Concrete Remedy Products

Manufactured by Solving Concrete Problems

459 State Road C, Buffalo, MO 65622 USA 800-828-9528

Deep Seal

Top Seal

PetraWood

Table of Contents

Concrete Remedy products are manufactured by Solving Concrete Problems by arrangement with Univar USA. Univar USA is the leading chemical distributor in the United States, providing more chemical products and related services than any other company in the marketplace. Additional information about Univar USA is available on the Internet at http://www.univarcorp.com.

The parent company of Univar is Univar N.V. based in Rotterdam, Netherlands. **Univar** is a world leader in chemical distribution with an extensive network of over 200 distribution centers spread across the United States, Canada and 20 countries in Europe. Additional information on Univar is on the Internet at http://www.univarcorp.com.

Because Concrete Remedy products are produced by Univar, customers have the assurance of quality and consistency they deserve. We also have unlimited production capabilities.

Concrete Remedy Products Are:

- NonToxic & Odorless
- Easy To Apply
- Environmentally Friendly
- Cost Effective Solutions
- Guaranteed

Concrete Remedy Manufacturer's Guarantee

SolvingConcreteProblems.com and Concrete Remedy believe this information to be true to the best of our knowledge. Our products are of the highest quality and uniform within manufacturing tolerances.

Since no direct control is exercised over product use, no warranty, expressed or implied, is made as to the suitability of products for a particular use or as to the effect of such use, and no liability is assumed, directly or indirectly.

In the event products received were defective at point of manufacture, replacement will be made at no cost to purchaser.

Buyers and users are encouraged to conduct their own tests prior to application.

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Concrete Remedy™
Internal DEEP Seal

PRODUCT DESCRIPTION

Concrete Remedy DS (Deep Seal) is an alkali activated chemical penetrating concrete and masonry Stabilizer.

Concrete Remedy DS as a concrete sealant outlasts and outperforms typical sealers with which most people are familiar.

Concrete Remedy DS NEVER needs to be reapplied -- Do it once and you NEVER have to reapply the material.

Concrete Remedy DS is not a surface sealant, but, an internal concrete **stabilizer** -- Which stops the cause of problems at the source.

How Concrete Remedy Deep Seal (DS) Works

Concrete Remedy DS contains a proprietary catalyst which "pursues moisture" in concrete, and upon contact reacts with the "free" alkali (lime) and calcium hydroxides (already in concrete or masonry) to form a silica gel on the surface of voids and particulate, impregnating the entire depth penetrated. This gel hydrates into glass, turning the entire depth penetrated into a solid mass.

More technically speaking, this is what happens when you apply Deep Seal and why it is a permanent treatment that improves concrete:

As the silicate solution penetrates the concrete surface, the soluble SiO_2 species react with portlandite or calcium hydroxide, ($Ca(OH)_2$) and/or Ca^{2+} in the pore solution to form calcium silicate hydrate (C-S-H). CSH is the space filling glue phase created when the cement in concrete is hydrated with water.

Portlandite is an undesirable phase in concrete because it precipitates as platelets near aggregates. The result is a porous paste/aggregate interface that increases concrete permeability and reduces compressive strength.

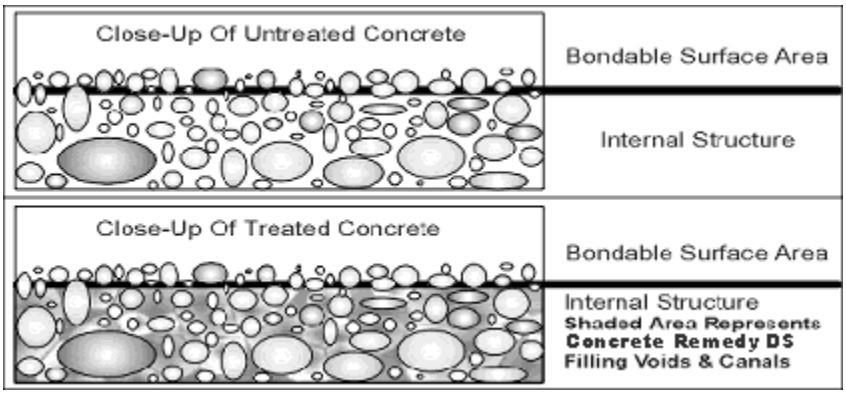
Portlandite is also subject to acid attack and carbonation. Also known as Calcium hydroxide, traditionally called slaked lime or hydrated lime, it is a chemical compound with the chemical formula $Ca(OH)_2$.

In contrast to portlandite, calcium hydroxide $Ca(OH)_2$, C-S-H is the desirable, space-filling glue phase.

Applying Deep Seal causes C-S-H to replace portlandite. The results are: decreased permeability, less susceptibility to acid attack and carbonation enhanced abrasion resistance (that is, dust-proofing), chemical resistance, and durability of the concrete surface

This internal, permanent seal and water barrier also hardens and dust-proofs the surface while increasing the compressive and flexural strength. For a more detailed, comprehensive explanation of the many unique benefits of using **Concrete Remedy DS. Please refer to Technical Reports 1 through 10.**

Concrete Remedy DS does not fill visible cracks larger than about .75mm, but it will waterproof poured concrete slabs and walls. Deep Seal does not create a film or build up of product on the surface. It is NOT a typical surface coating sealer. It can NEVER peel or wear off because it works internally, solving problems at the point of origin.



ADVANTAGES

Concrete Remedy DS does not just "cover up" the problem as typical 'sealers' do. Instead it works internally and solves the problem at the real source.

Concrete Remedy DS become an internal part of the concrete and NEVER needs to be reapplied...thus it is extremely cost beneficial...particularly compared to the majority of sealers which do need to be reapplied often.

