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* TRAINING MANUAL *
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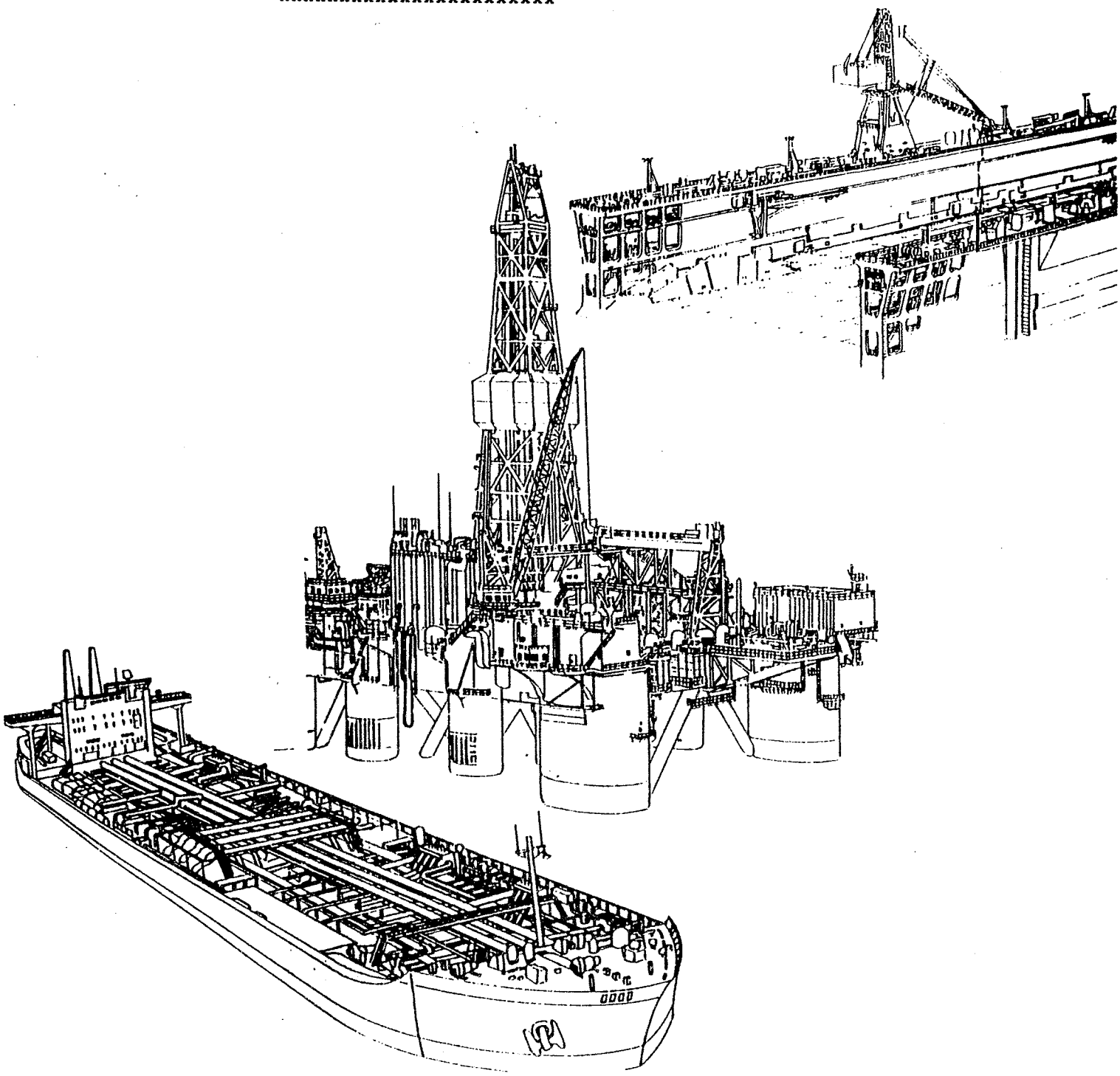

CLEARKIN CHEMICAL DIVISION
COATING DEVELOPMENT GROUP, INC.
SCHILLER AND ALLEN STREETS P.O. BOX 14817
PHILADELPHIA, PA 19134
PHONE: 215-426 6216 FAX 215-426-6219

CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals

CALLING ON PERSPECTIVE CUSTOMERS

Always try to make an appointment if possible. If you do not know the proper person to see, ask. You want to see the person who is responsible for Ballast Tank Protection. The people who would most likely be responsible for Ballast Tank Protection are: The Operations Manager, Engineering Manager or one of the Port Engineers.

Once you get to the proper person, tell him who you are and that you have a complete line of Coatings for the protection of Ballast Tanks, Voids, etc. which will save him a considerable amount of time and money. Try to hold off a lot of questions until you are in his office. Make sure to ask for the appointment, and make sure that you are on time for the meeting.

Once in the perspective customer's office, ask him what they are using now to protect their Ballast Tanks, then go on to explain the Products and their many advantages.

Most times, for new construction of ships the owner will specify a hard, epoxy type coating. However, once the original coating breaks down it becomes very expensive to re-coat with hard coatings. Older ships, Offshore Drilling Rigs, Barges and Floating Drydocks are the best candidates for the use of Clearkin Coatings. Offshore Oil Rigs and Barges often use Soft Coatings when they are built and continue to use them for the entire life of the vessels.

Barges do not usually have Ballast Tanks. However, almost every Barge has many Void Tanks. These Tanks corrode heavily due to condensation in the Tanks, and they must be protected from corrosion.

Clearkin's BV-927 and B-50 are especially recommended for Void Tanks.

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GENERAL INFORMATION

Read the literature,learn what it says and what it recommends.

What do we sell?

A. Clearkin Chemical manufactures and markets a complete line of Coatings for the protection of saltwater ballast tanks, void tanks, cofferdams, chain lockers, under hatch covers and on deck steam lines on Ships, Barges, Offshore Oil Rigs, Floating Drydocks, Tug Boats, etc. All Clearkin Coatings are soft wool grease based (lanolin) coatings combined with specially processed oils,anti-corrosion agents and a mixture of viscosity building agents developed to give excellent protection to steel surfaces in salt water environments. After a period of time (six to eight months) the coatings will firm-up somewhat and skin over. There is one instance where the coatings will harden. This is when our white and black corrosion master is exposed to extreme heat, example, steam lines.

What are the names of the Products?

A. White Corrosion Master
B. Black Corrosion Master
C. B.V.-927 Tank Coating (Amber colored)
D. B-50 Tank Coating (Black in color)
E. Corrosion Battler (Black in color)
F. Oil Bond Solidifier Products - These Products will be covered in detail later.

