

Asphalt Tank Roof Energy Retention and CUI Prevention

Customer: GS Caltex, South Korea
Application: Carbon Steel Asphalt Tank Roof
Material: Mascoat Industrial-DTI
Thickness: 2.0 mm

GS Caltex in South Korea had an issue with the existing insulation on one of their asphalt tank roofs. Below the insulation, the surface temperature was approximately 100°C. When personnel walked on the roof to access equipment, they would invariably damage the insulation and jacketing. These breaches allowed moisture inside the system, which led severely diminished insulation performance and rampant CUI. After looking at their available options, the company decided to use Mascoat Industrial-DTI to counter all those issues.

MASCOAT BENEFITS

- Mascoat Industrial-DTI can be installed on a tank roof easily and with a minimal crew
- The coating can be walked on by personnel without damage, though a topcoat is recommended for high traffic areas
 - Coating also keeps personnel accessing area safe from burns due to PP5 surface temperature of 45°C (down from 100°C)
- Retains energy without the fear of CUI, reducing ongoing maintenance concerns
- Coating's insulating and protective abilities will not diminish over time

SYSTEM USED

Surface Preparation	Primer	Final
SSPC SP 10	Inorganic Zinc	Mascoat Industrial-DTI
50 microns	75 microns	2.0 mm



Corrosion was sandblasted, followed by priming, and then Mascoat Industrial-DTI was applied.

After work was completed, client reported that they were extremely happy with the ease and speed of application, and that they were looking forward to not having to perform routine maintenance on the roof.

QUOTE FROM END USER

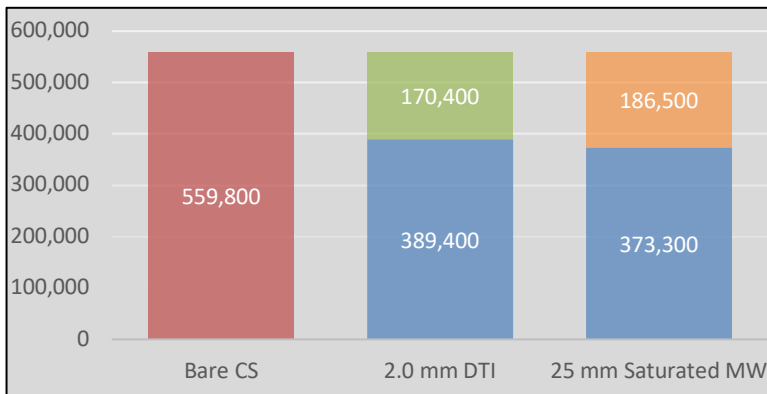
“Mascoat Industrial-DTI gives us the ability to save energy escaping through the roof, prevent CUI, and be able to inspect the roof without fear of damaging the insulation. It’s a great product that we plan on using on future asphalt roofs.” – Maintenance Manager, GS Caltex

THERMAL ESTIMATIONS

Based on average local weather conditions and comparing to previously used saturated mineral wool, the customer’s past and future scenarios are estimated as follows:

Content Temperature = 100°C Ambient Temperature = 13°C Surface Area = 515 sq. m.				
	Heat Loss/Sq.m. (Watts/sq.m.)	Total Heat Loss (Watts)	Savings (Watts)	Thermal Efficiency (%)
Bare CS	1087.00	559,800	-	0
2.0 mm Mascoat Industrial-DTI	756.14	389,400	170,400	30.43
25 mm Mineral Wool (17.0% Moisture Content)	724.80	373,300	186,500	33.31

Due to the much higher thermal conductivity of water (vs. air) as the mineral wool becomes saturated, the performance value drastically decreases (as seen here in the table and graph). In addition to this decrease in thermal efficiency, the moisture present will break down the primed surface and cause a hidden corrosion problem.



CALCULATED PAYBACK SUMMARY

Return on Investment (ROI)	3.3 years
10-year cost savings vs. conventional insulation	\$51,000