- **Concrete Remedy DS** is nontoxic and NO odor -- easy & safe to apply.
- **Concrete Remedy DS** does not alter or affect the color or texture of the treated surface.
- **Concrete Remedy DS** **permanently** waterproofs (holding a hydrostatic head) which retards penetration of grease, oils, and acids.
- **Concrete Remedy DS** increases bonding of any top coating (including paint, mastics, etc.) by 300%.
- **Concrete Remedy DS** retards pitting, dusting and rutting.
- **Concrete Remedy DS** cures new concrete uniformly and resists hair checking and spot drying.
- **Concrete Remedy DS** permanently densifies and hardens all concrete and masonry surfaces, greatly extending the life of treated surfaces by reducing or eliminating wear due to abrasion, freeze-thaw and salt attack.
- **Concrete Remedy DS** enables easier removal of snow and ice.
- **Concrete Remedy DS** may be painted over, and will accept concrete topping or mastics for floor tile, etc.

USES

- Uncountable applications -- Literally Everything Cementitious! Any substrate with Portland cement.
- All Concrete should be stabilized with **Concrete Remedy DS**
- Shotcrete
- Stucco, Mortor
- Above, below or on grade as a slab hardener, dustproofer, and/or waterproofing agent.
- **Every coating**--rubberized, paint, polyurea, epoxy, surfaces sealers -- literally every product that can be applied to concrete will perform exceedingly better if the concrete has been stabilized and hardened with Concrete Remedy DS first.

SPECIFICATIONS
Technical Details/Properties

Deep Seal is manufactured using pure deionized water to ensure that the proper chemical reactions occur in the concrete. Use as supplied. Do not dilute.

Dilutent.....Use as supplied
Freeze Temperature.....32'F
Freeze Harm.....None
Boiling Point.....230'F
Coverage per Gallon.....150-200 sq. ft.
Shelf Life.....Infinite
Solvent for Clean-up.....Water
Color.....None
Odor.....None
Toxicity.....None - Nontoxic
Flammability.....None
Fumes(during treatment).....None
Organic Properties.....Negligible
Environmental Hazards.....None

CAUTION
Do not allow Concrete Remedy DS to remain on glass! ETCHING OF THE GLASS WILL OCCUR. Clean Concrete Remedy DS off of glass immediately with water to prevent etching.

Limitations
Concrete Remedy DS should never be applied if the surface temperature is below or going to drop below freezing within 6-8 hours after application.
Concrete Remedy DS is not intended to be applied over painted surfaces, nor is it intended to seal visible cracks larger than about .75 mm.
Concrete Remedy DS is best applied to damp or moist surfaces, although it will work as intended when applied to dry concrete.

Concrete Remedy™ Internal TOP Seal

Concrete Remedy Top Seal is a nontoxic, non-flammable, penetrating surface sealer that completely seals and waterproofs most concrete, stamped concrete, brick, cured asphalt, stucco and sandstone surfaces.

Top Seal is designated as Noncorrosive and non hazardous for shipping according to UN Packing Group designation as administered by US DOT.

Concrete Remedy TS is effective as a sealer on surfaces which will be above or below grade.

Top Seal can be used alone, as a single product or it can be used in conjunction with Concrete Remedy **DS** -- an internal densifier and hardener that also waterproofs and reduces vapor transmission.

Top Seal penetrates approximately 1-2mm, 1/16th inch into concrete when applied after Deep Seal. Penetration rates vary according to the substrate. Concrete Remedy DS works only internally, and leaves the top 1-2 mm, 1/16th inch clean and devoid of product, so that other coatings or adhesives or penetrating sealers will work well.

Either as a "stand alone" single product for sealing all types of surfaces, or in conjunction with Concrete Remedy Deep Seal, **Top Seal** is the

Perfect Solution for:

Stamped Concrete Top Seal is particularly well suited to protect Stamped Concrete. Often it is colored. Top Seal will not change the look or color of stamped concrete.

A second big advantage to using Top Seal on stamped concrete is that it does not make the concrete as slick as surface coatings will. Any time you put on a surface build material that gives a shiny or glossy appearance, you can be sure that surface will be slick when it gets wet.

Slickness and safety are a huge issues in commercial settings. Top Seal avoids this problem because it is a penetrating sealer and NOT a surface build material.

Stucco Houses and Buildings Stucco walls tend to absorb moisture. The results of moisture passing into and through stucco include mold and mildew growth. All the moisture problems associated with stucco can be solved by patching cracks if needed and applying Concrete Remedy DS and Top Seal. Concrete Remedy DS also hardens, strengthens and dust proofs stucco so it lasts longer.

Other Popular Uses

- Concrete
- Brick structures

- All kinds of tile floors and walls
- Asphalt Shingles
- Sidewalks, Curbs and Gutters
- Paving Stones
- Granaries
- Patios
- Sewage Treatment Plants
- Zoo, Barn and Concrete Floors
- Garage Pads and Driveways
- Service Stations
- Pools
- Car Wash walls

ADVANTAGES

- Very Easy One coat application
- Never any "peeling" or chipping -- maintains a good, natural appearance
- Leaves clear, non-glossy finish
- Does not produce the extreme slipperiness that surface build, shiny materials will. Top Seal is safer in business and commercial settings.
- Will not alter color or texture
- Impervious to penetration of grease, oils, acids and salts
- Stops pitting, rutting, dusting and molding
- Enables easier ice and snow removal
- Enables easy clean up of spills with mild soap and water

COVERAGE RATES

Coverage rates with Concrete Remedy TS depend on the porosity of the surface being treated. I.e. concrete floors finished with a power trowel then treated with Concrete Remedy DS will use much less Concrete Remedy TS than paving stones which have never been treated with anything and have visible pores. Coverage can range from 100 to 300 square feet per U.S. gallon.

CAUTION - PLEASE NOTE

Top Seal should not be used if the surface is going to later be painted or coated over. Coatings will not stick to Top Seal without specific surface preparation.

