THE WORLD'S MOST ADVANCED
INSTRUMENTS FOR TEXTILE AND BIOPHYSICAL TESTING

1D

PROTECTIVE TEST SYSTEM

RADIANT PROTECTIVE PERFORMANCE (RPP)

Thermetrics compact Radiant Protective Performance (RPP) Test Device measures and predicts the time to second-degree burns following radiant heat exposure to composite fabric systems.

The RPP device includes a 5-bulb quartz infrared heat lamp assembly, a pneumatically actuated water-cooled shutter, two thermocouple inputs, software safety interlocks, and an integrated sensor cooling stand for improved test throughput rates. The system includes a PC laptop computer installed with ThermDAC data acquisition and control system, and automatic second-degree burn determination.

During testing, our ThermDAC control software continuously records and displays a real-time graph of the average temperature rise, depicted as a curved line representing increasing temperatures as heat moves through the composite fabric materials to the sensor.

After the test is completed, the results are automatically compared to the Empirical Performance Curve (Stoll Curve), which predicts second-degree burn damage to human skin as a function of heat and time. The point of intersection between these two curves provides the composite fabric's radiant heat resistance/RPP rating.

Test Methods Supported

- ASTM F1939
- ASTM F2702
- NFPA 1971
- NFPA 2112

RADIANT PROTECTIVE PERFORMANCE (RPP) TEST DEVICE

RPP Specifications

- Radiant panel with 5 quartz (500W) infrared lamps
- Water-cooled pneumatic shutter
- Two removable sample holders
- Two calorimeter sensor inputs (test, calibration)
- Integrated sensor cooling stand (air cooled)
- Up to 5.5 in. x 9.5 in. (14 cm x 24 cm) sample size
- ± 0.75°C temperature measurement
- ± 3% radiant heat flux measurement
- Device dimensions: 16 in. x16 in. x15 in. (41 cm x 41 cm x 38 cm)
- Space requirements: 24 in. x24 in. 24 in. (61 cm x 61 cm x 61 cm)
- Power requirements: 208-265 VAC, 50/60Hz, Single-phase. Maximum nominal current 10 Amps
- Cooling water: Cooling water required. Chiller or tap water source is acceptable
- Maximum sample thickness: 0.375 in.
- Software safety interlocks monitoring cooling water flow and power to lamps
- Protective cover on backside of bulbs

RPP Feature Highlights & Benefits

- Evaluates the potential for second-degree skin burns associated with a fabric's ability to block the penetration of radiant heat energy
- Automatic or manual test operation
- Includes two snap-on, snap-off sample holder assemblies for fast and easy test setup
- Connections for up to two copper disk calorimeter sensors (ASTM)
- Integrated air-cooled sensor stand quickly prepares calorimeter sensor for next test
- Pneumatically actuated water-cooled shutter for precise exposure control
- System automatically predicts the time to second-degree burn following exposure
- Small and portable, the RPP test device fits in most standard fume hood

RPP Device with sample tray in place (left) and with sensor in place (right)

RADIANT PROTECTIVE PERFORMANCE (RPP) TEST DEVICE

Base Products Include:

- RPP test device
- Two copper-slug calorimeters
- Signal conditioning electronics and USB interface
- Power and control cabling
- Laptop computer with ThermDAC control and Burn Model software
- Two sample holders
- Standard one-year warranty

ThermDAC Control Software

ThermDAC is an engineered user interface for thermal manikin systems providing real-time device control, automated testing, and flexible display and logging capabilities, including:

- Zoomable time-history graph of multiple device and ambient variables
- Real-time statistical analysis over any user-selected time range
- Logging of raw data, statistical analysis, user-reports
- Device calibration and fault detection

419 - Protective Test System - Radiant Protective Performance (RPP)	Item #	Description	Product Name
Standard Base Product	**19-41902**	**Radiant Protective Performance (RPP), ASTM (NFPA)**	**419-XXX**
Standard Options	20-00376	Additional Sample Holder	—
	20-00646	Additional Calorimeter Sensor Assy, ASTM	—

Don't see what you need above? Contact Thermetrics to customize your perfect system.

Keep your RPP in tip-top shape. Discuss service plan options and point-of-sale discounts with us at sales@thermetrics.com.