High-Reflectivity Pre-Coated Aluminum Sheet, FUSCOAT CRYSTAL Series

1. INTRODUCTION

Highly-reflective materials represented by white-colored film-laminated sheets and metallized films with mirror-like reflectivity are widely used for personal computers and TV sets with liquid crystal display. Some of these materials, however, do not fully satisfy the customer requirements in terms of formability, ultraviolet ray resistance or heat resistance.

To meet such customer requirements, UniFus Aluminum has developed high-reflectivity pre-coated aluminum sheet, FUSCOAT CRYSTAL series.

2. FEATURES

1) The product is highly reflective ensuring a reflectivity of 96 % at the maximum.
2) Furukawa Sky Group manufactures the product covering everything from aluminum base material to coating, thus realizing high quality and low cost.
3) Outstanding weatherability against ultraviolet ray has been demonstrated at the test carried out by the Japan Weathering Test Center, a foundation supported by the Ministry of Economy, Trade and Industry.
4) Because of its airspace-free coating layer thinner than that of ordinary film-laminated sheets, heat is conducted to the substrate in a short time. Superior heat resistance is also assured thanks to the baking coating applied at 200°C or higher.
5) The superior adhesiveness of the coating layer with the substrate results in a higher degree of formability. In comparison to other materials with the same thickness, the substrate is thicker because the coating layer is thinner, bringing about higher rigidity for the formed products.

3. STRUCTURE OF COATING LAYER

Figure 1 shows the structure of the coating layer. After conversion treatment is applied onto the aluminum bare material as an undercoat, the front face is coated with a high-reflectivity paint.

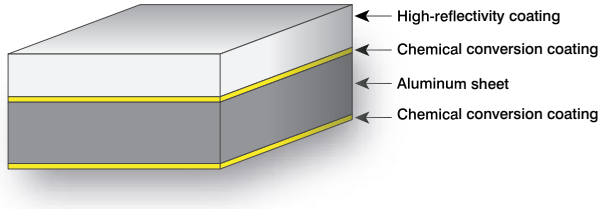

Figure 1 Structure of coating layer.

4. PROPERTIES

Figure 2 shows the spectral reflectivity of FUSCOAT CRYSTAL series; Table 1 the evaluation test results of weatherability against ultraviolet ray; and Figure 3 the thermal simulation results using a direct irradiation model. Other general properties of FUSCOAT CRYSTAL series satisfactorily meet the standard specified in JIS H 4001, “Painted aluminium and aluminium alloy sheets and strips.”

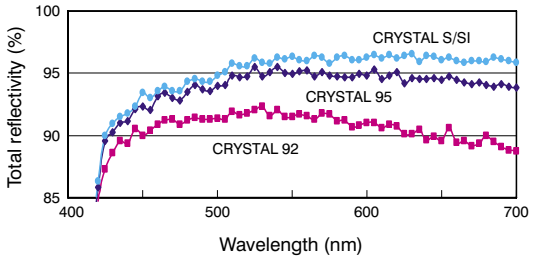

Figure 2 Spectral reflectivity.

5. APPLICATIONS

FUSCOAT CRYSTAL series is best suited for reflectors in which high brightness, high heat radiation and high formability are required, including those for LCD monitors, LCD TV sets, advertisement boards with built-in lighting and lighting fixtures for dressing glass.

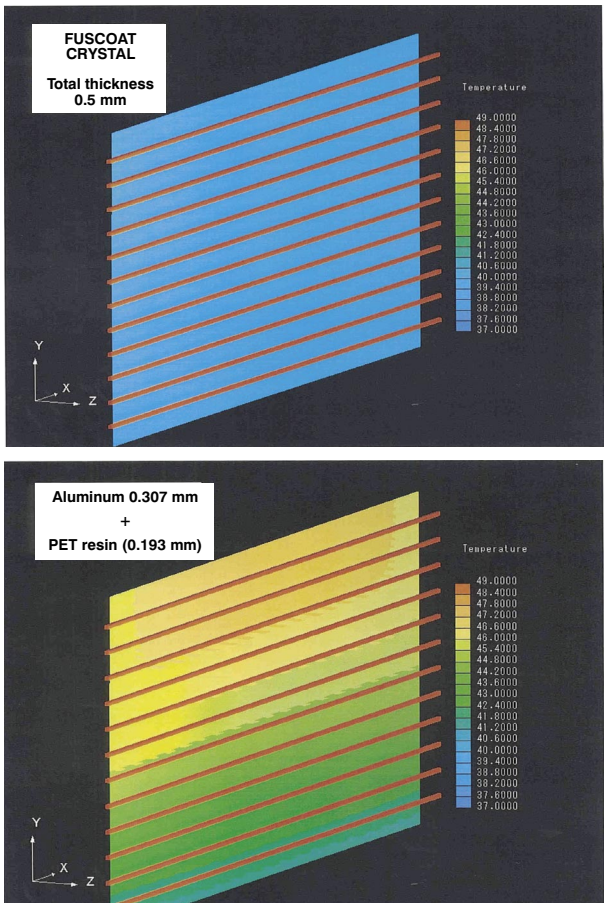

Figure 3 **Results of thermal simulation using a direct irradiation model.**

Table 1 **Results of UV-resistance test. (Excerpt from the report of the Choshi Exposure Laboratory, Japan Weathering Test Center, supported by the Ministry of Economy, Trade and Industry)**

Sample	Irradiation time (hr)	Reflectivity (550 nm)	Luminance (L*)	Chromaticness index		Color difference (ΔE)
				(a*)	(b*)	
FUSCOAT CRYSTAL S	Before test	96.1	96.5	–0.85	2.57	—
	1	96.1	96.5	–0.70	2.32	0.29
	24	95.8	97.0	–0.67	1.75	0.96
Silver-deposited sheet	Before test	101.5	20.5	–0.81	–1.43	—
	1	101.2	21.3	–0.91	–1.54	0.81
	24	82.0	20.9	–1.50	3.74	5.23
PET film (193 μm)	Before test	96.4	97.5	1.54	–3.41	—
	1	95.6	97.1	–0.16	1.01	4.75
	24	52.1	72.1	3.53	24.5	37.77

Notes
- Test equipment: EYE Super UV Tester, SUV-W131 from IWASAKI ELECTRIC Co., Ltd.
- Irradiation condition: 100 mW/cm^2 in irradiance

For more information, please contact:
Marketing Gr., Marketing Dept., UniFus Aluminum
Arca Central Bldg 20F, 2-1, Kinshi 1-chome, Sumida-ku, Tokyo, 130-0013
TEL: +81-3-5611-2398 FAX: +81-3-5611-2413