1. Do not apply **Concrete Remedy TS** to glass, glazed surfaces, or aluminum, as etching will occur. In case of accidental contact, rinse thoroughly and immediately with water.
2. **Concrete Remedy TS** is not meant to fill or seal visible cracks.
3. For surfaces not specified in our literature or if you are uncertain as to previous chemical treatments, (on the surface to which you are considering applying **Concrete Remedy TS**), we recommend that **Concrete Remedy TS** be applied to a small test area first.
4. **DO NOT ATTEMPT A SECOND COATING OF Concrete Remedy TS!**
5. If **Concrete Remedy TS** becomes frozen, thaw out completely and shake well to fully remix the material prior to using. Freezing will not harm the product.

PetraWood™
Internal Wood Protector

PRODUCT DESCRIPTION

PetraWood is a nontoxic, nonflammable, penetrating alkali activated reactive internal wood protector.. PetraWood seals, waterproofs, and hardens wood products.

The proprietary catalyst in **PetraWood** reacts with both the acids and the alkali present in most woods forming an internal seal and barrier against water and other causes of deterioration.

PetraWood will not permanently alter the color, texture, or any other physical characteristic of the natural wood to which it is applied.

PetraWood is not a "wood finish". It works internally and does change the cosmetic appearance of wood.

PetraWood makes a prepared surface 300% more effective in the bonding of varnish, stains, paint and mastics.

PetraWood is effective on surfaces above and below grade.

ADVANTAGES

- One-time application
- Helps wood retain natural color longer
- Leaves clear, natural finish with no surface film
- Retards penetration of grease, oils and acids
- Petrifies the wood
- Retards weather related deterioration
- Enables easier ice and snow removal

USES

- Wooden Basements
- Decks
- Fence Posts, Rails and Slats
- Siding and Shingles
- Log Homes
- Window Boxes, Frames and Sash
- Wooden Planters

LIMITATIONS

PetraWood is water based, as such it should never be applied if the surface temperature is low enough to freeze the material, (i.e., A substrate temperature 32 degrees or lower, or air temperature below 40 degree F).

CAUTION - PLEASE NOTE:

1. Do not apply **PetraWood** to glass, glazed surfaces, or aluminum, as etching will occur. In case of accidental contact, rinse thoroughly and immediately with water.
2. **PetraWood** is not meant to fill or seal visible cracks in wood.
3. For surfaces not specified in our literature or if you are uncertain as to previous chemical treatments, (on the surface to which you are considering applying **PetraWood**), we recommend that **PetraWood** be applied to a small test area first.
4. If **PetraWood** becomes frozen, thaw out completely and shake well to fully remix the material prior to using. Freezing will not harm the product.
5. On very old weathered wood, or wood that has been restored, e.g., finishes stripped by chemicals, it is advisable to "prime" the wood before applying PetraWood. Contact us for complete details of the simple "priming" process.

Demonstration of How Deep Seal and Top Seal Work

These pictures are of testing done with Deep Seal (DS) and Top Seal (TS). The left section of the slab is bare, the middle section was treated with DS. The right section was treated with DS which was allowed to dry one day, then the area dampened with water. The TS was applied on a dampened surface which was still dark gray.

Application rates were at 150 sq. ft. per gallon.... which worked out to 7ccs per each 40 sq. in area. After a day, 3 cc s of water was put on each of the areas and pictures taken over a period of a little over an hour. The right hand section with the beaded water stayed like that over 24 hours with the water finally evaporating after about 36 hours.

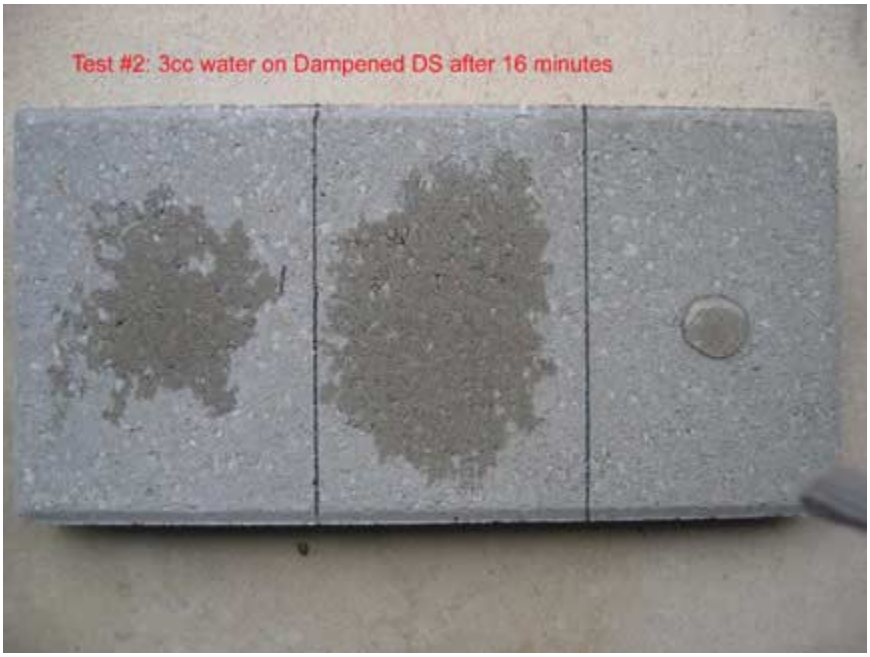
This picture shows that the 3 ccs in the middle, DS section is already spreading out more than in the left section. The right section shows the water beaded on the DS/TS section. Please Note: The Top Seal product is not made for the purpose of "beading" liquids. The beading effect is temporary... it may stop beading after a few months or longer. The sample shows it beading simply because I didn't have an old enough sample which had stopped beading. Just because it stops beading DOES NOT mean that more must be applied. It doesn't work as surface films do. Instead, it holds the water out from the inside out.

You will notice that over time, the water darkened area in the middle section grows larger than the left spot. The illustrates that on the bare concrete the water tends to soak straight down into the concrete, while in the middle section, the presence of the DS beginning about 1-2 mm below the surface prevents that kind of absorption. Instead, in the middle section the water can only go down about 1-2 mm and then it starts spreading out horizontally...increasing the size of the moisture darkened area.

