

## **EFFECT OF TEXTILE MATERIAL TEST SAMPLE SIZE ON ASSESSEMNT OF PROTECTION TO SKIN FROM THERMAL RADIATION**

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Test samples of textile materials of 1, 3, 6, or 6 inch diameter were exposed to Thermal Radiation Sources at Sandia Central Receiver Test Facility and the DNA Thermal Radiation Source at Kirtland Airforce Base, New Mexico. The materials were exposed to fluences of 5, 10, 15 and 30 cal/cm<sup>2</sup> in 1 or 3 seconds. The thermal pulse was square or approximately that of a 1 kT weapon. Generally damage to materials increased with an increase in the test sample diameter. High speed photography showed the large diameter sample (12 inch) ignited prior to 1 inch diameter samples. It was evident that testing with small samples of material would over-estimate the protection afforded. Comparison of test results of materials exposed to simulated and non-simulated nuclear weapons support the conclusion that protection is over-estimated by assessment of damage on exposed small test samples.