



**EC-240 HB**

**Cold Applied Bitumen Coating**

**WOHL COATINGS NEWEST COATING TO SOLVE CUSTOMER NEEDS**

**EC-240HB COLD APPLIED BITUMEN COATING  
DESIGNED TO REDUCE THE ADFREEZE FORCES AND  
SOLVE THE APPLICATION PROBLEMS ASSOCIATED  
WITH HOT APPLIED BITUMEN .... EASY AND SAFE  
TO USE TO ACHIEVE 2MM DRY FILM THICKNESS ON  
GALVANIZED POSTS**



**READ "WOHL'S DEVELOPMENT NOTES ON HOW  
EC-240 HB COLD APPLIED BITUMEN WAS DEVELOPED"**

**PAGE 2,3,4 of this document**

**READ "WHY USE EC-240 HB versus Hot Applied Bitumen"**

**PAGE 5 and 6 of this document**

**READ "EC-240 HB COLD APPLIED BITUMEN  
SPECIFICATIONS" PAGE 7 and 8 of this document**



Wohl Coatings Company Call David Brickey 314-725-3400

[www.wohlcoatings.com](http://www.wohlcoatings.com)

**WOHL COATINGS PRESENTS EC-240 HB  
THE FIRST COLD APPLIED BITUMEN COATING DESIGNED  
TO PROTECT SUPPORT POSTS IN AN ADFREEZE LOCATION**



**EC-240 HB BITUMEN COATING BUILDS EASILY TO THE 2MM DRY FILM THICKNESS REQUIRED IN THE REPORT BY THE "INDIAN INSTITUTE TECH" PAPER TITLED "SKIN FRICTION OF PILES COATED WITH BITUMINOUS COATS" See Link on last page.**



**SEE IF EC-240 COLD APPLIED BITUMEN  
COATING WORKS FOR YOU**

## EC-240 HB PRODUCT DEVELOPMENT NOTES

WOHL COATINGS was contacted by several potential customers with a request for a bitumen coating that could be applied at 2 mm DFT on to steel and or galvanized steel posts and match the skin friction values reported in the Dept. Of Civil Engineering, Indian Institute of Tech, Madras, Chennai, India. Since Wohl's expertise is the manufacture of bitumen coatings we proceeded with the modification of our standard line of bitumen coatings. Our goal was to produce a coating that would match the skin friction needed and be able to apply the coating in a safe and consistent basis. That goal was reached with the modification of our highest performing bitumen and EC-240 HB Bitumen. Adfreeze coating was launched.

### CHART 1

The following chart is a comparison of Wohl EC-240 HB Cold Applied Bitumen Coating and the two bitumen coatings evaluated in the "SKIN FRICTION OF PILES COATED WITH BITUMINOUS COATS" Indian Institute of Tech. Madras, Chemai, India. **RED COLORED DATA INDICATES SUPREIOR PERFORMANCE or EASE OF USE OF EC-240HB**