Below, the middle section after 3 minutes covers more than twice the area of the water on the left, bare section

After 8 minutes, the center section has continued to grow as the water spreads out horizontally because the Deep Seal is blocking it from going down into the slab.

While hard to see at this resolultion, there is still slight moisture on the surface in the two left sections, bare and DS only... the beaded 3 cc.s on right on the DS/TS has not changed at all.



By 18 minutes, there is no water on the surface, it has all soaked in on the bare section and spread out wider in the middle section where the DS blocks the penetration under the surface. This illustrates that Deep Seal does NOT put a film on the surface, instead the top 1-2 mm are devoid of product and constitute a "bondable" surface for the application of adhesives, paints, surface coatings, overlays, stampwork etc.

After 22 minutes you can notice that the middle section is starting to lighten up in color around the edges and at some places in the darkened (wet) area... the bare section on the left is not showing this lightening or drying.

By 25 minutes the difference in drying between the left and middle sections is becoming more evident... with the DS treated area getting dry faster than the untreated section on the left, which is darker in color, indicating more moisture present.

The pronounced drying of the center section becomes more evident at 38 minutes, compared to the left (untreated) section which is still quite dark, i.e., wet.

After just under an hour, the 3 ccs of water has almost completely dried where it was applied on top of the Deep Seal....while the 3 ccs applied on the left untreated section still shows dark indicated presence of water.

After a little over an hour, the middle DS treated section is pretty much dry, but water still evident on the left. The right Top Seal section shows the 3 cc's of water still beaded with none having soaked in. This shows that concrete treated with DS does not stay damp or wet as untreated concrete. This test was only 3 cc's of water...the size of the bead on the right. If it had rained on this slab, say 1/2 inch of rain or more, the slab on the left would have been totally saturated and full of water... appearing dark gray over the whole surface...while the DS treated section would appear as it does below... because the only water that could have soaked into the DS treated section would have been in the top 1-2 mm of the surface... which as you can see dries quickly.

This is a closeup of the 3 cc's of water on the right hand side, which was treated with DS and then TS... after 20 minutes. The area about the size of a 50 cent piece stayed the same until it eventually evaporated more than 30 hours after application. Had that 3 ccs of water been broomed off, that area would have been dry in a few minutes. However, the beading effect does not last... it is not designed as a "beading" material. It will hold out moisture even though the surface tension does not create beading. The way Top Seal works is quite different from commonly seen sealers that advertise if it stops beading you have to reapply. That is NOT true of Top Seal because it works differently.

The container above was formed from just hand mixed cement, poured into a form, then a pop can pushed into it to make a cup like concrete container. It was treated with Deep Seal and Top Seal. As you can see the concrete is porous...however it holds the water and in fact, the water is arched into a bead inside the container. This will hold water... absolutely no absorption at all for extended periods.

Concrete Remedy™
Internal DEEP Seal

Material Safety Data Sheet (MSDS)

Emergency Telephone: 1-800-828-9528 at Buffalo, Mo USA		
Identification: Concrete Remedy Internal Deep Seal **Product Code:** DS	**Hazard Rating** 4 – Extreme 3 – High 2 – Moderate 1 – Slight 0 – Insignificant	Fire 0 Health 1 Reactivity 0 Special 0 Hazard

Chemical Identity Information

Proprietary mixture containing silicates, bonding catalysts and inserts. No hazardous ingredients.

Physical Data

Appearance:	**Clear Liquid**	Solubility in water:	Complete
Odor:	**None**	Specific Gravity:	1.094
Boiling point:	**212 degrees F.**	PH (1% solution)	8.96
Vapor Pressure:	**Unknown**		

Fire and Explosion Data

Flash Point:	Non Flammable - Does not flash
Flammability:	N/A
Extinguishing Media:	N/A
Unusual Fire or Explosion Hazard:	N/A

Health Hazard Data
Contains no hazardous materials as defined by OSHA and ACGIH.

Eye(s):	May cause irritation and redness.
Skin:	May cause redness.
Ingestion:	Non-Toxic, may cause Gastro-Intestinal problem.

Emergency and First Aid Procedures

Eye Contact: Flush with cool clean running water for at least 15 minutes. If irritation persists, get medical attention.

Skin Contact: Flush exposed area with clean, running water for at least 15 minutes. If irritation persists, get medical attention.

Ingestion: Do not induce vomiting. Dilute with large amounts of water and weak vinegar or orange juice. Get medical attention immediately.

Special Protection Information

Protective Gloves:	Rubber gloves recommended
Eye Protection:	Goggles recommended
Respiratory Protection:	None
Local Exhaust:	Good ventilation
Other Equipment:	None

Reactivity Data

Incompatible Materials:	Do not mix with other chemicals
Stability:	Stable
Hazardous Polymerization:	Will not occur
Hazardous Decomposition:	None

Spill or Leak Procedures

With small spills or leaks use absorbent material such as sawdust, vermiculite or sand. Larger spills dilute with large amounts of water, before flushing to sewer or drain according to local, state and/or federal regulations.

Special Information

Keep container closed when not in use. Store away from heat and do not freeze. Keep out of reach of children.

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and accept no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal and local laws. All chemicals may present unknown health hazards and should be used with caution.

Prepared July 21, 2004

Concrete Remedy™
Internal TOP Seal

Material Safety Data Sheet (MSDS)

Emergency Telephone: 1-800-828-9528 at Buffalo, MO USA		
Identification: Concrete Remedy Top Seal **Product Code:** TS	**Hazard Rating** 4 – Extreme 3 – High 2 – Moderate 1 – Slight 0 – Insignificant	Fire 0 Health 1 Reactivity 0 Special 0 Hazard

Chemical Identity Information

Proprietary mixture containing water repellent silicones, bonding catalysts and inerts.