Who will have need for Clearkin Coatings?

Owners and/or Operators of Ships, Offshore Oil Rigs, Tug Boats, Floating Drydocks and other Offshore Equipment where interior tank surfaces need protection from corrosion.

What are the advantages of using Clearkin Coatings?

A. Cost. Soft Coatings are much less expensive to purchase and apply than Hard Coatings. (See enclosed comparative information on White Corrosion Master vs. Epoxy Coatings.)

B. Surface Preparation. Little or no surface preparation is required when using Clearkin Coatings. For all the Products except Corrosion Battler, simply remove all built-up scale. The best way to accomplish this is by Water Blasting. Hand scraping may be required in corners and weld seams. Corrosion Battler can be applied over scale and will remove scale.

C. Application:

All Clearkin Coatings are applied with one coat. No Primer is required. However, the Coating can be successfully applied over a pre-construction primer. All Hard Coatings require two or more coats or Coating in order to get an acceptable job. Also, 2nd and 3rd coats of Hard Coatings must be applied in a given amount of time or there is the possibility of inter-coat delamination.

D. Safety:

Clearkin Coatings are safe to use. All the Prodcuts are 100% solids. That is, they do not contain any solvents whatsoever, no fumes to worry about, no special air masks are required. All the Products are non-toxic, and there is zero V.O.C. (Volatile Organic Content.)

E. Cure Time:

There is absolutely no cure time required with any of the Clearkin Coatings Tanks may be ballasted immediately after the Coating is applied. Hard Coatings require three to seven days cure time before the Tanks can be put into service.

F. Single Package:

All Clearkin Coatings are single package Coating, that is, nothing needs to

F. Single Package (continued)

be added to the Products in order to make them work. Most Epoxy Coatings are two package Coatings which need a catalyst in order for them to dry.

G. Pot Life - Shelf Life:

All Clearkin Coatings have an indefinite Pot Life and Shelf Life.

Pot Life is the time in which a Coating must be applied. Most catalyzed Coatings have a Pot Life of from six hours down to twenty minutes. As the ambient temperature rises, the Pot Life decreases. In tropical areas where the temperature is 90°F (32°C) or higher, most catalyzed Coatings have a Pot Life of under one hour.

Shelf Life is the time unopened and uncatalyzed Coatings may be stored and still be useful. Most catalyzed Coatings have a Shelf Life of approximately one year.

H. How Clearkin Coatings work.

All Clearkin Coatings are Barrier type Coatings and are designed to penetrate rust, displace water and form a barrier which seals off air and water, thereby, preventing corrosion.

Because the Coatings are soft, they will not undercut. Undercutting happens when a Coating blisters or pulls away from the base steel. Severe corrosion can occur when this occurs and is not always detectable by visual inspection.

How long will the Coatings last? This is a hard question to answer. When the Coatings are applied to Void Tanks where there is only condensation in the Tanks, the Coatings will most likely last in excess of 5 years and in quite a few cases the Coatings will last for the entire life of the vessel. Sometimes after a period of years, the floors of Void Tanks and up approximately one to two feet on the Bulkheads may need to be re-coated due to water sloshing around in the bottom of the Tank. In Ballast Tanks the life of the Coating

will depend on two main factors. #1. How often are the Tanks ballasted? and #2. Where the Vessel takes on Ballast? If a Ship ballasts two times a week, the Coating will naturally not last as long as a Ship which Ballasts two times a month. Also, if a Ship takes on Ballast in shallow water, pulling in mud and grit with the ballast water, this will also reduce the life of the Coating.

The best estimate for the life of our Coatings is between three to five years, after which time partial touch-up may be needed.

ESTIMATING

When estimating the amount of Coating needed for a job, you need to know total area of Tanks to be coated. How many sq. meters or sq. feet of steel are to be coated? Sometimes the owner of a Vessel will know this, and sometimes he will not even have a clue. If possible, get a blueprint of the Tanks or try to get into the Tanks and do the measurements yourself. If the sq. meters or sq. feet are known, figure 150% of the total area, for example, if a ship owner wants the ballast tanks coated with White Corrosion Master, and he says he has $10,000M^2$ of steel to be protected, figure that the quantity of Coating needed to protect $15,000M^2$ of steel, and you will usually be very close to the amount of Coating actually needed.

For Corrosion Master both White and Black, a good estimate is $5.5M^2$ per gallon or 60 $ft.^2$ per gallon, this is a practical estimate. Theoretically you would get $7.5M^2$ or 80 $ft.^2$ per gallon. However, some of the Coating is lost due to overspray and variations in the applied thickness of the Coating. It is a good idea to have a few extra drums on the job in order to make sure that they do not run out of material before the job is completed. Unopened drums of Coating can be returned for credit provided they are in resaleable condition. For Corrosion Battler figure one to one and one half drums of

Estimating (continued)

Coating per 100 tons of Ballast. For Forepeak Tanks, figure two drums per 100 tons of Ballast. For Afterpeak Tanks figure two to two and one half drums per 100 tons of Ballast. (Ask the owner for the capacity of each tank, one cubic meter of water equals one ton. 35 cubic feet of water equals one ton.) Study the application instructions printed on our Corrosion Battler literature. For large Tanks and Peak Tanks (Forepeak and Afterpeak) the Corrosion Battler should be applied in three separate applications. Pour one third of the Coating into the bottom of the Tank, Ballast up to one third capacity, let the Tank stand for one hour, then deballast. Do this three times, then bring the water in the Tank to the middle third of the Tank, Ballast up and down three times in the same manner, then do the top one third of the Tank. For B.V.-927, a good estimate for the amount of Coating needed is 16.2M^2 to 21.8M^2 per gallon, figure enough Coating to cover 150% of the steel surface for B-50 figure 21.8M^2 to 31.5M^2 per gallon. Again, estimate enough Coating to cover 150% of the total area. If possible, initial Tank inspections should be carried out well in advnace of when the vessel owner plans to use the Coating. This will give the inspector time to make recommendations and give an estimate on the amount of Coating needed.

Always carry a bag in your car containing coveralls, boots or work shoes, gloves, a hard hat and a high powered flash light or lantern. Make sure that the Tanks are safe to enter. Tanks must be well ventilated and completely free of toxic fumes. Never enter a Tank alone. Have a member of the crew with you at all times, preferably the Chief Mate or one of the other deck officers. When inspecting Tanks, go to the bottom and work your way up keep some paper with you and take notes as you inspect. Check the floor of the Tank first. Take notes on the approximate percentage of rust, scale,etc. Take note if there is mud, grit and scale in the Tank, explain your findings with whomever is in the Tank with you and put all findings in your report.