PILE COATING NAME	BITUMEN COATING	EC-240 HB COLD APPLIED BITUMEN CTG	Shalikote	UN COATED STEEL
TYPE OF COATING	HOT APPLIED BITUMEN	Cold Applied Bitumen Coating With Excellent Adfreeze Reduction	Bitumen Emulsion in Water	NO COATING
APPLICATION TEMPERATURE	MUST BE HEATED TO 302F FOR APPLICATION	ROOM TEMPERATURE	ROOM TEMPERATURE	
MAJOR SAFETY CONCERN	PENETRATION OF CLOTHING COULD CAUSE SEVERE SKIN BURNS	SMALL AMOUNT OF VOC WHICH IS EASY TO KEEP BELOW TLVs No unusual hazards	SMALL AMOUNT OF VOC WHICH IS EASY TO KEEP BELOW TLVs No unusual hazards.	
EQUIPMENT REQUIRED	SPECIAL HEATED EQUIP	NORMAL PAINT CLOTHING, SAFETY GLASSES AND GLOVES	NORMAL PAINT CLOTHING, SAFETY GLASSES AND GLOVES	
SPECIAL EQUIPMENT TO APPLY	SPECIAL EQUIPMENT NEEDED TO APPLY HOT COATING WHILE HOT	ONLY STANDARD BRUSH, SQUEEGE, CONVENTIONAL OR AIRLESS SPRAY ALL WORK AT ROOM TEMP	ONLY STANDARD BRUSH, SQUEEGE, CONVENTIONAL OR AIRLESS SPRAY ALL WORK AT ROOM TEMP	
RING & BALL	30 TO 40 SOLID AT ROOM TEMP.	LIQUID AT ROOM TEMPERATURE	LIQUID AT ROOM TEMPERATURE	
SOFTENING RANGE	130F TO 140F	WELL ABOVE 180F	WELL ABOVE 180F	
STORAGE IN SUN LIGHT	COATING COLD FLOWS	NO COLD FLOW	NO COLD FLOW	
DFT 2MM MINIMUM DRY FILM THICKNESS	HOT APPLICATION TEMP MAKES IT ALMOST IMPOSSIBLE TO MEET 2MM DFT ON IRREGULAR SURFACES Test ran on casted samples	ACHIEVEBLE IN 1 OR 2 COATS DEPENDING ON POST SHAPE USING NORMAL EQUIPMENT	ACHIEVEBLE IN 1 OR 2 COATS DEPENDING ON POST SHAPE USING NORMAL EQUIPMENT Only 45% Solids by Vol. Test ran on casted samples. Only 45% SBV	
ADREEZE RATING	2 mm DFT	2 mm DFT	2.16 mm DFT	0 mm DFT
Peak shear stress	1.58 kPa	= or Lower than 1.58 kPa	9.72 kPa	17.04 kPa
Source	Indian Institute of Tech Report	WOHL CTgs test yields less Skin Friction than 100% Bitumen Ctg. By 3.8%	Indian Institute of Tech Report	Indian Institute of Tech Report
COMPARITIVE ADFREEZE RATING	Base value established in Indian Test 1.58 kPa	Equal or lower than values for 100% Bitumen established in Indian Test Report 1.58 kPa	6.1 times higher than base established	10.8 times higher than base established
Estimated Applied Cost/Lineal Foot	\$25.00 per Lineal Foot	\$18.00 per Lineal Foot	Unknow	

CHART 2

COMPARISON OF KINETIC FRICTION of 100% BITUMEN COATING TO EC-240 COLD APPLIED BITUMEN COATING

COATING	100% BITUMEN CTG 2 MM DFT STANDARD PRODUCTION BATCH	EC-240 BITUMEN CTG 2 MM DFT STANDARD PRODUCTION BATCH
KINETIC FRICTION TEST	0.476	0.458
COMPARISON TO 100% BITUMEN STANDARD	SET AS STANDARD	LOWER THAN STANDARD BY 3.8%
ADFREEZE RATING	STANDARD	= TO OR BETTER THAN STD
PILE DRIVING SERVICE	PERFORMS WELL	PERFORMS WELL

These Kinetic Friction Results were determined by direct testing in the Wohl Coatings Lab. Coatings that have a lower kinetic friction will perform better than those coatings that have a higher kinetic friction value in an adfreeze environment service.

**EC-240 HB BITUMEN ADFREEZE COATING IS DESIGNED TO BE COLD APPLIED AT 2MM DFT TO PROTECT THE POST FROM THE ADVERSE EFFECTS IN ADFREEZE PRONE AREAS.** The product is safe and easy to apply compared with other coatings. 2 MM DFT (Dry Film Thickness) is easy to obtain with 1 or 2 coats depending on the configuration of the pile being coated (were as the Hot Bitumen is all but impossible to build to 2mm DFT). EC-240 solves all of the problems of Hot applied Bitumen. First it is available from stock in easy to mix and use 3 gallon kits. The small kit size reduces loss. It dries and is ready to handle in 12 to 16 hours at 68F. Coated pieces can be shipped after 24 hours dry time. It is easily repaired in the field using a brush application with no special equipment needed.

WOHL COATINGS TECHNICAL SERVICE is ready to discuss with you any questions that you may have concerning the application or performance of the product in actual or proposed service. Any special considerations that you may have are also open for discussion. We can modify existing products to meet your needs. Our goal is to exceed our customers expectations. We are ready and willing to discuss any safety or application questions that need clarification. Just give us a call. Always read the PDS and SDS for the product before use. We are ready to help you with any questions you might have on either.