Physical Data

Appearance:	**Clear Liquid**	Solubility in water:	Yes
Odor:	**None**	Specific Gravity:	1.040
Boiling point:	**212 degrees F.**	PH (1% solution)	10.85
Vapor Pressure:	**Unknown**		

Fire and Explosion Data

Flash Point:	Non Flammable
Flammability:	N/A
Extinguishing Media:	N/A
Unusual Fire or Explosion Hazard:	N/A

Health Hazard Data
Contains no hazardous materials as defined by OSHA and ACGIH.

Eye(s):	May cause irritation and redness.
Skin:	May cause redness.
Ingestion:	Non-Toxic, may cause Gastro-Intestinal problem.

Emergency and First Aid Procedures

Eye Contact: Flush with cool clean running water for at least 15 minutes. If irritation persists, get medical attention.

Skin Contact: Flush exposed area with clean, running water for at least 15 minutes. If irritation persists, get medical attention.

Ingestion: Do not induce vomiting. Dilute with large amounts of water and weak vinegar or orange juice. Get medical attention immediately.

Special Protection Information

Protective Gloves:	Rubber gloves recommended
Eye Protection:	Goggles recommended
Respiratory Protection:	None
Local Exhaust:	Good ventilation
Other Equipment:	None

Reactivity Data

Incompatible Materials:	Do not mix with other chemicals
Stability:	Stable
Hazardous Polymerization:	Will not occur
Hazardous Decomposition:	None

Spill or Leak Procedures

With small spills or leaks use absorbent material such as sawdust, vermiculite or sand. Larger spills dilute with large amounts of water, before flushing to sewer or drain according to local, state and/or federal regulations.

Special Information

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Prepared October 25, 2006

PetraWood™
Internal Wood Protector

Material Safety Data Sheet (MSDS)

Emergency Telephone: 1-800-828-9528 at Buffalo, MO USA		
Identification: Concrete Remedy's **PetraWood** **Product Code:** PW	**Hazard Rating** 4 – Extreme 3 – High 2 – Moderate 1 – Slight 0 – Insignificant	Fire 0 Health 1 Reactivity 0 Special 0 Hazard

Chemical Identity Information

Proprietary mixture no hazardous ingredients.

Physical Data

Appearance:	**Clear Liquid**	Solubility in water:	Yes
Odor:	**None**	Specific Gravity:	1.094
Boiling point:	**212 degrees F.**	PH (1% solution)	8.96
Vapor Pressure:	**Unknown**		

Fire and Explosion Data

Flash Point:	Non Flammable
Flammability:	N/A
Extinguishing Media:	N/A
Unusual Fire or Explosion Hazard:	N/A

Health Hazard Data
Contains no hazardous materials as defined by OSHA and ACGIH.

Eye(s):	May cause irritation and redness.
Skin:	May cause redness.
Ingestion:	Non-Toxic, may cause Gastro-Intestinal problem.

Emergency and First Aid Procedures

Eye Contact: Flush with cool clean running water for at least 15 minutes. If irritation persists, get medical attention.

Skin Contact: Flush exposed area with clean, running water for at least 15 minutes. If irritation persists, get medical attention.

Ingestion: Do not induce vomiting. Dilute with large amounts of water and weak vinegar or orange juice. Get medical attention immediately.

Special Protection Information

Protective Gloves:	Rubber gloves recommended
Eye Protection:	Goggles recommended
Respiratory Protection:	None
Local Exhaust:	Good ventilation
Other Equipment:	None

Reactivity Data

Incompatible Materials:	Do not mix with other chemicals
Stability:	Stable
Hazardous Polymerization:	Will not occur
Hazardous Decomposition:	None

Spill or Leak Procedures

With small spills or leaks use absorbent material such as sawdust, vermiculite or sand. Larger spills dilute with large amounts of water, before flushing to sewer or drain according to local, state and/or federal regulations.

Special Information

Keep container closed when not in use. Store away from heat and do not freeze. Keep out of reach of children.

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and accept no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal and local laws. All chemicals may present unknown health hazards and should be used with caution.

Prepared July 21, 2004

Concrete Remedy™
Internal DEEP Seal

The "A, B, C's" of Applying Deep Seal

Application Procedures for Low Moisture Content and Low Hydrostatic Pressure:

Rate of Application: Typically, coverage on "average" concrete should be at a rate of 150 sq. ft. per gallon. Coverage rate can vary due to different absorption qualities from 150 to 200 sq. ft. per gallon. Before applying, it is a good idea to "calibrate" the application rate. Mark off a 10 x 15 area and apply one gallon of material evenly over the surface. On power troweled or tight surface finishes, mark off a larger area targeted for a higher coverage rate, e.g., 175 sq. ft, or even 200 sq. ft on very tight surfaces. "Calibrating" will give you an "eye" for how much material should be applied—so you will run short, or apply too much material.

Surface Conditions: Internal Deep Seal (DS) can be applied to dry surfaces, but, is best applied to damp surfaces. Ensure there is no standing or running water on the surface to be treated.

Be aware of surface temperature. If the concrete or substrate is too warm (I.e. warm to the touch), evaporation will reduce the amount of DS available to penetrate through the slab.

To ensure a minimum of product lost to evaporation, pre-wet or soak the area to be treated with water, spread out or mop up any puddles, and proceed with the DS application when the surface has dried to the "damp" stage.

Application: Apply DS liberally (at minimum the predetermined coverage rate) and saturate all areas. Each spray swath should over lap the previous one by half it's width.

To ensure saturation, check areas 15 to 20 minutes after application because porosity will vary (over the area being treated) and some areas will appear to be drying faster.

The recommended procedure is; as soon as the entire area has been covered, go back and go over those areas that are most absorbent and drying fastest, again, at the same speed or rate of spraying.

Do not leave puddles of DS. Use a mop or squeegee to remove any puddles.

Applying water over a DS application will push the DS deeper.

It is recommended the water be applied no sooner than when the surface treated with the DS is no longer wet, but, not yet dry. I.e. Damp.

Testing for number of coats of DS required & Multiple Coat Applications Procedures:

To determine whether a second application of DS is necessary, tape down several pieces of ordinary, dry sponge or foam rubber, to the slab. Leave for 24 hours, and then

remove. If, the slab beneath them or the sponge itself is wet, the slab requires another application of DS.

