HEAT REFLECTIVE TAPES AND FOILS

(PRODUCT DATA SHEET)

Autosport Bearings has been supplying aerospace-spec, self adhesive, heat-reflective tape for some time. The newly supplied AEROLITE tape has become top choice for many of the professional race teams within the motor industry.

The materials we supply are designed to offer the highest possible performance at the lightest possible weight. The "peel-and-stick" pressure sensitive adhesives mated to them have been tested to ensure consistent performance at high temperatures along with maximum conveinience and ease of use.

COMPARISON TESTING

In order to get a like for like comparison between the supplied tapes and the lightly embossed "gold" material that is used almost universally accross the motorsport field, the materials were tested as follows: tapes were applied to an aluminium pannel (0.63" 3003H14). A calibrated source of constant heat (1000F) was fixed 2.38" from the protected pannel. Heat was applied to the front (tape-protected) side and times to 180F (82.2C) and 220F (104.4) were measured multiple times on the back side of the panel and averaged. Tests were run with the room at ambient temperatures 80-85F in still air.

	Avg. Seconds to 180°F	Avg. Seconds to 220°F	Weight
AEROLITE	8.7	17.0	98 gramms/sq. meter 2.9 oz.sq.yard
AEROLITE PLUS	14.7	26.8	288 gramms/sq. meter 8.05 oz.sq.yard
EMBOSSED ALUMINIUM	21.1	41.5	347 gramms/sq. meter 10.22 oz.sq.yard
EMBOSSED "GOLD"	11.1	20.7	230 gramms/sq. meter 6.8 oz.sq.yard

DEFENITIONS & DATA

- Tapes are a passve thermal control system. Their purpose is to minimize heat transfer through the pannel or surface bring protected by the tape.
- For aerospace, tapes are defined by an emittance number. The lower the number, the less heat actually transferred through:
    - Real Gold: emittance = 0.02
    - AEROLITE: emittance = 0.03
- In space, gold material is used primarily to keep heat inside a satellite. Thus, 0.02 to 0.03 emittance differance is on the order of 50%: important in a 30 year life satellite. Gold is also completely inert. Gamma rays will not pass through it: why its also used on exterior surfaces in space.
- On earth where we are heated by both conduction and radiation, the 0.02 to 0.03 emittance differance is that between 98% and 97% of heat reflected (ie. not passed through)

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