

FIRST-FLEX OSR

Product Information Sheet (PIS) | October, 2020

Optical Solar Reflectors are key passive elements of the thermal control system of spacecrafts. Glued to the external surface of radiator panels, they control the heat exchanged between the panel and the external environment.

First-FLEX OSR (FF-OSR) is a recent completely new type of flexible OSR that consists of a thin-film multi-layer coating applied on the space-facing surface of a polymer foil.

The thermo-optical properties of the new OSR depend entirely on the coating named Interferential CERMET, while the substrate acts only as mechanical support that remains protected against direct interaction with the space environment.

The coating meets the thermo-optical and surface conductivity requirements of an OSR application, shows negligible degradation upon long exposure to harsh space environments, withstands the bending and cutting of the foil, and protects the substrate from direct exposure to UV rays, charged particles, and atomic oxygen.

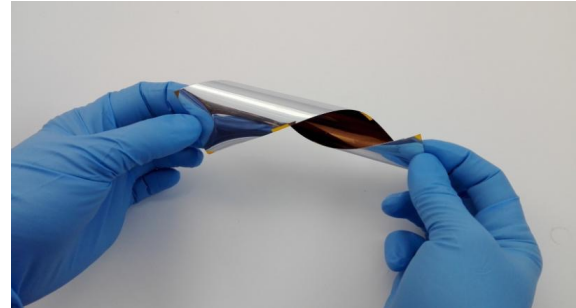
In short, the Interferential CERMET coating on polymer foil realizes an advanced OSR solution that combines the performance and durability of quartz OSRs with the easy handling and cutting of Second Surface Mirrors.

FF-OSRs are all delivered with a conductive transfer tape on the second surface, to ease application onto radiator panels.

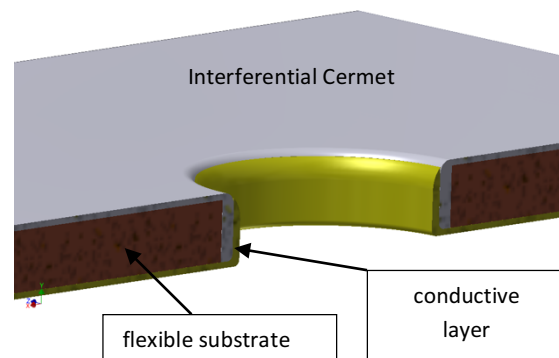
FF-OSRs are all delivered with a protective tape on the first surface, to ease handling.

FF-OSRs will soon be available also in an advanced configuration with perforated interconnects that establish electrical contact between the front and the back surface of the foil, so easing grounding operations.

FF-OSRs can be implemented on foils of different size, including A4, A3, and larger formats.



FF-OSR – Polyimide substrate (3 mil thick).



FF-OSR – Section view of Perforated Interconnects (not in scale).