


RAY-RAN POLYTEST

PUNCTURE IMPACT
Microprocessor Controlled
System



**WORLD WIDE** **TESTING FOR QUALITY**

RAY-RAN

Microprocessor Controlled Pun

THE APPARATUS

The apparatus is extremely versatile and impact velocities up to 3.7 m/s combined with variable weight Pendulum Hammers give an impact energy range up to 25 Joules. The computer Software is based on Windows and provides a special impact energy diagnostic programme to assist the operator to select the correct size of Pendulum Hammer for the material being tested. The test sample takes the form of a circular clamped ring and thus eliminates any possible influence on the test results of the way the sample is cut out.

THE BENEFITS

Determining the most cost effective packaging material specification for a particular application can be a daunting proposition if reliable information is not available on the material behaviour under different load conditions. The impact strength can be crucial if the handling of the package cannot be controlled, especially if objects with sharp profiles are to be packaged.

Hitherto, the principle method of evaluating the impact strength of thin ductile packaging materials has been with a drop dart tester. But in recent years, many companies have questioned the accuracy, reliability and repeatability of the data obtained using this method. In the main, this is because the degree of the material failure is so subjective to operator interpretation and non-failures must also be accounted for in calculating the results. Also, the absence of instrumentation providing immediate test results is a distinct disadvantage.

The Ray-Ran Impact Puncture Tester has addressed all of these problems and produced a test method that is accurate, reliable and immediately displays and prints the test result using a microprocessor control. Test results can safely be compared between different test centres. Therefore an international organisation can set material standards world-wide knowing that consistent quality control is assured.

MATERIAL BEHAVIOUR

The Impact Tester can examine the material behaviour in a combination of different ways. By using different Tup Strikers, the mode of failure can be analysed to represent direct comparisons with other materials and hence produce an in-house standard, or to simulate actual service conditions.

For instance, if impact elongation properties are required for ductile material, then a large spherical radius Tup Striker is used to induce a high degree of lateral elongation of the material before the Tup Striker can penetrate through the material to the point of failure. If however, a more brittle failure (minimum elongation of the material), a more pointed Tup Striker is employed. If required, the Tup Striker can simulate the actual object to be packaged to see how the packaging material would stand up to poor handling in service.



BRITTLE FAILURE



DUCTILE FAILURE

CALIBRATION

The system is supplied with a calibration procedure for bearing resistance and windage.

DIAGNOSTIC PROGRAMME

For operator to select the optimum pendulum hammer.

HAMMERS

Variable weight pendulum hammers for impact energies to 25 joules.

KEYPAD DATA ENTRY

All data entry via ergonomically simple keypad.

LCD DISPLAY

Provides auto prompts for test procedures, calibration and test results.

SAMPLE CLAMPING

Circular design eliminates clamping stress influences.

SAMPLE LOADING

Via a pre-prepared cassette.

SOLENOID HAMMER RELEASE

With integral safety device and audible warning.

TUP PROFILES

Any shape can be supplied to suit customer needs.

VARIABLE VELOCITY

Up to 3.7 m/sec.

Puncture Impact System



HARD COPY PRINTOUT

RAY-RAN IMPACT

PUNCTURE TEST
 DATE 30/6/99
 USER 101
 REF 202
 TEMP 20 deg C
 VEL. 1.13 M/sec
 HAMMER 0.761 kg

EN. 0.49 Joules
 RESULT No. 001
 0.483 Joules
 RESULT No. 002
 0.469 Joules
 RESULT No. 003
 0.478 Joules
 RESULT No. 004
 0.473 Joules
 RESULT No. 005
 0.467 Joules
 RESULT No. 006
 0.468 Joules
 RESULT No. 007
 0.462 Joules
 RESULT No. 008
 0.458 Joules
 RESULT No. 009
 0.462 Joules
 RESULT No. 010
 0.458 Joules

BATCH STATS

SAMPLES - 010
 MEAN 0.468
 STDEV 0.008
 Joules
 C.O.V 1.797 %

RayView - pud.tif

File Edit Comm Tools Help

RAY-RAN
Polytest

Advanced Impact System

Number of Tests 10

Test Type **Puncture**

Operator 101
 Material 202
 Date 30/6/99
 Test Temperature 20.0 Deg C
 Impact Velocity 1.13 M/Sec
 Hammer Weight .761 kg
 Energy 0.49 Joules
 Width mm
 Thickness mm

Results

Test Number	Joules
1	0.483
2	0.469
3	0.478
4	0.473
5	0.467
6	0.468
7	0.462
8	0.458
9	0.462
10	0.458
Mean	0.4684
Std Deviation	0.0084
C.O.V.	1.7273

Hammer Selector Programme

Parameter Calculator

Impact Velocity (M/Sec) 1.13
 Effective Puncture Weight (kg) .761

Puncture Energy (Joules) 0.490
 Material Sample Energy (1) - Joules 0.187
 Material Sample Energy (2) - Joules 0.475
 Mean Sample Energy 0.144
 Variation (+/- Four Mean) % 230.09

Screen Presentation

DATA FILE CAPTURE

RS 232 Output and Ray-Ran Impact Software for Windows supplied as standard.

The Pendulum Impact System can be supplied with fixtures and hammers for Izod – Charpy – Tension and Puncture Impact.

RAY-RAN

Polytest

Advanced Impact System

Test Type Puncture

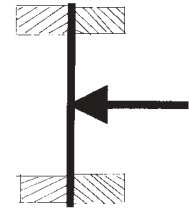
Date 30/06/99 **Operator** 101

Material 202 **Test Temperature** 20.0 °C
Impact Velocity 1.13 M/sec
Hammer Weight 0.761 Kg
Energy 0.49 Joules

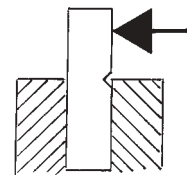
Results (1-20)

Test Number	Joules
1	0.4839
2	0.4699
3	0.4785
4	0.4737
5	0.4671
6	0.4685
7	0.4629
8	0.4584
9	0.4629
10	0.4584
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

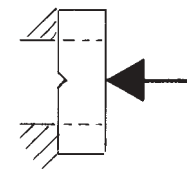
Overall Statistics **Mean** 0.4684
No. of Tests = 10 **Std. Dev.** 0.0084
C.O.V 1.7973



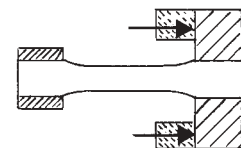
PUNCTURE



IZOD



CHARPY



TENSION



All Ray-Ran products meet with the requirements of CE legislation and are supplied complete with appropriate markings and certification.

SHIPPING DIMENSIONS

Net Weight: 125kg/Gross Weight: 152kg

Gross Size: 56cm x 92cm x 95cm

ELECTRICAL CHARACTERISTICS

220-240 volts 1ph 50 Hz

110-120 volts 1ph 60 Hz