

MetalTec

FREQUENTLY ASKED QUESTIONS PART II

1. Best efficiency

I understood that the efficiency of your thermal coat is better when exposed to the sun, i.e. not underground, inside a roof, or under an additional coating.

YES, THE BEST APPLICATION IS ON AN EXTERNAL ROOF AT 15 MILS/.4MM. - THAT IS FOR REDUCING RADIANT SOLAR HEAT GAIN. HOWEVER, WHEN YOU GO TO THERMAL CONDUCTIVE HEAT, THEN YOU HAVE TO USE MORE PRODUCT TO BLOCK THE CONDUCTIVE HEAT. THIS IS THE SAME WITH ALL INSULATIONS. WITH THERMAL COAT, MOISTURE WILL NOT IMPACT ITS INSULATION EFFECTIVENESS AS WITH STANDARD INSULATIONS.

2. When do you recommend the use of an additional urethane coating ?

WE RECOMMEND SEALING THE THERMAL COAT IN THE PIPE APPLICATION BECAUSE IT WILL SUSTAIN OVER TIME ABUSE FROM HUMANS, ANIMALS AND OTHER INSECTS

Anyway, do you recommend any specific urethane ?

YES. A URETHANE MANUFACTURED HERE WHICH WE HAVE FOUND TO BE VERY GOOD AND VERY EFFECTIVE.

What would be the difference in savings (in %) with or without the urethane ?

NO REAL INSULATION SAVINGS, JUST LONG TERM BENEFIT FOR THE COATING ON THE PIPE.

3. How long before overcoating (min and max) ?

GENERALLY, WAIT 24 HOURS BETWEEN COATS. AMBIENT AIR TEMPERATURE IS THE BIGGEST FACTOR. WITH A LONG PIPE, YOU COULD START ONE CREW EACH DAY FOR FOUR DAYS AND HAVE EACH CREW APPLY A COAT. A FIFTH CREW FOR THE URETHANE.

4. Do you have larger conditioning than 5 gallons pails ?

WE CAN PROVIDE 55 GALLON DRUMS, BUT THEY ARE TO DIFFICULT TO WORK WITH, ESPECIALLY WHEN YOU HAVE TO STRAIN THE PRODUCT TO GET THE LUMPS OUT OF IT SO IT WILL PASS THROUGH THE SPRAY GUNS.

5. What are the main criteria for evaluating the required thickness ?

For a pipeline :

1. Is it above ground or below ground?
2. Is it in an abusive environment? Does the insulation need to be sealed?
3. What is the inside temperature of the pipe?
4. What is the outside temperature of the pipe?
5. What is the outside temperature that you wish to maintain?
6. What is the ambient air temperature or ground temperature?
7. Will you have re-heating stations on the line?

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Consider also that all elbows, valves and other fittings can be insulated with Thermal-Coat just by spraying them without having to create or manufacture some special insulation box. Thermal-Coat would also be anticorrosive as it is impervious to water, thus seals the pipe. It is also when sealed, resistant to bugs or small animals from trying to live in it which is normal for foam insulation. Foam also slowly becomes water saturated which then ceases to insulate.

6. *What is the Harmonized Code Number", formerly "Standard Industrial Number" ?,*

HCN CODE IS B#3214.90.5000

National Stock Number : 8030-01-387-1027 "liquid insulation & coating material".

7. *Thermal conductivity coefficient*

In Europe, thermal conductivity is compared to $\lambda = W/m.K$

It is the thermal flux per square meter passing through an isotropic material 1 meter thick, submitted to a temperature difference of 1 Kelvin. The measures are made according to ISO 8301 & 8302.

FOR THIS PRODUCT THOSE CALCULATIONS DO NOT WORK. WE HAVE HAD ENGINEER AFTER ENGINEER TRY TO MAKE IT WORK AND NONE HAVE BEEN ABLE TO DO SO. CONSIDER THAT THESE PRODUCTS ARE THE SAME TECHNOLOGY AS THE SPACE SHUTTLE TILES. THEY ARE 5/8TH OF AN INCH THICK (15.875MM THICK) AND TAKE OVER 4000F DEGREES. THEY WILL NEVER FIT INTO THE STANDARD CALCULATIONS. NEITHER WILL THERMAL COAT. I WISH I HAD A BETTER ANSWER, BUT WE HAVE BEEN FIGHTING THIS ISSUE FOR YEARS. SLOWLY, BUT SURELY WE ARE GETTING MORE AND MORE ENGINEERS TO ACCEPT THE FACT THAT THE MATH DOESN'T WORK WITH THERMAL COAT. I HAD ONE ENGINEER TELL ME THAT NO MATTER WHAT HE COULD FIGURE IT OUT. HE FINALLY CALLED ME BACK AND SAID THAT I WAS RIGHT AS HE HAD COME UP WITH AN "R" VALUE OF "3010". THIS, OF COURSE, DIDN'T MAKE ANY SENSE.