Inspection and Service
Tank Inspection (continued)

It is best to inspect a Tank in thirds. For example, bottom and one third up, middle third and top third when making the Inspection Report, keep it short and to the point. After reporting your findings give recommendations e.g. remove all scale, muck out Tanks completely and apply Clearkin Coatings in accordance with the manufacturers recommendations.

Service

When performing service to a customer it is important that the Tanks be inspected with the person in charge prior to the application of the Coating. If there is any scale remaining show it to the person in charge and recommend that it be removed. Make note of it and put it in your report. (See Service Report) make sure that the Tanks are clean. Check the floors and tops of all longitudinals to make sure that they are free of fallen scale and any other foreign matter. You will need a wet film gauge in order to measure the thickness of the Coating. The thickness of the Coating should be checked every three to four square meters. Film thickness should be a minimum of 500 microns (20 mils) it's okay if the Coating thickness is 550 to 575 microns, (22-23 mils) but never less than 500 microns or 20 mils. Check under longitudinals and in corners and sharp edges. Many times these areas do not get the proper thickness. In the event that the Coating is applied over scale, or is not applied to the minimum thickness, make sure to tell the person in charge and put it in your report. Keep all records on file for future follow up.

Trouble Shooting

In the event a customer informs us that there is a failure with one of the Clearkin Coatings it is most often due to one of the following reasons.

1. The Coating was applied over scale. When any Clearkin Products are applied over scale, it will soften the scale, pulling it away from the

Trouble Shooting(Continued)

base steel, leaving bare steel exposed. This is easily detectable, simply pick up a piece of the Coating and look at the back side of it. The scale will be adhered to the backside of the Coating. Take samples of the Coating and show it to the owner. If possible, take pictures of it.

2. If a soft Coating is applied too thick, it can sage and creep down from the upper portions of the Tank. This will not happen with Clearkin Coatings if they are applied in accordance with our recommendations. However, some competitors recommend 1500 to 2250 microns (60-90 Mils) of Coating, causing this problem, expecially in tropical areas.

3. If one of our Coatings are applied over another system (either hard or soft Coating) which is failing, everything will fall off. Never guarantee any Clearkin Products that are applied over some other Company's product. We know what Clearkin Coating can do, but we do not know what other companies recommend or guarantee.

4. Sometimes a customer will say that a Tank is rusting shortly after application of one of our Coatings. In most cases, what has happened is that when taking on ballast they also brought in some mud which stuck to the soft Coating, giving it a rusty look. All that is required in this case is to simply run your finger over the mud covered area in order to expose the Coating.

/SHIPS, TUGS AND BARGES/

PRODUCT	Ballast Tanks	Void Tanks	D.B. Tanks	Cofferdams	Chain Lockers	Under Hatch Covers	Peak Tanks	Rudder Interiors
White C.M.	X	X	X	X		X	X	
Black C.M.	X	X	X	X		X	X	
Corrosion Battler	X		X				X	X
B.V-927		X		X	X	X		X
B-50		X		X				X

/FLOATING DRYDOCKS/

PRODUCT	Ballast Tanks	Void Tanks	Wing Wall Tanks	Pontoons	Cofferdams
White C.M.	X		X	X	
Black C.M.	X		X	X	
Corrosion Battler		X		X	
B.V.-927		X			X
B-50		X			X

/ OFFSHORE OIL RIGS/

PRODUCT	Ballast Tanks	Void Tanks	Drill Water Tanks	Pre-Load Tanks	Columns	Pontoons
White C.M.	X		X	X	X	X
Black C.M.	X		X	X	X	X
Corrosion Battler	X		X	X	X	X
B.V.-927		X				
B-50		X				

G L O S S A R Y

AIRLESS-SPRAY Spray Equipment used without air atomization

AFT Back End of part of a vessel - Rearward

BALLAST Something that gives stability - usually sea water on a ship

BALLAST TANK Tank that holds ballast water

BARREL PUMP Pump that is put directly into a barrel or drum

BOATSWAIN (BOS'N) Petty Officer in charge of maintenance

BULKHEAD A wall on marine type vessels

CAPACITY The ability to hold or store

CAPTAIN Officer in charge of a vessel

CHAIN LOCKER Compartment that stores anchor chain

COFFERDAM A watertight structure

COLUMNS Large cylindrical legs on a semisubmersible oil rig used for ballast

CURE TIME The time it takes a coating to dry and be ready to be handled or used

DEAD WEIGHT TONS (DWT) Total capacity a ship can carry including fuel

DE BALLAST To empty ballast tanks

DOUBLE BOTTOM TANK Tanks under a cargo hold

E.T.A. Estimated time of arrival

E.T.D. Estimated time of departure

ENGINEER Officer on a vessel in charge of the Engine Room

FIRST MATE Officer on a ship in charge of the Deck Department - second in command

FLAME SHIELD A non-combustible cloth or object put under an area where hot work is performed in order to catch hot steel and weld splatter

FLASH POINT The lowest temperature at which vapors above a combustible substance ignite in air when exposed to flame

FLATING DRYDOCK A dock that floats on the water and can be partly submerged to permit entry of a ship and raised to keep the ship high and dry

FORE The front part of a ship, boat, barge, etc.

GENERAL CARGO SHIP A ship that carries loose dry cargo

GLOSSARY (Continued)

GRAVING DOCK A drydock that is a permanent structure. It does not float.

HATCH COVER A large steel cover to protect cargo from the elements

HIGH PRESSURE WASHING A type of sprayer that shoots a jet stream of water at 2,000 P.S.I. or greater

JACK-UP RIG An offshore oil rig where the work platform can be raised or lowered on legs that are set at the base of the water

LONGITUDINALS Reinforcing steel beams running lengthwise in a tank

MATERIAL LINE A hose used to carry a coating from the container to the spray gun

MICRON A unit of length equal to one thousandth of a millimeter

MIDSHIP Center portion of a ship

MIL A unit of length equal to one thousandth of an inch

MILL SCALE A tight, gray colored scale deposited on to steel during its manufacture

MUCK OUT To remove any foreign matter from a tank

PEAK TANKS Tanks at the ends of a ship. Forepeak tank is in the front end of the ship Afterpeak tank is in the back end

PONTOON TANKS Large tanks on the bottom of a semi-submersible drilling rig or floating drydock used for ballasting

PRACTICAL COVERAGE The actual Ft^2 or M^2 that can be realized from a gallon of coating

POT LIFE The time a coating will be useable in its container before application

PORTSIDE The left side of a ship when facing the bow.

