

INVESTIGATION ON NUCLEAR THERMAL RADIATION EFFECTS ON MILITARY PAINT LAYERS A FRENCH-GERMAN COOPERATION

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A co-operative program has been established between France and Germany in order to investigate the behavior of specimens exposed to thermal pulses. The objective of this program is to evaluate the vulnerability of weapon systems exposed to nuclear thermal radiation.

In a first phase, the targets are layered samples composed of substrates coated by military paint layers. The influence of nature (conductor or insulator) and thickness of both components as well as their overall dimensions will be analyzed. The tests are carried out on the French and German facilities: WIS Small and Large Laboratory Simulator (SLS and LLS) and Thermal Radiation Simulator (TRS), and CEP Main Solar Furnace (MSF). Behavior tracers such as temperature evolution, mass loss, etc... will be investigated.

A numerical model intended to describe the behavior of the two-layer samples exposed to the thermal radiation flux will be developed from the observations. Predictive results will be compared to experimental results obtained in the different facilities in order to specify the validity limits of this model.