

PTT Gas Station 27% cooler with Thermal Barrier Paint

Business case: Petroleum Authority of Thailand (PTT), October 2010

Planet Supra is a nanotechnology heat reflective paint. Water-based, VOC-free, it is the only paint in the world certified to offset carbon emissions. It directly helps to fight Global Warming by improving building insulation and reducing the Heat Island Effect.

Petroleum Authority of Thailand (PTT Group) had already painted a gas station and adjacent convenience store's roofs with Planet Supra in Bangkok in January 2010, recording an impressive 33°C less on the metal sheet surfaces.

This second energy saving project's objective was to confirm the heat reflective paint's capacity to reduce PTT buildings' heat load even in the cooler rainy season.

Thanks to its innovative composition relying on nano hollow silica beads to reflect solar radiations, Planet Supra generates energy savings all year round.

Improvement summary: maximum temperatures drop

	Max before	Max after	Improvement °C	Improvement %
Roof top surface	72.0°C	57.5°C	-14.5°C	-20.1%
Roof underside surface	74.0°C	54.0°C	-20.0°C	-27.0%
Roof-ceiling air gap	57.0°C	44.5°C	-12.5°C	-21.9%

Electronic data loggers recorded temperatures every 10 minutes, 24h per day.

This table compares days with same outdoors ambient temperatures, before / after painting.



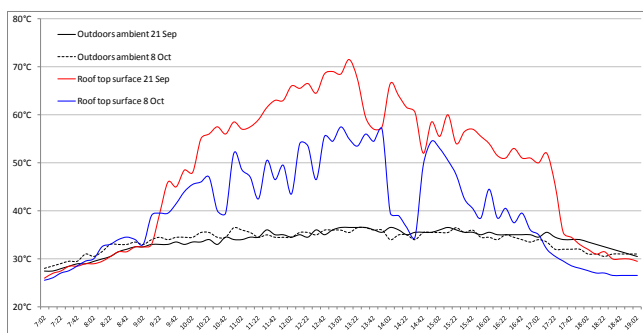
Sept. 2010: gas station office gets very hot, requiring constant air-conditioning.



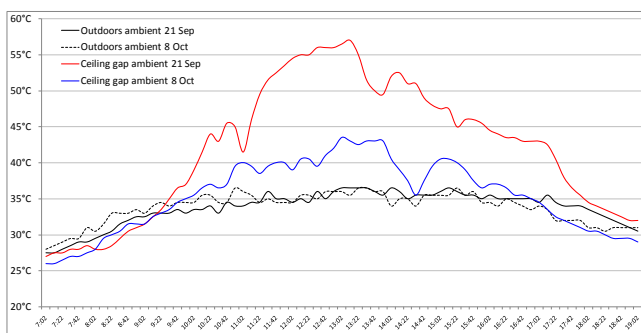
Oct. 2010: now painted with Planet Supra Neo in Light Grey, glossy finish, the office is protected from solar radiations.

Insulation improvement demonstrated by comparing roof temperatures during days with similar outdoors ambient temperatures, before and after painting Planet Supra Thermal Barrier Paint.

Roof top surface temperatures before / after painting



Roof-ceiling air gap temperatures before / after painting



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The project in pictures



Step 1, October 5th

Roof is cleaned with high pressure water, then let to dry. The cleaner the surface the better the paint's bonding, and therefore the longer the lifespan.

The electronic temperature data logger (caption) recording roof top surface temperatures is removed prior to cleaning. It will be placed back on rooftop after painting, and record temperature differences.



Step 2, October 5th

One coat of water-based primer is applied with airless spray gun. The primer's role is to ensure Planet Supra Neo's bonding over the years.

Any type of primer (epoxy, acrylic, water-based, ...) is suitable, it is recommended to choose the primer best suited to the surface to be painted.



Step 3, October 6th

Two coats of Planet Supra Neo are sprayed on with a high performance airless spray gun. This US-manufactured equipment allows for precise coating thickness control and perfect finish quality.

Primer and paint have a combined total thickness of 200 microns only, this thickness already provides full heat reflective performance. Micrometers are recommended to check coating thickness.

About Planet Supra Neo, the Glossy Thermal Barrier Paint



Thanks to a high quality glossy finish, Planet Supra Neo provides a superior solar radiation reflectance combined with improved self-cleaning effect.

Anti-mold, crack-free and so flexible it can even be painted on fabric, it is ideally suited for application on building roof tops (metal sheet, cement tile, clay tile, concrete, tent fabric, ...), on trucks and buses, on outdoors storage tanks, pipes and equipment.

Technical sheet summary

- ✓ 94.6% solar reflectance by JIS⁽¹⁾ R 3106:1998
- ✓ shields buildings, vehicles from heat
- ✓ insulates hot pipes, equipment
- ✓ certified to offset carbon emissions⁽²⁾

(1) Japanese Industrial Standard
(2) by Carbon Offset Japan (COJ)



Selected local and international customer references



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