

## CIF 24-1: Solar White Wrap

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**Executive Summary:** Solar white is a selective surface coating material that provides very high scattering over the solar spectrum, and very low scattering (and consequently very high emissivity) at infrared wavelengths. A new, water resistant version of solar white was recently created at KSC is able to be applied as a coating with a high bond strength. The goal of this project was to determine if this new version could be applied to thin sheets of metal foil to produce a flexible, rollable, foldable, and therefore deployable thermal control surface combining the tensile strength and infrared reflectivity of metal foil with the selective surface properties of solar white. The best results were attained when the coating was applied to silver foil. An adhesion promotor was necessary to improve adhesion of the coating to the silver foil. This combination provided an average solar absorptance of about 5.5% for an average thickness of about 16 mils and a weight per unit area of about 0.7 kg/m<sup>2</sup>. Several 4" x 20" coupons were generated that could be rolled up tightly or folded without damage.