Product Description

First-FLEX OSR (FF-OSR) is a flexible Optical Solar Reflector that consists of a proprietary multi-layer coating named **"Interferential CERMET"** deposited on the front surface of polyimide tape. The advanced model is specifically designed for easy electrical grounding. In this model the tape is electrically conductive, the substrate is perforated, and front-to-back electrical contact is established by a conductive layer deposited on the back of the substrate and penetrating into the perforations.

Space qualified for the thermal control of spacecrafts in 15 years GEO missions.

FF-OSR GLUED ON A RIGID METALLIC SUBSTRATE.

BoL Specifications[(a)]

α	εN	R_{sh}	Front to Back Resistance ($R_{f/b}$)
0.10	≥ 0.81	< 1E+06 Ω/	< 200 kΩ

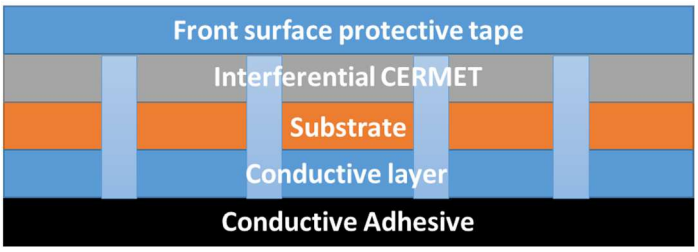
Solar absorbance α (±0.01) according to ECSS-Q-ST-70-09C (§C.2).

Infrared normal emittance εN (±0.01) according to ECSS-Q-ST-70-09C (§C.6).

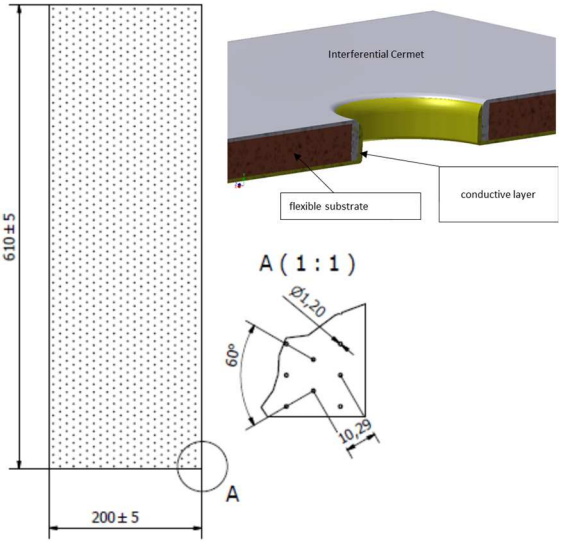
Front surface sheet resistance (R_{sh}) according to ASTM D257-99.

[(a)] Properties after 15years GEO qualification tests were found to be (average on many samples from different batches): α=0.11 | εN=0.80 | R_{sh} < 2E+03 Ω/sq | $R_{f/b}$ < 2E+03 Ω

Construction



(TOP) *SECTION VIEW – SKETCHED. THE INTERFERENTIAL CERMET IS A CREO PROPERTY THERMO-OPTICAL COATING. DIFFERENT SUBSTRATES / ADHESIVES / PROTECTIVE TAPES ARE POSSIBLE ON REQUEST. CONTACTS US FOR DETAILS AND SPECIFIC PART NUMBERS.*



(RIGHT) *INTERNCONNETS PATTERN (ON KAPTON®FPC 3 MIL) AND CROSS-SECTION.*

Properties

Substrate	Kapton®HN and Kapton®FPC, 2 and 3 MIL [other polyimide products possible on request]
Adhesive	Advanced model: 3M© 9703 Electrically Conductive Adhesive Transfer Tape [other adhesives possible on request]
Front surface protective tape	NITTO SPV 224 PR / NITTO SPV 4088 R [other possible on request – note also that it should be removed after application]
Standard Format	**(1)** 305x200 +/- 5 mm **(2)** 610x200 +/- 5mm [other formats possible on request]
Thickness	< 0.100 mm [plus adhesive and protective tape]
Perforated interconnects	Hole dia. 0.047" – density 7.04 holes/in^2 – 1.22% open area on Kapton®FPC 3mil Hole dia. 0.055" – density 2 holes/in^2 – 0.48% open area on Kapton®HN 2mil
Mass areal density	< 300 g/m^2
Humidity / Corrosion Resistance	Temperature: 40÷50 ±3 °C / Relative Humidity: ≥ 93 ±3 % /Duration: 10 days
Coating adhesion on substrate	As for tape test according to ASTM D3359 without cuts
Outgassing	RML % < 0.500 / CVCM% = 0.000 [according to ECSS-Q-ST-70-02C standard]
Radiation Resistance	Details on request.
Thermal & Vacuum Cycling Resistance	Details on request
ATOX Resistance	Details on request

Precautions & Hints

- Inspect the adaptability of this product to your intended use, prior to its application. It is your responsibility to ultimately determine its adaptability.
- Note also that foils can easily be cut into smaller parts by the customer using scissors / razor / scalpels.
- Store in its integral packaging in a dry environment at standard conditions – open the package just before gluing.
- Remove any grease, moisture or dust from the support before application.
- Ideal application temperature range is 70°F to 100°F (21°C to 38°C) – application at temperatures below 50°F (10°C) is not recommended because the pressure-sensitive adhesives become too rigid to adhere well.
- Remove the protective tape after the application of the FF-OSR on the rigid support.
- If necessary, cleaning of the front surface using IPA moist wipes is possible.

Contacts

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