Plasticity
Wallace Rapid Plastimeter Mk V (P14)

The Wallace Rapid Plastimeter measures the plasticity or viscosity of unvulcanised rubbers.

The test is simple, clean and quick.

The instrument is used to determine the Plasticity Retention Index (PRI) of raw natural rubbers.

The instrument is supplied in four versions and each version comes complete with a specimen cutter. The instrument is shipped with 10mm diameter top platen installed and alternative top platens of 7.3 and 14mm diameter are supplied as accessories. The platens are easily interchangeable.

Principle

A modified parallel plate compression principle is used with automatically timed "conditioning" and "load" periods. A sample is compressed between two circular platens which are maintained at a temperature of 100°C. The sample is conditioned for 15 seconds at a thickness of 1mm. A compressive force of 100N is then applied for 15 seconds. The final thickness of the test piece expressed in units of 0.01mm, is the plasticity number.

Test Procedure

The sample is prepared using the specimen cutter provided and it is then enclosed between two pieces of tissue paper, as defined by international standards, before being placed between the platens. The tissue paper prevents the material sticking to the platens or sliding between them.

The automatic test sequence is started when the operating handle is rotated.

The reduction in thickness of the sample is displayed digitally, which freezes, to show the plasticity number after 15 seconds.

Features

The P14 Rapid Plastimeter offers greatly enhanced operator access and is available in four different versions. A major feature on all versions is powered zero calibration eliminating the need for tedious manual setting. Aluminium castings are used throughout the design for rigidity and stability. All versions comply with National and International standards.
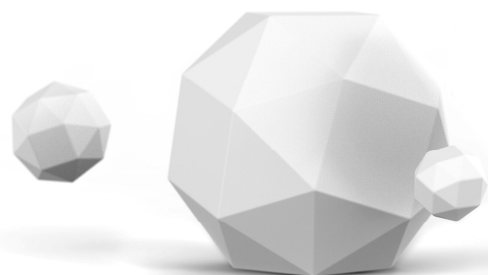
Plasticity: Wallace Rapid Plastimeter Mk V - P14

Rapid Plastimeter - Basic Model, P14/1
- Fully automatic operation
- Built in diagnostics
- LED Platen temperature Indicator

Rapid Plastimeter - Printer Model, P14/2
- Compact printer with high speed print capability
- Single/Median mode of operation
- 24 Character column print output
- Date and time recorder
- Traceability of aborted tests
- Additional diagnostic features
- Platen temperature print out

Rapid Plastimeter - Data Terminal & Printer Model, P14/3
- Data input terminal and display
- Compact printer with high speed print capability
- 24 Character column print printer
- Date and time recorder
- Continuous Platen temperature display
- Variable load durations
- Sample and operator identification with automatically increasing suffix
- Traceability of aborted tests
- Calibration and service reminder
- PRI evaluation

Rapid Plastimeter, P14/VT
- Same specification as the P14/3, plus:
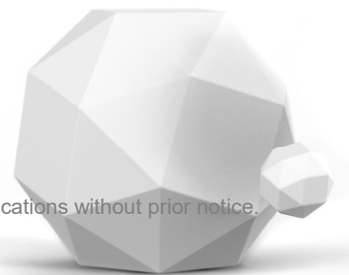- Variable Platen temperature 60°C - 180°C

Specifications

Plastimeter	
Weight	25kg
Dimensions	420mm (h) x 300mm (w) x 360mm (d)
Upper platen size	10mm diameter standard, 7.3 and 14mm diameter accessories
Lower platen size	16mm
Platen temperature P14/1, 2, 3 P14/VT	100ºC 60ºC - 180ºC
Test time	15 seconds conditioning - 15 seconds load
Compression force	100N
Standards	BS ISO 2007, BS ISO 2930, ASTM D3194
Printer	
Weight	500g + PSU 200g
Dimensions	95mm (h) x 125mm (w) x 195mm (d)
Data Input Terminal and Printer - Keyboard	
Weight	800g
Dimensions	40mm (h) x 225mm (w) x 165mm (d)
Specimen Cutter	
Weight	4kg
Dimensions	260mm (h) x 80mm (w) x 335mm (d)

Plasticity Retention Index (PRI)
PRI is a measure of the resistance of raw natural rubber to oxidation. The oxidation effect is assessed by measuring the plasticity before ageing (P_0) and after ageing for 30mins.

$$PRI = \left(\frac{P_{30}}{P_0}\right) \times 100$$

Our sales team can be contacted on:
info@wallaceinstruments.com
T: +44 (0)1306 867 417