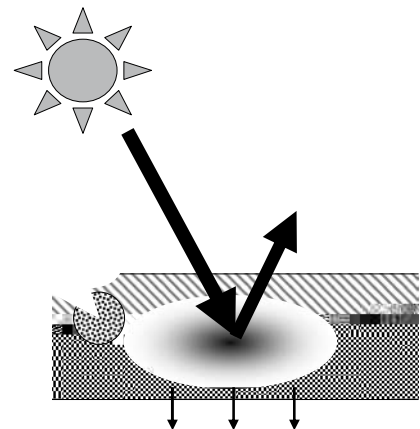

Functional Pre-painted Steel and Galvanized Steel Products : “KIWAMI,” “OASYS,” “APPEAR-CLEAN,” and “GALFLEX” and Functional Galvanized Steel Product : “SANITA”



resistance after rain), and durability during exposure (acid resistance, excellent color retention during expo-

As global warming worsens, the need to reduce CO₂ emissions and electric power consumption is growing. Sunlight consists of approximately 50% infrared rays, which will be converted to thermal energy¹⁾ on the roof of houses or factories. This thermal energy will make the surface temperature of the roof rise, thus making the

tion of the air conditioner is expected to reduce compared to the case of conventional pre-painted steel sheet.

In an exposure test conducted in summer, difference of temperature of inside of roof between 2 kinds of the gray-colored sheds made by pre-painted steel sheets (Type A: conventional pigment was involved in the painted layer, and Type B: "special effective pigment" was involved in the painted layer), temperature on the

[†] Originally published in

When pre-painted steel products are used for outer panels for a certain period of time, vertical streaks of dirt may appear on the surface. This is “contamination by rain” which occurs when particles of dirt remain on the surface of the panel and are NOT washed off by rainfall. The surface of conventional pre-painted steels has a water-repelling characteristic, and so surface of the panels is partly covered as raindrops, forming sphere-like and run off (in this case, contact angle with water is approx. 80–90°). On the other hand, the painted surface of new-type pre-painted steel products shows hydrophilic characteristics due to rain or moisture in the atmosphere (in this case, contact angle with water: less than 60° or equal). Consequently, contamination by rain is effectively suppressed. When the panels, made with both type of steel sheet above mentioned, were simulated under the partial rainfall condition at the outdoors of Chiba City for three months and their surfaces were observed, such pre-painted steel products with hydrophilic characteristics was found to greatly improve the visual aspect of their surface contamination by rain ().

When a strong acid such as sulfuric acid comes in contact with conventional pre-painted steels, the painted layer might be hydrolyzed and damaged. Recently, prob-

lems of acid rain with SO_x gas as the result of industrial growth of the continent of China have been reported²⁾ to be carried to Japan by the wind crossing over national borders and made worse the situation. This problem might cause damage to pre-painted steel sheets used for roofs, etc.

JFE Galvanizing & Coating has developed and manufactured a series of pre-painted steel products with excellent acid resistance by incorporating a special polymer paint in the painted layer.

In conventional pre-painted steel sheets, the color and gloss of the surface usually fades and adhesion of the painted layer will deteriorate with time, due to the affect of ultraviolet rays involved mainly in the sunlight. Such color fading and gloss deterioration characteristics must be improved for the purpose to extend the life of pre-painted

We also introduced coated steel products, including “SANITA” which has infestation-blocking performance (especially against cockroaches) by maintaining core functions such as corrosion resistance. Recently, we line-uped not only Galvanized steel sheet type but also Galvalium type, Pre-painted steel sheet type and Stainless steel sheet type.

JFE Galvanizing & Coating is going to manufacture and commercialize the products that meet customers’ needs of now and in the future.

Infestation-blocking steel sheet products, series of SANITA, were jointly developed and commercialized with Earth Chemical Co., Ltd. and Ishihara Chemical Co., Ltd. in Japan. We would like to mention to thank Earth Chemical Co., Ltd. and Ishihara Chemical Co., Ltd. for their lots of kindness and sincerity.

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- 2) National Institute for Environmental Studies. Kankyogi. 2004, no. 12, p. 5–13.
- 3) NKK Technical Report. 2002, no. 176 , p. 102–103.

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