

CALIBRATION PROCEDURES FOR HEAT SENSORS USED IN TRS-LOX

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The French Ministry of Defense has a solar furnace located in ODEILLO which provides the capability to make well defined thermal expositions on medium size targets. On the other hand the thermal gauges involved in calibrating operations of large scale TRS LOX are usually unable to make several accurate measurements because their sensitive surface is quickly worn off. The solar furnace was then obviously indicated to be the thermal reference which can avoid returning the gauges to their manufacturer for a new calibration. Furthermore the thermal fluxes of ODEILLO facility are expressed in terms of emitted energy instead of absorbed energy as the manufacturer's calibration are. In France, nevertheless, the blast simulators and their attached thermal devices are not located close to the solar reference. In such conditions too numerous transports would have spent time and could have represented damaging risks for the sensor sensitive surface. The best arrangements have been researched to get local renovation. A double calibrating process of the gauges is involved. In a first time they are thoroughly controlled with the solar furnace reference: sensitivity, linearity, time response, and repeatability of their thermal properties after several removals of the sensitive surface coating. Afterward they can be set up on the TRS LOX and renewed by painting just before their use. It is merely necessary to have a one-point comparison with reference gauge on a local secondary calibrating bench: then only the reference gauges are regularly and delicately controlled on ODEILLO solar furnace.