Please contact Wohl Coatings Company, 6161 Maple Avenue, St. Louis MO. 63130-3304 for additional information call 877-887-4531 or email us at [DAVID@WOHLCOATINGS.COM](mailto:DAVID@WOHLCOATINGS.COM)

## ENGINEERING QUALITY FOR YOUR PROJECT

Link for Indian Institute of Tech PDF Report "SKIN FRICTION OF PILES COATED WITH BITUMINOUS COATS"

<http://www.civil.iitm.ac.in/people/faculty/srgandhi/International%20%20Conferences/ASCE%20Geo%20Denver%202007.pdf> [www.wohlcoatings.com](http://www.wohlcoatings.com) 190422



## **WOHL COATINGS WHY USE EC-240 HB**

### **EC 240 HB COLD APPLIED BITUMEN COATING WAS DESIGNED TO REDUCE ADFREEZE FORCES**

Solar Farms of PV Panels are being installed all over the world and the United States is no exception. The price per kW of PV created electric has steadily come down over the past years. The early PV



farms were installed by using poured concrete support piers for the post used to support the PV panels. As the rate of installation increases and the cost becomes more competitive many companies that install the large PV farms are turning to using pile driven posts which are much lower in cost and faster to install (again lower cost) than concrete piers or drilled holes and use of a pipe casing. The pile driven posts work very well in dry soil or locations where there is no frost formed or there

is little or no water in the soil which can freeze and cause the post to heave up. We have all seen this occur on wood, steel, or plastic posts driven tightly into the soil in the fall and yet they are loose or crooked in the spring. This is caused by the on and off again frost that occurs through the winter. Each time the ground freezes or passes through 39F it expands and lifts the post upward. The solution is to coat the post with a Bitumen coating which breaks or reduces the adhesion of the soil to the post. Even in the desert there can be some areas in a large PV farm that need the adfreeze protection. A large PV farm could have 3000 to 5000 of these posts.

Hot Bitumen Applied Coatings have been evaluated and shown to reduce the Heaving of the pile by reducing the adhesion of the expanded soil in contact with the bitumen coating. Tests reports have shown that a 2mm thick coating of bitumen coating performs well in this service. Thereby reducing the upheaval force formed. Note that the lower section of the post (much further down in the ground and where the soil temperature never gets below 40+ F and therefore does not expand) stays firm and further resists any upheaval force. The service life of the post is thereby extended to the point that a pile driven post is very economical and the method of choice.



### **OK WHAT IS THE PROBLEM? THIS TYPE OF COATING CANNOT BE APPLIED ON POSTS!**

**The Hot Bitumen Coating is a solid** at room temperature and must be heated to 300+F to swab the melted coating on to the post were the coating is required.

**Safety Problem:** Requires special hot liquid resistant clothing that will not allow penetration of the 300+F liquid. Severe burns possible.

**Special Heating Equipment Required:** Must be kept hot or it gets too thick to apply. Fire hazard exists while material is hot. Volatiles in the coating are flammable at the required application temperature of 300+F.

**Cannot Obtain 2mm of Dry Film Thickness.** At the required application temperature the viscosity is very low and the hot material will not build 2 mm of DFT. Multiple coats do not work because the second or third coat will melt the previously applied coats and then all will run off to a very thin film left to harden. This hot coating is normally used on pipe lines that are coated and simultaneously wrapped with a heat resistant tape (all done by machinery) and then dropped into the pipe line trench. Coating will not work for small pipe or other structures. Dried coating exposed to sun light can heat up to 130F-140F and cold flow (becomes sticky and losses film thickness)

**OK WHAT IS THE SOLUTION? WHOL'S EC-240 HB COLD APPLIED BITUMENT COATING DOES WORK ON POSTS!**

**EC-240 IS MIXED AND APPLIED AT NORMAL ROOM TEMPERATURES.** It can be airless sprayed, brushed, or squeegee applied. Airless Sprays Very Well.

**EC-240 DRIES TO HANDLE AT 68F TO 77F IN 14 TO 16 HOURS**

**SAFETY CONCERS: STANDARD 85% SOLIDS BY VOLUME PAINT WITH A 75F FLASH POINT**

**FILM THICKNESS IS EASY TO BUILD 2 MM DRY FILM THICKNESS IN 1 OR 2 COATS DEPENDING ON ACCESABILITY OF ALL SURFACES OF THE POST. WILL NOT COLD FLOW IN DIRECT SUNLIGHT EXPOSURE.**