Taping down 1' x 1' pieces of plastic also works well, as does laying a rubber mat having a smooth underside. If moisture is still coming through the concrete, the area under the sponge, plastic or mat will be darker in color than the uncovered concrete.

The DS for this second application should be applied to saturation again, checking for areas of varying porosity, but, not leaving any puddles. Generally, the second coat will provide a coverage rate of around 275-300 sq. ft. per gallon.

Wait 16 to 24 hours.

Any alkali or leaching that occurs after the second treatment must be flushed off and the slab cleaned thoroughly (and allowed to dry) prior to a re-testing with sponges (if required) to determine the need for any further application of DS.

Note: Steps or areas that have been salted over many years, is a good example of a substrate with extraordinary contaminant content. In such cases the process of flushing (after applying DS) to ensure all salts, alkali or contaminants have been pushed to the surface and removed, could involve cycles of daily flushing and drying for 3 to 7 days before no further contaminant appears after drying.

Once the rinsing is no longer flushing anything to the surface, and no further application of DS is required, the treated and flushed surface should be allowed to thoroughly dry for a minimum 24 hours prior to the application of any secondary coatings.

More Thorough Moisture Testing

In cases where surface coatings, paint, floor covering etc will be applied over the concrete, it is advisable to do thorough moisture testing to insure the slab is within acceptable limits for the subsequent application. Standard Calcium Chloride testing kits can be used. However, to insure accurate readings of slab moisture transmission, a waiting period of 5-7 days is recommended after the last application of DS. Doing Calcium Chloride testing too soon can result in spurious results if the internal gel has not had sufficient time to internally dry.

On vertical, formed surfaces; Apply DS as soon as the forms have been stripped and the surface rubbed, (if required). Apply from the bottom up, going over the area twice to ensure saturation. One such application (to saturation) will usually be sufficient for most requirements.

Sixteen (16) to 24 hours after the first DS application the surface should be thoroughly flushed with clean water, to remove any alkali or contaminants the DS pushes to the surface. Allow surface to dry.

On overhead surfaces, DS is best applied with a sprayer using multiple light applications as required.

The first application should wet the surface. Do not saturate, as dripping will occur.

Back-filling foundations may take place 12 hours after application.

Foot traffic is permissible in most cases within 3 hours or when surface appears dry.

Packaging

- 5 gallon buckets
- 55 gallon barrels

Limitations

Deep Seal MUST be able to penetrate or soak into the concrete.

Deep Seal will not work if it cannot penetrate and soak into the substrate. Therefore, all previous coatings, paint, adhesives—any material that will inhibit penetration must be removed. Contact us for help in removing previous coatings.

To Test For Penetration Prior to Application

Just pour a little water… a few ounces… on the concrete. If it soaks in, then the DS will also soak in. If the water does not penetrate or soak into the concrete it tells you there is a coating or sealer etc blocking the water and the concrete must be cleaned.

Concrete Remedy™ DS should never be applied if the surface temperature is below or going to drop below freezing, (32 degrees F.)

Caution - Please Note:

1. Do not apply DS to any non-alkali bearing material, or glass, glazed surfaces, or aluminum, as etching will occur. Use protective coverings to ensure no over-spray contact or wind carried contact. In case of accidental contact, rinse thoroughly and immediately with water.
2. DS is not meant to fill or seal cracks. Contact us for help with methods of filling cracks.
3. DS does not stain proof. While DS will not allow penetration of any material below the top 1 to 2 mm of the surface treated (coated), contaminants can penetrate and staining can occur in that top 1 to 2 mm.
4. For surfaces not specified in our literature or if you are uncertain as to previous chemical treatments, (on the surface you are considering applying DS to), we recommend that DS be applied to a small test area first.
5. If Concrete Remedy™ DS becomes frozen, thaw out completely and shake well to fully remix the material prior to using. Freezing will not harm the product. It has an infinite shelf life if kept in an airtight container.

Disclaimer

Solving Concrete Problems.com believes this information to be true to the best of our knowledge and our products are of the highest quality and uniform within manufacturing tolerances.
Since no control is exercised over product use, no warranty, expressed or implied, is made as to the suitability of products for a particular use or as to the effect of such use, and no liability is assumed, directly or indirectly.

Buyers and users are always encouraged to conduct their own tests prior to application.

Concrete Remedy Top Seal

Product Description

Concrete Remedy™ Top Seal is a non-toxic, non-flammable, water based, penetrating surface sealer that completely seals, waterproofs and protects most materials, alkaline and non-alkaline, porous and non-porous.

Top seal is effective as a sealer for stone, cured asphalt, concrete, brick, and many other surfaces. whether applied on surfaces which will be above or below grade.

Advantages

- **One coat application**
- **Clean up is with clean water.**
- **Leaves clear, non-glossy finish**
- **Will not alter color or texture**
- **Impervious to penetration of water, grease, oils, acids and salts**
- **Stops pitting, rutting, dusting and molding**
- **Enables easier ice and snow removal**
- **Enables easy clean up of most spills with mild soap and water**

Uses

- **Concrete**
- **Asphalt Shingles**
- **Sidewalks, Curbs and Gutters**
- **Paving Stones**
- **Sewage Treatment Plants**
- **Granaries, Zoo and Barn Floors**
- **Garage Pads and Driveways**
- **Service Stations**
- **Pools and patios**

Surface Preparation

Previously non-treated, or bare, new concrete needs no prior preparation.

Any existing paint or surface treatment (other than Concrete Remedy™ Deep Seal) must be removed for Concrete Remedy™ Top Seal to be effective.

In problem areas where foreign matters such as grease or oil have penetrated below the surface, apply an appropriate cleaning agent. Flush off this foreign matter with water and allow to dry thoroughly. Several applications of cleaner, depending on strength, may be needed in some cases in order to flush all such

foreign matter to the surface.
Note**: While oil, for example, will be removed, stains from used motor oil may not.**

Prior to applying Top Seal, cracks should be repaired and sealed with a cement based repair, patching and overlay mortar. A variety of patching methods can be used. Ask for assistance if you are unsure.