8. *SURFACE PREPARATION*

a) You mention there is no surface preparation; SURFACE MUST BE CLEAN.

What about rusty surfaces, RUST MUST BE REMOVED, BUT NO PRIMER IS REQUIRED (UNDER CERTAIN CONDITIONS).

What if we apply on top of older insulation products (foams)

IT CAN BE APPLIED ON TOP, BUT GENERALLY NOT RECOMMENDED BECAUSE WE HAVE NO IDEA AS TO THE CONDITION AND ADHESION OF THE FOAM.

Do we have to remove them, and gridblast the metal ?

GENERALLY, YES, BUT IT CAN BE APPLIED ON TOP WITHOUT PRIMER (U.C.C.).

b) Overcoating : when applying a 3 mm coat (120 mils) on a pipe, do we need to wait for 24 hours between each coat (at 15 mils each, we would need 8 days...).

YES AND NO. IF THE PIPE IS IN OPERATION AND IS AT 90 TO 130C THEN THE WILL CURE VERY FAST. IF THAT HOT ADD A LITTLE WATER TO THE PRODUCT FOR THE FIRST COAT. NOT MUCH, 100 ML PER GALLON. OR IF NOT HOT WHEN APPLIED, GET A HEATER WITH A FAN TO BLOW ON IT AND IT WILL CURE FASTER. PROBLEM WITH TEST IS THAT YOU ARE DOING SUCH A SMALL SECTION AND TRYING TO GET IT TO CURE FAST. WHEREAS WITH A BIG PIPE YOU START AT ONE END AND START WORKING TO THE OTHER WHICH GIVES YOU LOTS OF TIME FOR NATURAL CURING AND YOU START OVER WHEN YOU GET TO THE END. MAKE SURE THE PIPE IS CLEAN. IF IT WERE ABOUT 200F/90C IT WOULD BE GOOD BECAUSE THEN YOU COULD PUT ON SEVERAL COATS FAIRLY FAST. EACH COAT WILL CURE SLOWER BECAUSE IT IS NOW INSULATING.

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c) *Sealant* : assuming 24 hours after applying Thermal-Coat is ok. Any additional surface preparation of the Thermal-Coat ? Any "upper" limit in time (15 days, or a month, or more after applying Thermal-Coat still ok)?

AS LONG AS THC IS CURED THEN SEAL WHENEVER. ONLY SEAL WHEN IT IS GOING TO BE IN AN ABUSIVE ENVIRONMENT. OTHERWISE LEAVE IT ALONE. IN AN INDUSTRIAL PLANT IT WILL DISCOLOR OVER TIME BECAUSE OF THE DIRTY AIR AND FUMES.

9. *How thick is the "crust" you mention in the description ?*

THE CRUST DOES NOT SHOW UP MUCH IN THE LATEST FORMULA. IF THE BUCKETS HAVE BEEN SITTING IN A WAREHOUSE FOR MANY MONTHS, IS WHEN THE CRUST IS MORE LIKELY TO SHOW UP. IF YOU START USING IT JUST AFTER IT HAS BEEN TRANSPORTED, HANDLED OR SHAKEN, YOU PROBABLY WON'T SEE MUCH OF A CRUST. MIXING PROPERLY IS HOWEVER STILL NECESSARY, AS LATEX TENDS TO MOVE TO THE BOTTOM OF THE PAIL.

10. *What is the usual size for the strainer you recommend to use ?*

MESH IS BETWEEN .8MM AND 1.6MM

11. *Cleaning of Thermal-Coat :*

Will it stand a cleaning with a Karsher (high pressure water jet)

NO -HIGH PRESSURE SPRAYERS WILL TAKE THC OFF.

re algae and buried pipes :

ALGAE SHOULD NOT IMPACT THE BENEFITS OF THC, BUT IT IS STILL RECOMMENDED TO COAT THE THC WITH THE URETHANE WHEN THE PIPE IS GOING TO BE BURIED OR ABOVE GROUND WHEN IT IS GOING TO HAVE A LONG TERM EXPOSURE TO POTENTIALLY ABUSIVE ENVIRONMENT.

12. *Vapor Barrier*

When temperature of the inside of a pipe is lower than the outside temperature the rule is to have a vapor barrier before the thermal insulation. My understanding is that it is not necessary with Thermal-Coat.

CORRECT AS THC IS A VAPOR BARRIER AND IS INSULATING AGAINST CONDENSATION. A CUSTOMER HAS RECENTLY TESTED THC ON -40C TO STOP ICING. WITHOUT THC THEY COULDN'T STOP ICING, WITH 40 MILS (1 mm) OF THC THEY ARE ABLE TO STOP THE ICING.