PRESS-UP To completely fill a tank

SHELF LIFE The time a product can be kept, unopened and still be useful

STERN The back end of a vessel

SUCTION BELL A valve at the bottom of a ballast tank used to suck the ballast water from the tank

SCALE A coating layer or incrustation

STARBOARD The right side of a vessel when facing forward

TRANSVERSE BULKHEAD A wall running across the width of a tank

GLOSSARY (continued)

TRANSVERSE STIFFENER A reinforcing beam running across the width of a tank

UNDERCUT The action of cutting away from the underside of anything

VOID TANK An empty tank, not used for cargo or ballast

WING WALLS Side walls on a floating drydock

WET FILM GAUGE An instrument used to measure the thickness of a coating before it dries

STOP BALLAST TANK CORROSION WITH...

WHITE CORROSION MASTER

White Corrosion Master is a spray applied WHITE wool-grease based coating combined with specially processed oils, anti-corrosion agents and a mixture of viscosity building agents, developed in our labortory to give excellent protection to steel surfaces in salt water environments.

White Corrosion Master is recommended for use in segregated salt-water ballast tanks, voids, cofferdams, under hatch covers, on deck steam lines and many other areas where protection from salt water environment is required.

White Corrosion Master requires little or no surface preparation and can be applied over rusty surfaces. All that is required is to remove built-up scale. The surface may be wet or dry and there is no cure time needed before tanks are put into service.

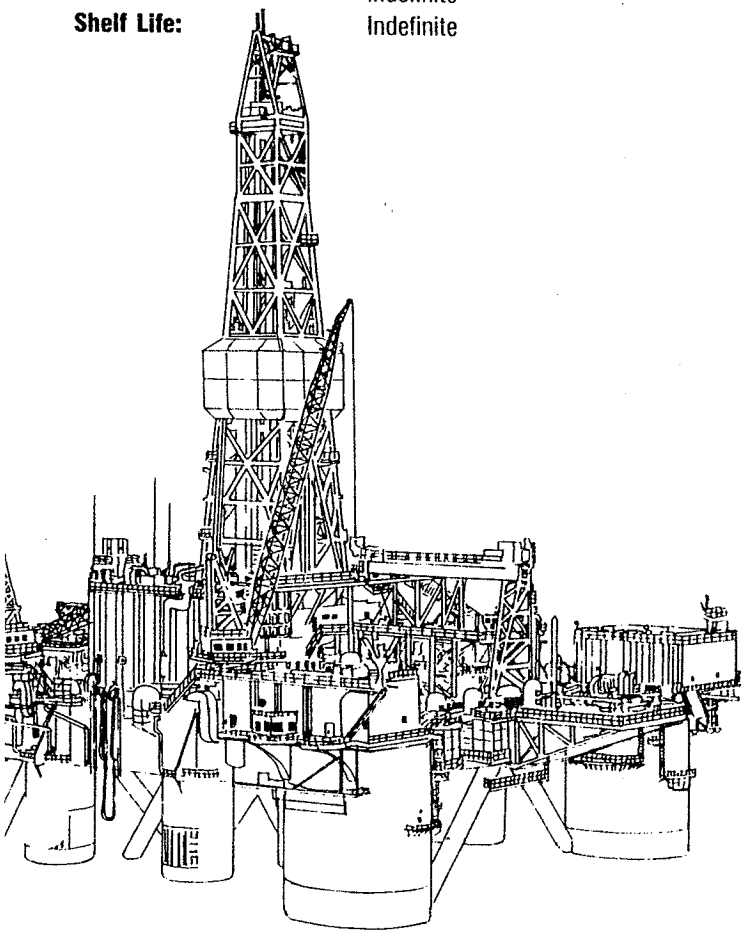
White Corrosion Master is easily applied by airless spray or brush, applied to a thickness of twenty to twenty-five mils.

White Corrision Master will give excellent protection from salt water corrosion.

White Corrosion Master is non-toxic and contains no solvents. It also has a very high flash point, approximately 375° F, which makes it one of the safest products on the market for the marine and Offshore Oil industries.

SPECIFIC PROPERTIES

Color:	White
Solids by volume:	100%
Flash Point:	Approximately 375° F.
Cure Time:	None required
Packaging:	55 gallon drums 5 gallon pails
Practical Coverage:	70 sq. ft. per gallon at 20 mils
Pot Life:	Indefinite
Shelf Life:	Indefinite



APPLICATION INSTRUCTIONS

Surface Preparation: Area may be wet or dry. Remove all built up scale from steel. Muck out tank completely.

Equipment Required: (Spray) - 30 to 1 or larger airless barrel pump, 3/8" to 1/2" material line, pole gun and/or hand gun with .028" to .046" tip.
(Brush) - Use a large short bristle brush.

Film Thickness Recommended: 20 to 25 mils. White Corrosion Master is 100% solids, therefore no shrinkage will occur.

Theoretical Coverage at 20 mils: 80 sq. ft per gallon.

Practical Coverage at 20 mils: 70 sq. ft. per gallon.

Application: Best results are obtained by spraying. Hold gun 12" to 18" away from surface, using even strokes and a 50% overlap. When using a brush, lay material on with even strokes using caution not to spread the material too thin.

The White Corrosion Master is to be used as is, in its original container. No thinners or solvents are to be used. In cold weather keep the coating in a heated area prior to use.

Clean-up: Tools and equipment may be cleaned with mineral spirits or Stoddards Solvents.

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STOP BALLAST TANK CORROSION WITH...

BLACK CORROSION MASTER

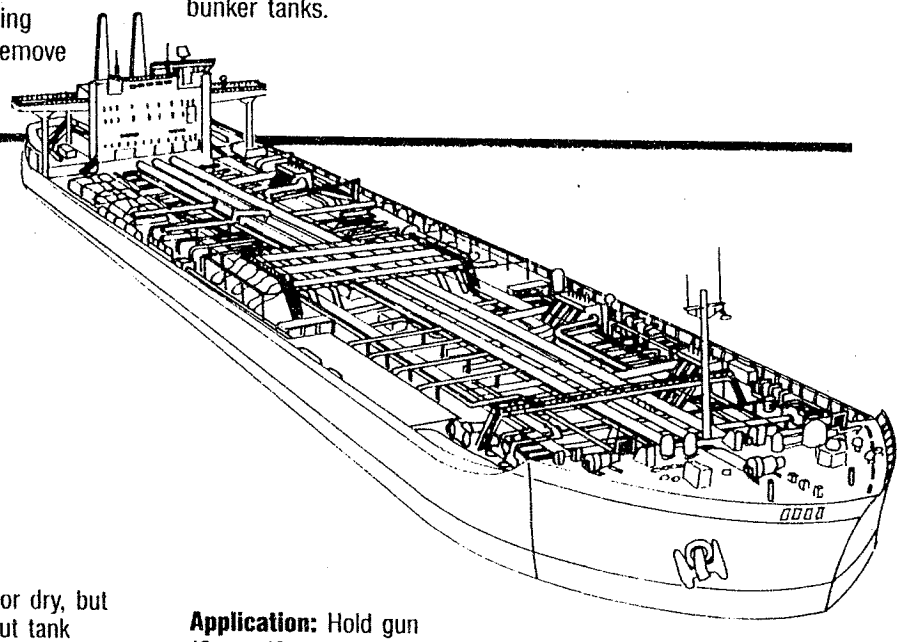
Black Corrosion Master is a spray applied prejelled wool-grease based coating designed to give excellent protection against salt water corrosion.

