MIRACOOL Pilot Project
In Sorsogon City,
In Philippines

MIRACOOL Co., Ltd.
5 November 2013
THERMAL CHARACTERISTICS OF HEAT SHIELDING PAINT "MIRACOOL"

- **Emission**: High
- **Reflectance**: High
- **Thermal Conductivity**: Low

Section of Miracool Coating

- **Special Pigment**
- **Hollow Ceramic Micro Spheres**
- **Substrate**
EFFECT OF MIRACOOL

Decrease of Surface Temperature of the Roof

Reduction of Heat Flow from the Roof into Rooms

Less Cooling Load

Saving Energy

Low Room Temp.

Comfortable
PILOT PROJECT IN SORSOGON CITY, PHILIPPINES

- Presentation of “MIRACOOL” was carried out at the second Environmental Technology Expert Group Meeting in September, 2010.

- “MIRACOOL” was selected for one of the pilot projects. Location of the project was Sorsogon city, Philippines.

- “MIRACOOL” was applied for the following buildings in March, 2011.
  1. Sorsogon Pilot Elementary School
  2. Barangay Community Hall
  3. Core Shelter Housing: 3 units

- Temperature data were recorded by officials of Sorsogon city in May-Aug, 2011.
(1) SORSOGON PILOT ELEMENTARY SCHOOL

Entrance

Primary Coating

Top coating by MIRACOOL SW200

Completed
9/July/2011 ～ 8/August/2011

- OUTSIDE AIR
- CEILING (MIRACOOL)
- ROOM (MIRACOOL)
- ROOM (UNCOATED)
- CEILING (UNCOATED)
23/July/2011

Natural Ventilation through windows

DIFFERENCE OF
ROOM TEMP. IS
2.4°C

ROOM (UNCOATED): 34.6°C

CEILING (MIRACOOL): 33.3°C

DIFFERENCE OF
CEILING TEMP. IS
37.4°C

CEILING (UNCOATED): 70.7°C

OUTSIDE AIR

CEILING (MIRACOOL)

ROOM (MIRACOOL)

ROOM (UNCOATED)

CEILING (UNCOATED)
(2) BARANGAY COMMUNITY HALL
(3) CORE SHELTER HOUSING

Ceiling
14/May/2011 ～ 26/June/2011

- OUTSIDE AIR
- CEILING (MIRACOOL)
- ROOM (MIRACOOL)
- CEILING (UNCOATED)
- ROOM (UNCOATED)
DIFFERENCE OF ROOM TEMP. IS 12.1°C

ROOM (UNCOATED): 46.2°C

ROOM (MIRACOOL): 34.1°C

DIFFERENCE OF CEILING TEMP. IS 32.9°C

CEILING: (MIRACOOL) 42.2°C

CEILING (UNCOATED): 75.1°C
PERFORMANCE REQUIRED FOR HEAT-SHIELDING PAINT

Initial Thermal Performance
Durability
Continuity of Performance

MIRACOOL SW200

- Performance is rated by The “Cool Roof Rating Council” after three years outdoor exposure in Arizona, Florida and Ohio in USA.
- ENERGY STAR Mark was granted consequently.
- Verified by “Japan Environmental Technology Verification” by Ministry of The Environment of Japan.
## THE MOST SUITABLE LOCATION FOR “MIRACOOL” TO BE APPLIED.

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<th>Hot Climate Caused by Solar Radiation</th>
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<tr>
<td>Electricity Cost is High</td>
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<td>None or Less Insulation on Roof</td>
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- There is limitation to reduce product cost due to high cost of raw materials in order to maintain high thermal performance, durability and continuity of performance.
- Therefore the most of the job records of “MIRACOOL” outside of Japan are for factories and warehouses of Japanese companies which can afford to spend such the high cost.
- We would like to introduce “MIRACOOL” for those local people and organizations in developing countries who are in most need of “MIRACOOL”, in collaboration with national governments, local authorities, non-governmental organizations (NGOs), community organizations and the private sectors.
Thank you very much for your attention.

Miracool Co., Ltd.

http://www.miracool.jp