For concrete surfaces only we recommend that Concrete Remedy™ Internal Deep Seal (DS) be applied after the repair, patching and overlay mortar to ensure the monolithic bonding of the Top Seal to the substrate.

Application Equipment

- **Low Pressure (20-60 psi) Sprayer Mop**
- **Mop or Broom**
- **Pour and squeegee**
- **Brush or roller (don't work as well as above)**

Mixing

1. **Concrete Remedy™ Top Seal is pre-mixed at the factory, but, Shake it well before using it, this agitation will ensure Top Seal's effectiveness.**
2. **Do not dilute or mix Concrete Remedy™ Top Seal with water or any other liquid. Use only as supplied.**

Application

1. **Top Seal works best applied to dry surfaces.**
2. **Apply liberally and saturate all areas. Do not leave any puddles. Spread out any puddles with a soft mop. For maximum absorption, work the Top Seal into the surface with a soft mop.**

Note**: Because there will be varying absorption throughout the area being treated, to ensure saturation in all areas the applicator must periodically look back to observe those areas on the surface where the Top Seal is being absorbed more and saturation has not yet occurred. Before moving on, apply more material to these areas until they will not accept any further Top Seal.**

3. **Do not attempt a second coat after the first coat has dried as a "whiting" could occur between the two coats.**
4. **On vertical surfaces, apply from the bottom up.**
5. **Top Seal is not meant to seal visible cracks.**
6. **Top Seal penetrates and sets within two to four hours after application. Limited foot traffic is permissible after as little as thirty minutes.**

Coverage Rates

Coverage rates with Concrete Remedy™ Top Seal depend on the porosity of the surface being treated. Coverage can range from 100 sq. feet per gallon up to 300 sq. feet per gallon.

I.e. Concrete floors finished with a power trowel then treated with Concrete Remedy™ DS will use much less Top Seal than paving stones which have never been treated with anything and have visible pores.

For this reason, it is always recommended to carry out a test on a small patch of the area to be treated**, so as to predetermine porosity and coverage rates prior to the main application.**

Packaging

- **5 gallon buckets**
- **55 gallon drums**

Limitations

Top Seal should not be applied if the surface temperature is below 32 degrees F.

Caution - Please Note

1. Do not apply Concrete Remedy™ Top Seal to glass, glazed surfaces, or aluminum, as etching will occur. **In case of accidental contact, rinse thoroughly and immediately with water.**

2. **Concrete Remedy™ Top Seal is best applied to completely dry surfaces. "Whiting" may occur if applied to damp surfaces.** DO NOT ALLOW **Top Seal to dry in "pools" or "puddles".**

3. **Top seal is not meant to fill or seal visible cracks.**

4. **If Concrete Remedy™ Top Seal becomes frozen, thaw out completely and shake well to fully remix the material prior to using. Freezing will not harm the product.**

5. **For surfaces not specified in our literature or if you are uncertain as to previous chemical treatments, (to the surface you are considering applying Top Seal to), we recommend that Top Seal be applied to a small test area first.**

Disclaimer

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Buyers and users are encouraged to conduct their own tests prior to application.

Evaluation of a Sample Provided by

Solving Concrete Problems

Utilizing the CORROSITEX® Test Method

July 28,2006

INVITRO
INTERNATIONAL

UTILIZATION OF THE CORROSITEX® TEST METHOD TO EVALUATE A SAMPLE PROVIDED BY SOLVING CONCRETE PROBLEMS

Completion **July 28,2006**

Date: Client: **Solving Concrete Problems 459 State Road C Buffalo, MO 65622**

Client Contact: **Grant O. Loyd**

Phone Number: **(800) 828-9528**

Testing Laboratory: **In Vitro International 17751 Sky Park East, Suite G Irvine, CA 92614 Phone: (949) 851-8356 Fax: (949) 851-4985**

Study Technician: **Sara Memije** **fon^C^ ^-** **Date**

Director of R&D, QA: **Angela Shu, M.S.** **Date**

Approved by: President & CEO of InVitro International, Inc. **W. Richard Ulmer** 7/28/06 **Date**

EXECUTIVE SUMMARY

A single sample provided by Solving Concrete Problems was evaluated with the Corrositex[8] test method to determine its corrosive potential and to designate its Packing Group classification. The results of this study may be summarized as follows:

Sample Description	Mean Corrositex * Time (minutes)	Packing Group
CONCRETE REMEDY TOP SEAL	>60	NC

EVALUATION OF A SAMPLE PROVIDED BY SOLVING CONCRETE PROBLEMS UTILIZING THE CORROSITEX® TEST METHOD

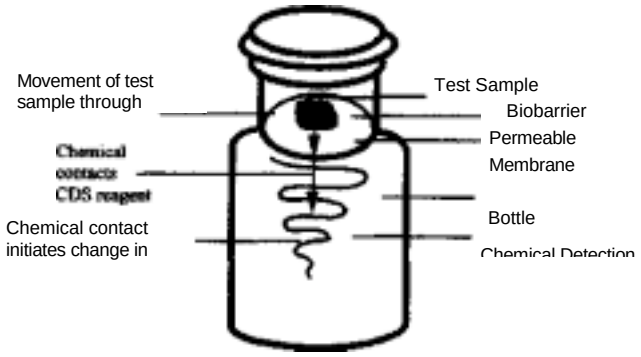
STUDY OBJECTIVE

A single sample provided by Solving Concrete Problems was evaluated with the Corrositex® test method to determine its corrosive potential and to designate its Packing Group classification. To achieve this objective, the sample was subjected to a three-step testing process as described under Materials and Methods.