Black Corrosion Master is recommended in ballast tanks, voids, cofferdams, under-hatch covers, on deck steam lines, deck machinery, etc. **Black Corrosion Master** is also recommended to touch-up areas in tanks which were originally coated with zinc or epoxy coatings.

Little or no surface preparation is required when using **Black Corrosion Master.** All that is required is to remove built up scale and mud.

Applied to a thickness of twenty to twenty-five mils, **Black Corrosion Master** will give excellent protection at reasonable cost.

For hot bulkheads and areas where excessive heat is encountered, we recommend **Corrosion Master Hi-Temp** which will withstand temperatures up to 300° F. **Corrison Master HI-Temp** is especially recommended for under-deck plating and areas where ballast tanks adjoin cargo and bunker tanks.



SPECIFIC PROPERTIES

Color:	Black
Flash Point:	240° F Clev. Open Cup
Solids by volume:	100%
Cure Time:	None required
Practical Coverage:	70 to 85 sq. ft./Gal.
Pot Life:	Indefinite
Shelf Life:	Indefinite
Packaging:	55 gallon drums 5 gallon cans

APPLICATION INSTRUCTIONS

Surface Preparation: Area to be coated may be wet or dry, but must be free of all loose scale, silt and mud. Muck out tank completely.

Equipment Required: Black CORROSION MASTER may be applied by airless spray or brush. Best results are obtained by spraying. For SPRAYING use at least a 30 to 1 ratio airless barrel pump, 3/8" to 1/2" material line, pole gun or hand gun with .028" to .051" tip. For BRUSHING use a short bristle brush.

Film Thickness: 20 to 25 mils-Black CORROSION MASTER and CORROSION MASTER HI-TEMP are 100% solids. Therefore, no shrinkage will occur.

Practical Coverage: 90 sq. ft. per gal. at 15 mils. 70 sq. ft. per gal. at 20 mils.

Application: Hold gun 12" to 18" away from surface using even strokes and a 50% overlap. When brushing use short strokes. Be careful not to spread material too thin. In cold weather it may be necessary to pre-heat the material. Store material in a protected, heated area if possible.

DO NOT THIN the material with any solvents. If thinning is absolutely necessary, use up to 5% Clearkin CORROSION BATTLER, only.

Clean-up: Tools and equipment may be cleaned with mineral spirits.

CORROSION MASTER and CORROSION MASTER HI-TEMP is non-toxic but it is not recommended for potable water tanks.

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STOP BALLAST TANK CORROSION WITH...

CLEARKIN CORROSION BATTLER

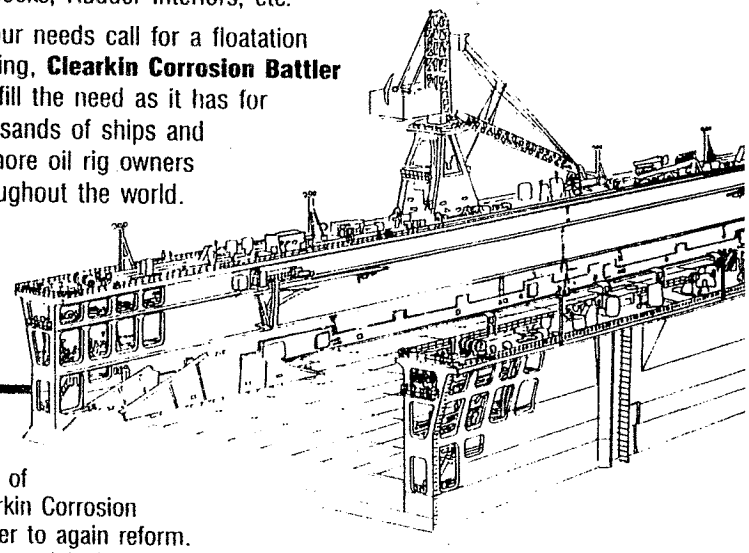
Clearkin Corrosion Battler is a wool-grease based coating designed to protect ballast tanks using the flotation method. However, **Clearkin Corrosion Battler** may be sucessfully spray applied to areas where it is not practical to float.

The polar materials contained in **Clearkin Corrosion Battler** have a great affinity to ferrous metals. The coating penetrates scale, displaces water and subsequently forms a gel, causing an expansion which will remove scale and leave a grease-like coating on the base steel.

No costly sandblasting or chipping is required when using **Clearkin Corrosion Battler.** The material can be applied easily over almost any surface. All that is required is to remove loose scale and mud and then pour the prescribed amount of **Clearkin Corrosion Battler** into the bottom of the tank.

Clearkin Corrosion Battler is recommended for use in ballast tanks on Tankers, Bulk Carriers, Container Ships, Chemical Tankers, Offshore Oil Rigs, Barges, Voids, Floating Drydocks, Rudder Interiors, etc.

If your needs call for a floatation coating, **Clearkin Corrosion Battler** will fill the need as it has for thousands of ships and offshore oil rig owners throughout the world.



SPECIFIC PROPERTIES

Color:	Black
Solids by volume:	100%
Cure Time:	None Required
Practical Coverage:	25 to 30 sq. ft. per gallon or 1-1/2 drums per 100 tons of ballast
Pot Life:	Indefinite
Packaging:	55 gallon drums

APPLICATION INSTRUCTIONS

First clean all the loose scale, mud and silt from the tank by using a high pressure hose, then muck out the bottom of the tanks, making sure that all the limber holes are open.

The quantity of Clearkin Corrosion Battler specified for each tank should be poured in after the tanks have been mucked. Open all vents.

After the prescribed number of drums have been poured into the tank, ballasting should start at once, only allowing sufficient time for the Clearkin Corrosion Battler to cover the entire bottom of the tank. If there is any water in the tank ballasting is not started immediately after the Clearkin Corrosion Battler has been poured into the tank, gelling of the material will begin and it will be impossible to form an even layer of material on the surface water for ballasting application.

