

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. If exposed or concerned: Get medical advice/attention. Remove to fresh air and keep at rest in a position comfortable for breathing.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Brush off loose particles from skin. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid Measures After Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Seek medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Causes damage to organs through prolonged or repeated exposure. Causes serious eye damage. Skin irritation. May cause cancer. May cause respiratory irritation. Product becomes alkaline when exposed to moisture or water. Exposure can cause chemical burns, or severe irritation of the mucous membranes, skin, eyes, and other exposed areas.

Presstec 2000 and Presstec Standard

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



Symptoms/Injuries After Inhalation: May cause cancer by inhalation. May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: Causes skin irritation. May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: Causes serious eye damage.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: May cause cancer. Causes damage to organs through prolonged or repeated exposure. Repeated or prolonged exposure to respirable (airborne) crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions. Wet portland cement is alkaline. As such it is incompatible with acids, ammonium salts and phosphorus.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other information: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Do not breathe dust. Avoid generating dust.

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Avoid generation of dust during clean-up of spills. Let the product solidify.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Avoid generation of dust during clean-up of spills. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Product becomes alkaline when exposed to moisture or water. Exposure can cause chemical burns, or severe irritation of the mucous membranes, skin, eyes, and other exposed areas. When heated to decomposition, emits toxic fumes.

Precautions for Safe Handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Do not breathe dust.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product. Wash hands and forearms thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Avoid creating or spreading dust.

Presstec 2000 and Presstec Standard

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



Storage Conditions: Keep/Store away from extremely high or low temperatures, water, incompatible materials. Store in a wellventilated place. Keep container tightly closed.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers. Aluminum. Ammonium salts.

7.3. Specific End Use(s)

Building Material.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Quartz (14808-60-7)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.025 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.05 mg/m ³
USA IDLH	US IDLH (mg/m ³)	50 mg/m ³
Cement, portland, chemicals (65997-15-1)		
USA ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³
USA IDLH	US IDLH (mg/m ³)	5000 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³
Limestone (1317-65-3)		
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³

8.2. Exposure Controls

Appropriate Engineering Controls

: Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Avoid dust production. Ensure all national/local regulations are observed.

Personal Protective Equipment

: Protective clothing. Protective goggles. Gloves. Wear respiratory protection.



Materials for Protective Clothing

: Chemically resistant materials and fabrics.

Hand Protection

: Wear chemically resistant protective gloves.

Eye Protection

: Wear ANSI approved glasses or safety goggles and skin protection.

Skin and Body Protection

: Wear gloves, boot covers and protective clothing impervious to water to prevent skin contact. Do not rely on barrier creams, in place of impervious gloves. Remove clothing and protective equipment that becomes saturate with wet cement and immediately was exposed areas.

Respiratory Protection

: Under ordinary conditions no respiratory protection is required. Wear a NIOSH approved respirator that is properly fitted and in good condition when exposed to dust above exposure limits.

Other Information

: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid (Powder)
Appearance	: Grey/White powder
Odor	: None
Odor Threshold	: No data available
PH	: 11 - 13.5 (1% aqueous solution)
Relative Evaporation Rate (butylacetate=1)	: No data available
Melting Point	: 1250°C (2282°F)
Freezing Point	: Not applicable
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available

Presstec 2000 and Presstec Standard

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20 °C	: No data available
Relative Density	: No data available
Specific Gravity	: 900-1500 g/mL
Solubility	: 3g/L (@20°C (68°F)).
Log Pow	: No data available
Log Kow	: No data available
Viscosity	: No data available
Explosive Limits	: Not applicable

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Hazardous reactions will not occur under normal conditions. Wet portland cement is alkaline. As such it is incompatible with acids, ammonium salts and phosphorus.

10.2 Chemical Stability: Stable at standard temperature and pressure.

10.3 Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4 Conditions to Avoid: Extremely high or low temperatures. Incompatible materials. Water. Humidity.

10.5 Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Aluminum. ammonium salts.

10.6 Hazardous Decomposition Products: Carbon oxides (CO, CO₂). Quartz (silica) will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride. Toxic gases. Oxides of calcium.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Not classified

Quartz (14808-60-7)	
LD50 Oral Rat	> 5000 mg/kg

Skin Corrosion/Irritation: Causes skin irritation. **pH:** 11 - 13.5 (1% aqueous solution)

Serious Eye Damage/Irritation: Causes serious eye damage. **pH:** 11 - 13.5 (1% aqueous solution)

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer.

Quartz (14808-60-7)	
IARC group	1
National Toxicity Program (NTP) Status	Known Human Carcinogens.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause cancer by inhalation. May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: Causes skin irritation. May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: Causes serious eye damage.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: May cause cancer. Repeated or prolonged exposure to respirable (airborne) crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity No additional information available

12.2. Persistence and Degradability

Presstec 2000 and Presstec Standard	
Persistence and Degradability	Not established.

Presstec 2000 and Presstec Standard

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



12.3. Bioaccumulative Potential

Presstec 2000 and Presstec Standard	
Bioaccumulative Potential	Not established.

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material and containers in accordance with all local, regional, national, and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT Not regulated for transport

14.2 In Accordance with IMDG Not regulated for transport

14.3 In Accordance with IATA Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Presstec 2000 and Presstec Standard	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

Quartz (14808-60-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Cement, portland, chemicals (65997-15-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Limestone (1317-65-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2 US State Regulations

Quartz (14808-60-7)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.

Quartz (14808-60-7)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Cement, portland, chemicals (65997-15-1)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Limestone (1317-65-3)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: OTHER INFORMATION

Revision date

: 02/11/2014

Other Information

: This document has been prepared in accordance with the SDS

GHS Full Text Phrases:

requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1

Presstec 2000 and Presstec Standard

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure

Cintec North America believes the information contained herein is accurate; however, Cintec makes no guarantees with respect to such accuracy and assumes no liability in connection with the use of the information contained herein which is not intended to be and should not be construed as legal advice or as insuring compliance with any federal, state or local laws or regulations. Any party using this product should review all such laws, rules, or regulations prior to use, including but not limited to US and Canada Federal, Provincial and State regulations.

NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE.

SDS US (GHS HazCom) - US



Appendix D GROUT INJECTION KIT *\$500.00



INCLUDES:

- One pressure pot 10 liter (2.5gal) with preassembled hose and injection valve.
- One Grout mesh screen.
- One mixing paddle with 6" cage.
- Measuring jug marked in liters (or less) increments.
- Three extra injection nozzles.
- One Grout Mixing Bucket.
- One water measuring pail.
- Glue gun for anchor repair.

*Does not include shipping charges.

Tel: [410] 761-0765
Tel: [613] 225-3381
Email: solutions@cintec.com
URL: www.cintec.com



CINTEC
REINFORCEMENT SYSTEMS

Tel 1 410 761 0765
1 613 225 3381

Fax 1 613 224 9042

Email solutions@cintec.com

www.cintec.com

www.cintecsystems.com