BACKGROUND

The Corrositex test is a standardized and reproducible method that can be employed to determine the potential corrosivity and determine the Packing Group classification of specified categories of chemical compounds under the hazardous materials transportation regulations administered by the U.S. Department of Transportation (DOT) and international dangerous goods codes. The Corrositex test predicts the *in vivo* corrosive potential of a chemical compound or mixture by using as an endpoint the time it takes for the chemical to permeate through or destroy a synthetic biobarrier. When the chemical has passed through this biobarrier, a visual change is produced hi a proprietary Chemical Detection System (CDS). This assay system is depicted in Figure 1.

Figure 1. A Schematic Diagram Depicting the Biobarrier and Chemical Detection System of the Corrositex ® Test Method



MATERIALS/METHODS

The Corrositex test is performed in three steps. First, a qualification test is done to insure that the test sample and the CDS reagent are compatible. This is achieved by placing either 150 ul of a liquid or 100 mg of a solid into an aliquot of the CDS reagent and observing it for the presence of any detectable change. If a physical or color change is observed, the sample is judged to be compatible with the detection solution and the remainder of the test is performed. The second step of the Corrositex test utilizes appropriate indicator solutions to permit categorization of the test sample as either a Category 1 or Category 2 material. Category 1 materials are typically strong acids/bases, while Category 2 materials are typically weak acids/bases. The third step in the test is performed by applying the test sample to the biobarrier. When the chemical permeates through or destroys the full thickness of this biobarrier, it comes into contact with the CDS which then undergoes a simple color change. This color change is visually observed and the time required for the color change to occur is recorded. As summarized in Table 2 below, the time required to destroy the biobarrier is recorded for four sample replicates and the mean of these replicates is utilized to designate the UN Packing Group classification as I (severe corrosiviry), II (moderate corrosivity), III (mild corrosiviry), or Noncorrosive (NC). Positive and negative controls are analyzed concurrently to confirm the test's validity.

Table 1. Designation of UN Packing Groups

	Corrositex Time (minutes)			
Category 1	0 to 3 min.	>3 to 60 min.	>60 to 240 min.	>240 min.
Category 2	0 to 3 min.	>3 to 30 min.	>30 to 60 min.	>60 min.
	Packing Group I	Packing Group II	Packing Group III	**Noncorrosive**

Results

A summary of the results obtained after evaluating the test sample is presented in Table 2.

Table 2. Summary of Corrositex * Test Results

IVI#: C3038	**Corrositex Time (minutes)**
Sample: CONCRETE REMEDY TOP SEAL	**Replicate #1: >60**
Cone. Tested: Neat	**Replicate #2: >60**
pH": 11.64	**Replicate #3: >60**
Category: 2	**Replicate #4: >60**
Packing Group: NC	**Mean±SD: >60**

pH is taken at 10% aqueous solution.

DISCUSSION

A single sample obtained from Solving Concrete Problems was analyzed by the Corrositex method to determine its corrosive potential and Packing Group designation.

The results of this study indicated that the sample was compatible with the Corrositex system and was classified as a Category 2 material.

The results obtained from the evaluation of four replicate samples were highly reproducible, demonstrating that a mean time of > 60 minutes required to destroy the synthetic biobarriers.

These findings lead to the designation of this sample, CONCRETE REMEDY TOP SEAL, as a Non-corrosive.

Concrete Remedy Products are non hazardous and can be shipped accordingly.

Concrete Remedy Internal Deep Seal Demonstration

To see how the alkali activated chemical penetrants (Concrete Remedy™ Deep Seal and PetraWood™) work, you can do this simple demonstration. Here's a brief explanation of how these products work. This demonstration shows customers how the products work.

Concrete Remedy™ Deep Seal and PetraWood™ react with the alkali and lime found in cementitious and wood materials, forming a silica gel, which flows through the material creating more as it goes due to the catalyst in the material. The voids in the concrete or wood are filled with this gel, which eventually sets up hard--like glass (silica). The gel has an affinity for moisture and alkali--it is "pulled" along into and through the material by this reaction.

The result is that the voids in the material to which is it applied are filled, with a permanent, hard material, which prevents water from penetrating the cement or wood. It also strengthens the cement or wood, in effect making it harder. The concrete or wood still breathes, however.

The way Concrete Remedy™ Deep Seal & PetraWood™ work, as well as the results are quite different from ordinary concrete or wood sealants that give protection by virtue of their "presence". Ordinary sealants must be reapplied at intervals because they eventually dissipate due to the effects of weathering (water, sun, contaminants, freeze/thaw cycle) and wear from traffic. You don't have to do that with Concrete Remedy™ Deep Seal and PetraWood™.

Concrete Remedy™ Deep Seal and PetraWood™ stay PERMANENTLY in the material to which they are applied. They are one-time treatments. One way to understand how this works: It is similar to being able to inject liquid-glass into all the pores, voids and channels in concrete or wood and fill them with a hard, permanent material.

Now For The Demonstration

For this demonstration you will need the following:

1. Small plastic glass.
2. Baking soda. (Baking soda is basically alkali and lime--present in concrete and wood.)
3. Small bottle of Concrete Remedy™ Deep Seal.

Follow These Four Simple Steps

1. Put enough baking soda in the bottom of the plastic glass to cover the bottom--just a couple pinches.
2. Shake up the sample bottle of Concrete Remedy™ Deep Seal and pour 1/4 to 1/2" of it into the glass with the baking soda.
4. Gently "swish" the Concrete Remedy™ Deep Seal around in the glass.

In just a few seconds it should set up into a solid gel. (The more baking soda you use, the faster it will gel.

Of course the concentration of alkali and lime present in baking soda is a higher concentration than found in concrete, but the reaction of the catalyst in Concrete Remedy™ Deep Seal & PetraWood™ is the same.

Deep Seal will not completely waterproof concrete blocks due to the large size of the voids. However, it will reduce moisture passage so that a membrane material will bond better and resist peeling. Waterproofing concrete block should be seen as a two step process—1) Use Deep Seal to prepare the block by reducing moisture and alkali reaction internally and 2) apply a membrane material.