If possible, when ballasting, ship should be on an even keel and trim. The tank is to be ballasted as slowly as possible (not to exceed six inches per minute). When ballast water reaches a point approximately two feet from the top of the tank, ballasting is to be stopped for approximately ten minutes to permit trapped air to escape through the vents, and if possible through the open manhole.

Resume ballasting after ten minutes and press the tank up. When pressed up allow to stand for one hour, and then start deballasting, again as slowly as possible. When the water level in the tank reaches a point approximately three feet from the bottom, deballasting is to be halted for approximately five minutes in order to break the vortex and permit the floating layer of Clearkin Corrosion Battler to again reform. Resume deballasting, until water level in the tank is approximately twelve inches above the suction bell. This is done to prevent pumping any of the material overboard. After deballasting has stopped allow the tank to stand for one hour and resume ballasting again, proceeding as was done on the first cycle. We recommend three ballasting and deballastings. On the third ballasting when the water level reaches the point where ballasting is stopped to permit trapped air to escape, we recommend that one drum be poured onto the water, and time allowed for the material to form a complete layer on the water. In this manner you will be assured that the tank top will receive a good heavy coating.

After the third ballasting cycle has been completed we suggest the tank be examined and if any appreciable amount of Clearkin Corrosion Battler is still floating on the water that another ballast cycle be made.

After the tanks have been treated in the above manner, normal ballasting and deballasting of the tanks can be carried out without any danger of the Clearkin Corrosion Battler being removed from the steel.

Clearkin Corrison Battler is very penetrating, and in time softens and removes tight scale from the steel, which will fall off into the bottom of the tank and can be removed.

Note: The use of Clearkin Corrosion Battler by the floatation method is not recommended when the water temperature is lower then 40° F.

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CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals
Division of C.D.G., INC.

B. V. 927 TANK COATING

B.V. 927 TANK COATING is a spray applied amber colored lanolin based coating developed in our labortory to give excellent protection to steel in a saltwater environment.

B.V. 927 TANK COATING is recommended for use in void tanks, cofferdams, chain lockers, under hatch covers and other areas where a thin film coating is desirable.

B.V. 927 TANK COATING requires little or no surface preparation. Simply remove built-up scale.

Applied to a thickness of six (6) to eight (8) mils, B.V. 927 TANK COATING will give excellent long term protection.

B.V. 927 TANK COATING is very effective and safe to use. The product contains no solvents (NO V.O.C.) and it is non-toxic.

For tanks which are ballasted often, it is recommended that CLEARKIN CHEMICAL CORROSION MASTER be used.

SPECIFIC PROPERTIES

Color:	Amber	Cure Time:	None Required
Solids by Volume:	100%	Shelf Life:	Indefinite
Flash Point:	380°F	Pot Life:	Indefinite

Practical Coverage 175 to 235 sq. ft. per Gallon

APPLICATION INSTRUCTIONS

Surface Preparation: Remove all built-up scale. Muck out tanks completely. B.V. 927 TANK COATING may be applied by airless spray or by brush. Best results are obtained by spraying.

Equipment Required: (SPRAY) use a 30:1 or larger airless barrel pump, 3/8" solvent resistant material line, pole gun or hand gun with .021" or larger Reversa-Clean tip. For brushing, use a wide short bristle brush.

Film Thickness: Six (6) to eight (8) mils. The Coating is 100% solids. Therefore, no shrinkage will occur.

Application: Hold gun 12" to 18" away from surface using even strokes and a 50% overlap. When brushing, use short even strokes. Do not spread the Coating out too thin.

DO NOT THIN the Coating with any solvents whatsoever.

Clean-up: Mineral Spirits may be used for cleaning tools and equipment.

In cold weather store the Coating in a heated area prior to use.

Telephone: 215-426-6216
Fax: 215-426-6219

CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals
Division of C.D.G., INC.

B-50 TANK COATING

B-50 TANK COATING is a spray applied Black Lanolin based coating designed to protect steel in a saltwater environment.

B-50 TANK COATING is recommended for use in void tanks, cofferdams, chain lockers, under hatch covers and other areas where a thin film coating is desired.

B-50 TANK COATING requires little or no surface preparation simply remove built-up scale.

Applied to a thickness of four (4) to six (6) mils. B-50 TANK COATING will give the protection needed to protect the steel surface.

B-50 TANK COATING is effective and safe. The coating contains no solvents (NO V.O.C.) and it is non-toxic.

For tanks which are ballasted often, we recommend that CLEARKIN CORROSION MASTER be used.

SPECIFIC PROPERTIES

Color:	Black	Cure Time:	None Required
Solids:	100%	Pot Life:	Indefinite
Flash Point:	225°F	Shelf Life:	Indefinite

Practical Coverage 235 to 340 sq. ft. per Gallon

APPLICATION INSTRUCTIONS

Surface Preparation: Remove all built-up scale. Muck out completely. B-50 TANK COATING may be applied by airless spray or by brush. Best results are obtained by spraying.

Equipment Required: (SPRAY) use a 30:1 or larger airless barrel pump, 3/8" solvent resistant material line, pole gun or hand gun with .021" or larger Reversa-Clean tip. For Brushing: Use a wide short bristle brush.

Film Thickness: Four (4) to six (6) mils. The coating is 100% solids. Therefore, no shrinkage will occur.

Application: Hold gun 12" to 18" away from surface using even strokes and a 50% overlap. When brushing use short even strokes. Do not spread the coating out too thin.

DO NOT THIN the coating with any solvents whatsoever.

Clean-up: Mineral spirits may be used for cleaning tools and equipment.

In cold weather store the coating in a heated area prior to use.

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CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals
Division of C.D.G., INC.

COMPARATIVE INFORMATION ON CLEARKIN CHEMICAL-WHITE CORROSION MASTER VS. HIGH BUILD EPOXY SYSTEMS

C O S T

HITE CORROSION MASTER		HIGH BUILD EPOXY SYSTEMS
urface Preparation: Water Blast-Remove Scale Omly	.35/sq.ft.	Grit Blast-SSPC-SP 10 $1.25-1.50/ sq.ft.
ucking Tanks: After Water Blasting	.35/sq.ft.	After Grit Blsting $1.50/sq.ft
laterial Cost: White Corrosion Master	.20/sq.ft.	High Build Epoxy .60-70/sq.ft.
pplication Cost: White Corrosion Master	.20/sq.ft.	High Build Epoxy .55-65/sq.ft.

taging tanks will vary in cost but will be approximately the same for both ystems.

otal cost:

hite Corrosion Master	1.10/sq.ft	High Build Epoxy $3.90-4.35/sq.ft.

