

"...SIMULATED ENVIRONMENTS..."

ESL MAIN

CLIMATIC

CORROSION

DYNAMIC

FACILITIES

MATERIALS

PACKAGE

PRESSURE

FACILITIES LISTING

Thermal Shock Chamber - Russells Technical Products Model TSV-9-30-30-LN2

- Two zone vertical, approximately 25 in x 25 in x 25 in carrier. Cold chamber: -100°F to +350°F (-73°C to +177°C). LN2 capable. Hot chamber: ambient to +392°F (+200°C).

Walk-in Temperature/Humidity Chamber - Russells Technical Products Model WMD-768-30-30

- Approximately 8 ft x 8 ft x 12 ft inside dimension. Temperature: -100°F to +185°F (-73°C to +85°C) with 9°F (5°C) change rate. Humidity: 20% to 95% rh

Temperature/Altitude Chamber - Russells Technical Products Model RHD-35-705-705

- Approximately 39 in x 39 in x 39 in inside dimension. Temperature: -100°F to +350°F (-73°C to +177°C). Humidity: 20% to 95% rh. Altitude: ambient to 80,000 ft @ 2000 ft/min. Rapid decompression with secondary chamber; 10,000 ft to 40,000 ft in under 10 sec.

A.G.R.E.E. Chamber - Russells Technical Products Model RDV-61-30-30

- Approximately 54 in x 54 in x 36 in high inside dimension. Mates with the shaker (item 6) for combined temperature, humidity, vibration & shock tests. Temperature: -100°F to +350°F (-73°C to +177°C) at 18°F (10°C) change rate. Humidity: 20% to 95% rh.

Humidity Chamber - Blue-M Model FR-386 PBX

- Approximately 37 in x 20 in x 25 in high inside dimension. Temperature: 0°F to 200°F (-18°C to +93°C). Humidity 20% to 95% rh.

Electrodynamic Shaker - Ling Dynamics Systems Model V894-1220C

- 12,000 lbf rms, 2.0 in pk-pk displacement; 100 G; 2 to 2000 Hz; Integral 48 in x 48 in slip table; 32 inch dia head expander.

Vibration Control System - Spectral Dynamics Model 2552B-9704-1

- With capability for sine, random, mixed mode, classical shock, and shock response spectrum. Up to eight channels control and response, 16 additional DAT channels data collection only.

Mechanical Shock Tester - M-RAD Model 2424(550) pa-mp

- with M-Rad Model 1200S shock Analysis Control System
- Accelerated platform drop type shock machine, 550 lb maximum payload capacity (half sine, sawtooth, & square pulse shapes). Pulse durations from 0.5 to 50 msec. Up to to 1,000G

Navy High Impact Shock Hammer

- Custom fabricated for ESL by Crooks Mechanical to Buships Dwg No. 10-T-2145-L. Meets MIL-S-901D and CFTO D-03-003-007/SF-000 for lightweight equipment (up to 250 lb).

Transportation Simulator - MTI/LAB Model 1250-SCMCLNTTR

- 52 in x 52 in bed; 1250 lb maximum payload; 1.25g maximum acceleration.
- Four possible motions: circular synchronous, vertical linear, 30o out-of-phase, or non-synchronous.

Salt Fog Cabinets

- *Englehard Harshaw Model 23G-003* Approximately 6 ft x 3 ft x 4 ft inside. For ASTM B117 salt fog or other corrosive atmosphere testing.
- *Prohesion Salt Fog Tester - Q-Panel Model SFMP/45.0* Cyclic salt fog/forced air drying. Cabinet size approximately 2.5 ft x 2 ft x 2.5 ft high internal dimensions. ASTM B117, and ASTM G85 (Annex A.5)

Solar Radiation Test Equipment

- Approximately 36 ft² at 380 Btu/hr ft² (1120 W/m²), as per MIL-STD-810, using 4 ARRI "HMI" movie lamps and 8-10 (as req'd) "Ultravitalux" UV lamps

UV Accelerated Weathering Tester - Q-Panel Model QUV

- Cyclic Ultraviolet light/condensing humidity, as per ASTM G-53, etc.

Rain Test Facility

- MIL-STD-810E blowing rain to 40 mph, for up to 4 ft x 4 ft x 4 ft packages. (70 mph for up to 4 ft x 17 inch packages). Drip and water tightness as well.

Hydrostatic Pressure Tanks

- High Pressure - Pressure Products Model CRN 72088, Approximately 1 ft dia. x 4 ft long, to 15,000 psi.
- Medium Pressure - Modco Industries Model 7873, Approximately 3 ft dia. x 8 ft long, to 1,200 psi.

Package Testing Equipment

- Drop, impact, compression resistance, chemical compatibility, leakage, hydrostatic pressure, and Cobb Tests for compliance with national and international standards for dangerous goods or infectious substance packaging, distribution hazards, etc. ISTA certified package test lab.

Mechanical Test Machines

- MTS 2000 kip fatigue rated, with temperature chamber
- Schenk-Trevel 100 kN (22 kip) with thermal chamber
- UTS 50 kN (11 kip)
- UTS 5 kip (with 500 lb low range)

Physical Test Equipment

- Brookfield Viscometer with EX-200 bath. Range: -30 C to +120 C
- Mettler TCII TA Processor Thermo-analysis System with DSC20 cell. 25 to 600C
- Thermo gravimetric Analyzer (CAHN TG SYSTEM 171) furnace range 25 C to 1700 C heating rates as low as 1 deg./ min.
- Dilatometer (DILATRONIC 11) max. Temp. 1200 C
- Thermo-mechanical Analyzer (PERKIN ELMER TMA7) Temp. range -50 To 1000 C heating and cooling rates 0.1 to 100 deg. C /min.
- Differential Scanning Calorimeter (PERKIN ELMER DSC7) calorimetric precision +/- 0.1% Temp range 170 C to 725 C heating/cooling rates 0.1 C to 200 C/min.
- Flammability testing chamber. Custom made I.A.W. BSS7230

Optical Test Equipment

- Optical Microscope (NIKKON) (40X to1000x magnification.) 35 mm, Polaroid and digital imaging
- Cambridge Photographic Microscope. (40x to 280x) with POLAROID attachment
- Starrett Optical Comparator. Model: VB 360.
- Gardener Delta Illuminator/Comparator.
- Automatic Polisher/grinder (BUEHLER ECOMET)

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