**COST: 30% LESS THAN THE HOT BITUMEN COATING (If you could get the hot coating to apply safely and at 2MM DFT)**



**WOHL COATINGS 6161 MAPLE AVENUE, ST. LOUIS, 63130, 314-725-3400 5/2/2019**

# WOHL COATINGS

## EC-240 HB COLD APPLIED BITUMEN COATING SPECIFICATIONS

<b>TECHNICAL DATA</b>			
MIXING RATIO	BASE ONLY	DRIER ONLY	MIXED TOTAL PER KIT
EC240 BASE	3 GALLONS IN 5 GALLON PAIL	3 PINT CANS EACH FULL	3.375 GALLONS MIXED
MIXING USE A POWER MIXER WITH A 3" Diameter Jiffy mixer CONDITION @ 75F for 24 Hrs before mixing.	ADD THE 3 PINTS OF DRIER TO THE BASE CAN	Mix for 10 minutes minimum using a pattern mix. Repeat this pattern for at least 10 repeats. You cannot over mix the product but you can undermix it.	With the mixer on move the blade around the circumference of the mix can. Then make an X across the middle and circle the blade in the opposite direction and repeat.
<b>MIX ONLY FULL KITS</b>	DO NOT SPLIT KITS		
POT LIFE	4 HRS @75F		
FLASH POINT	75F CLOSED CUP		
<b>DRY TIMES</b>			
DRY TO TOUCH @75F	7 HRS	DRY TO HANDLE @75F	24 HRS
VOC PER MIXED GAL	89% SBW	DO NOT THIN	1.04 LBS
<b>THEORETICAL COVERAGE DATA</b>			
SOLIDS BY VOLUME	79.1%	100.00%	81.4%
SOLID GALLONS PER KIT	2.373 GALS	0.375 GALS	2.748 GALS
MIL SQUARE FEET/MIXED 3.375 GAL KIT			4407 MIL SQUARE FEET @ 1 mil DFT
SQ.FT. PER KIT @ 2 MM DFT (79 MILS)	APPLY @ 97 MILS WET FILM THICKNESS TOR A 79 MILS DRY FILM		55.79 SQ FT PER KIT @ 2 MM DFT (79 MILS)
FOR GENERAL CORROSION PROTECTION	RECOMMENDED DFT IS 10 MILS		
<b>ADD APPLICATION LOSS</b>	AIRLESS SPRAY +10% More if small size posts	SQUEEGEE/ BRUSH + 5% More if complicated shape post	

<b>CHEMICAL RESISTENCE</b>	10% ACID 24 HRS	10% SULFURIC ACID 24 HRS	10% SODIUM HYROXIDE 24 HRS
SPRAY & BRUSH	NO EFFECT	NO EFFECT	NO EFFECT

**APPLICATION INSTRUCTIONS: AIRLESS SPRAY:** The mixed product is very low in viscosity but very high in thixotropy and is therefore very easy to build a thick film with out sagging. A commercial quality airless spray rig capable of 2500 to 3000 psi pressure using a 0.017 inch orifice will handle the product well. For posts that have complicated shapes the fan size and the orifice size control how much paint is applied per minute. For these shapes we find that a 515 (5" fan 0.015 orifice) to a 517 (5 " fan 0.017 orifice) and a small electric drive airless pump works well. For larger areas were rate of application is important a larger fan and orifice can be used. We find 725 or 735 tip driven by a 30 to 1 air power pump is required.

**Mix volume** of the 3.375 gallon kit makes it easy for the applicator to mix a small quantity and provides the mixing container with everything premeasured for easy mixing. We have found that this mix amount generally coats 4 to 5 posts for 6 lineal feet @ 2mm DFT. The small qty mix

allows the worker to use up all of the mixed coating with little waste. The 4 hour working pot life also aid in application and loss control.

**THINNING: NO THINNING IS REQUIRED.** Product is Ready to apply for Brush or Spray as supplied.

**SURFACE PREPARATION:** The product has excellent adhesion to galvanized steel and mild steel as well as concrete. The surface must be clean and dry with any oil film removed before coating. At 75F the coating is ready for handling in 24 hours. Full adhesion will take about 3 to 4 days depending on the temperature.

**CLEANUP:** A standard paint thinner will work as a first pass cleanup through the pump, hose and gun. This should be circulated for several minutes until a clean fluid flush is obtained. A final pass using Xylene or Xylol thinner is recommended. For shut down the screen in the gun and in the inlet to the hose should be removed and cleaned with Xylol. Do not use water to cleanup. The product is very soluble until dry in organic solvents. Cleanup hands and other tools with standard soap and water.

**SAFETY DATA SHEET (SDS).** The user must read and fully understand what safety steps they must take to avoid accident or exceeding exposure limits. If the user has any questions they must contact Wohl Coatings for aid in understanding the safety steps they must make to safely use the product.

**WARRANTY STATEMENT.** Because the conditions of use and supervision of application are beyond our control., we assume no liability for any product failure or other damage beyond the purchase price of the material furnished by us. No agent, representative, or employee of this Company is authorized to change this provision which relates to all goods delivered, whether sold, delivered as samples, or otherwise. Each user should independently determine the suitability of this product based on their specific application.

Wohl Coatings Inc. 6161 Maple Avenue, St. Louis, 63130, 314-725-3400 05/02/2019