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COMPARATIVE INFORMATION ON CLEARKIN CHEMICAL-WHITE CORROSION MASTER VS. HIGH BUILD EPOXY SYSTEMS

S P E C I F I C P R O P E R T I E S

CLEARKIN'S WHITE CORROSION MASTER	HIGH BUILD EPOXY SYSTEMS
COLOR: White	COLOR: Black
VOLUME-SOLIDS: 100%	VOLUME-SOLIDS: 60% to 70%
SUGGESTED FILM THICKNESS: 20 mils (one coat)	SUGGESTED FILM THICKNESS: 16 mils (DFT) (2 coats)
PRACTICAL COVERAGE: 65 sq.ft./gal. (one coat)	PRACTICAL COVERAGE: 110 sq.ft./gal. (2 coats)
CURE TIME AT 77°F/50% R.H: None req'd	CURE TIME AT 77°F/50% R.H: After 5 hrs. but before 24 hrs.*
REDUCTION SOLVENTS: None Required	REDUCTION SOLVENTS: MIBK-MEK
SURFACE PREPARATION: Remove built-up scale	SURFACE PREPARATION: SSPC-SP-10 Near white blast
V.O.C: 0	V.O.C: 2.8 - 3.2 lbs./gal.
MIX RATIO: Single Package	MIX RATIO: 4 Gal. H.B. Epoxy-1 gal. Catalyst

(*) With High Build Epoxy Systems: If Top coat is not applied within 24 hours after Prime coat is applied, special surface preparation procedures are required in order to get good adhesion to Prime coat. Elevated temperatures will shorten cure time.

SCHILLER & ALLEN STS. P.O. BOX 14817 PHILADELPHIA, PA 19134

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CLEARKIN
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Manufacturers of Marine
and Industrial Chemicals
Division of C.D.G., INC.

COMPARATIVE INFORMATION ON CLEARKIN CHEMICAL-WHITE CORROSION MASTER

VS.

HIGH BUILD EPOXY SYSTEMS

O T H E R F A C T O R S T O C O N S I D E R

Cure Time Required before tanks can be closed and/or put into service:

Clearkin's White Corrosion Master: No cure time required

High Build Epoxy: Four to seven days

Clearkin's White Corrosion Master is 100% solids. No dangerous fumes. No special air-fed masks required for the applicator. The White Corrosion Master is applied in one coat. Epoxy systems require two coats, which enhances the possibility of inter coat delamination. The only surface preparation required when using White corrosion Master is to remove built-up scale by means of water blasting. The product can be applied over rusty and damp surfaces. No D.H. units are required.

Taking all factors into consideration, White Corrosion Master offers a cost saving, safer and less time consuming way to properly protect salt water ballast tanks. The saving of money alone is well worth a very serious look at Clearkin's White Corrosion Master System.

SCHILLER & ALLEN STS. P.O. BOX 14817 PHILADELPHIA, PA 19134

INSPECTION REPORT

FOR

_____

(Owner's Name)

CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals
Division of C.D.G., INC.

Location:

Owner:

Date Inspected:

Inspected By:

Contacts:

Tanks Inspected:

Findings:

Recommendations:

Telephone: 215-426-6216
Fax: 215-426-6219

CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals
Division of C.D.G., INC.

TANK(S) COATED:

SURFACE PREPARATION:

APPROVED:

NOT APPROVED:

COATING APPLICATION:

APPROVED:

NOT APPROVED:

COMMENTS:

DATE:

SCHILLER & ALLEN STS. P.O. BOX 14817 PHILADELPHIA, PA 19134

CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals
Division of C.D.G., INC.

GUIDE COATING SPECIFICATION

using

CLEARKIN CHEMICAL, DIVISION OF C.D.G., INC.

CORROSION MASTER

1. SCOPE

1-1 This specification covers the material required, surface preparation and the application of CORROSION MASTER to the interior of Ballast Tanks, Voids and Cofferdams on Ships, Barges, Offshore Oil Rigs and Floating Drydocks.

1-2 This specification also covers the recommended procedure for performing hot work in areas where CORROSION MASTER has been applied.

2. MATERIALS

2-1 The CORROSION MASTER mentioned in this specification is manufactured by Clearkin Chemical, Schiller and Allen Streets, Philadelphia, Pennsylvania, 19134, U.S.A.

3. SURFACE PREPARATION

3-1 All surfaces should be clean and free from scale. The coating may be applied satisfactorily over a rusty surface where loose mill scale and any other built-up scale has been removed. It is also permissible to apply CORROSION MASTER over a suitable pre-construction primer.

3-2 Optimum results are obtained when CORROSION MASTER is applied over a dry surface. However, the coating can be applied over a wet surface without any problems.

3-3 Before coating, make sure the tanks are properly cleaned. Remove all scale, grit, mud and any other foreign materials.

4. APPLICATION

4-1 The entire interior of all tanks is to be coated with CORROSION MASTER.

4-2 The CORROSION MASTER is to be applied in one application, using airless spray equipment. The coating is to be applied to a thickness of five hundred (500) microns to six hundred twenty-five microns (approximately 500 to 625 microns.) in no instance is the coating to be applied to a thickness of less than five hundred (500) microns.

Continued on next page----------

CLEARKIN CHEMICAL
Manufacturers of Marine and Industrial Chemicals
Division of C.D.G., INC.

Continued. . .

4. APPLICATION (continued)

4-3 The CORROSION MASTER is to be used as it is, in its original containers. NO THINNERS OR SOLVENTS ARE TO BE USED WHATSOEVER.

4-4 For best results, hold spray gun thirty-seven and one half centimeters (37.5 cm.) to forty-five centimeters (45 cm.) from the surface, using even strokes and a 50% overlap.

4-5 For touch-up, CORROSION MASTER may be applied by brush. Use a short bristle brush. Lay on the coating with short even strokes, using caution not to spread the material too thin.

5. EQUIPMENT

5-1 The CORROSION MASTER is to be applied by means of airless spray.

5-2 Recommended equipment:

30:1 or greater barrel pump
.9375 cm.ID to 1.25 cm.ID material line
Hand gun and/or pole gun
.05 cm. to .10668 cm. tip

6. CLEAN-UP

6-1 Tools and equipment may be cleaned with mineral spirits or any other petroleum thinner.

7. SAFETY

7-1 Proper ventilation and fresh air circulation shall be employed while coating work is being performed.

7-2 No burning, cutting or any hot work whatsoever is to be permitted in the tanks while the coating is being applied

NOTE: These specifications would be the same for the application of WHITE and/or BLACK CORROSION MASTER.

RNB:ras 4/92

RECOMMENDED PROCEDURE FOR PERFORMING HOT WORK IN TANKS WHERE CORROSION MASTER HAS BEEN APPLIED.

1-1 Make sure tanks are properly ventilated, using forced fresh air.

1-2 No hot work is to be permitted in any tanks while the coating is being applied.

1-3 Remove all coating in the immediate area where the hot work is to be performed (approximately twenty (20) centimeters to twenty-five (25) centimeters on each side of the cut or weld.

1-4 The CORROSION MASTER may be removed by using scrapers and/or wiping rags.

1-5 If possible, place a flame shield directly below the area where the hot work is to be performed in order to catch hot weld splatter, etc. Have a man standing by with a fire hose in order to wet down the area where hot steel may fall.

1-6 For optimum safety, the coating should be removed from the immediate areas where the hot work is to be performed, on the opposite side of any plates where the coating has been applied.

RNB:ras 4/92

CLEARKIN CHEMICAL DIVISION
COATING DEVELOPMENT GROUP, INC.
SCHILLER AND ALLEN STREETS P.O. BOX 14817
PHILADELPHIA, PA 19134
PHONE: 215-426-6216 FAX 215-426-6219

Telephone: 215-426-6216
Fax: 215-426-6219

CLEARKIN
CHEMICAL
Manufacturers of Marine
and Industrial Chemicals
Division of C.D.G., INC.

OIL BOND - 100 SOLIDIFICATION PRODUCTS

Clearkin Chemical offers the newest technology on a line of products to deal with todays oil clean up and disposal problems. All Clearkin Oil Bond-100 Solidification Products absorb and solidify hydrocarbons, oils, solvents, fuels and P.C.B.'s, locking them into irreversible rubber-like solid.

Clearkin Oil Bond-100 Solidification Products are available in Booms, Pillows and Loose Particulate, and will absorb fuel and oil instantly, while transforming it into a rubber-like solid within minutes. The products can be used on water or hard surfaces with equal success. Once absorbed the oils will solidify and not leach out.

The following is a partial list of oils and solvents which can be solidified with Clearkin's Oil Bond-100 Solidification Products.

Gasoline	J.P. 4 Fuel
Diesel Oil #1 & #2	Benzine
#4 Fuel Oil	Xylene
Crude Oils	Toluene
Transformer Oil	Kerosene
Jet A Fuel	P.C.B.'s

The products are non-toxic, they do not release liquids under pressure and they can be incinerated or landfilled. The products are non-biodegradable and totally hydrophobic.

Whatever your needs may be for fuel or oil clean up, Clearkin's Oil Bond-100 Solidification Products will do the job.

For more information contact your nearest Clearkin Representative.

NOTE: The user is solely responsible for compliance with disposal laws and regulations. The manufacturer or seller assumes no responsibility for the disposal or solidified or gelled materials.

Telephone: 215-426-6216
Fax: 215-426-6219

CLEARKIN
CHEMICAL
Manufacturers of Marine
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Division of C.D.G., INC.

OIL BOND - 100 SOLIDIFICATION BOOMS

Clearkin Oil Bond - 100 Solidification Booms have a superior wicking action far greater than other spill products on the market today. Oil Bond - 100 Solidification Booms are selective. Hydrocarbons are absorbed leaving the water behind. The contaminates are absorbed into the core of the boom by the Solidification Particulate which is the filler. As the booms reach their capacity, the absorbed oil or solvent begins solidifying into a solid rubber. At this point the booms become a containment barrier not allowing any oils or solvents to pass through. When retrieved from the water, no oil or solvent will be released.

Oil Bond - 100 Booms are the problem solvers for many companies, municipalities, ship and barge owners, offshore oil rig owners, etc. that have discharge and sheen removal problems. The Oil Bond - 100 Booms will float on water both before and after solidification. On decks, roadways, floors, concrete or asphalt surfaces Oil Bond - 100 Booms work fast to contain and absorb spilled fluids, and work exceptionally well in emergency response operations.

Oil Bond Booms are available in the following sizes:

2½" x 4'	Order # B-04-2
2½" x 10'	Order # B-10-2
5" x 16'	Order # B-06-5
5" x 10'	Order # B-10-5
5" x 15'	Order # B-15-5

For more information, contact your nearest Clearkin representative.

NOTE: The user is solely responsible for compliance with disposal laws and regulations. The manufacturer or seller assumes no responsibility for for disposal of Solidified or Gelled materials.

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CLEARKIN CHEMICAL
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OIL BOND - 100 SOLIDIFICATION PILLOWS

Clearkin Oil Bond - 100 Solidification Pillows are designed to work indoors or outdoors wherever the containment of fuels, oils or solvents is required. The solidification pillows are especially useful to remove oils from bilges, oil and water separators and in emergency response operations.

The Solidification Pillows absorb oils and solvents and transforms the liquids into a solid rubber-like substance. The pillows will float on water both before and after the liquids are solidified. Once the fuels, oils or solvents are absorbed, they will not release any liquids even if exposed to pressures much in excess of 50 P.S.I. which is the requirement for landfill disposal.

Clearkin Oil Bond - 100 Solidification is available in the following sizes:

10" x 14" which will absorb up to one gallon of oil or solvent
10" x 36" which will absorb up to three gallons of oil or solvent

For more information contact your nearest Clearkin representative.

NOTE: The user is solely responsible for compliance with disposal laws and regulations. The manufacturer or seller assumes no responsiblity for the disposal of Solidified or Gelled materials.

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CLEARKIN
CHEMICAL
Manufacturers of Marine
and Industrial Chemicals
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OIL BOND - 100 SOLIDIFICATION PARTICULATE

Clearkin's Oil Bond - 100 Solidification Particulate absorbs and solidifies a wide range of hydrocarbons turning them into a solid rubber mass on both water or hard surfaces, making clean-up a snap.

Oil Bond - 100 Particulate has become a valuable tool for anyone who must deal with oil/water problems. The product has proven to save thousands of dollars by solidifying floating oils on water surfaces. The oil transforms into a rubber-like sheet which when removed leaves the water virtually sheen free.

Clearkin's Oil Bond - 100 Particulate can be used for solidifying bulk hydrocarbons, drummed oils, P.C.B.'s and many other oils and solvents. The unique property of the product allows the hydrocarbons to be absorbed at any temperature and solidified with no more than 10% to 15% volume expansion. Time and temperature will be factors on how quickly solidification will occur. Decreased temperatures will require a longer time for solidification. Solidified Products can be incinerated or taken to a landfill.

Clearkin's Oil Bond - 100 Particulate is available in the following:

10 lb. Containers	Order # P-10
30 lb. Containers	Order # P-30

Larger quantities are available upon request.

For more information contact your nearest Clearkin representative.

NOTE: The user is solely responsible for compliance with disposal laws and regulations. The manufacturer or seller assumes no responsibility for the disposal of solidified or gelled materials.