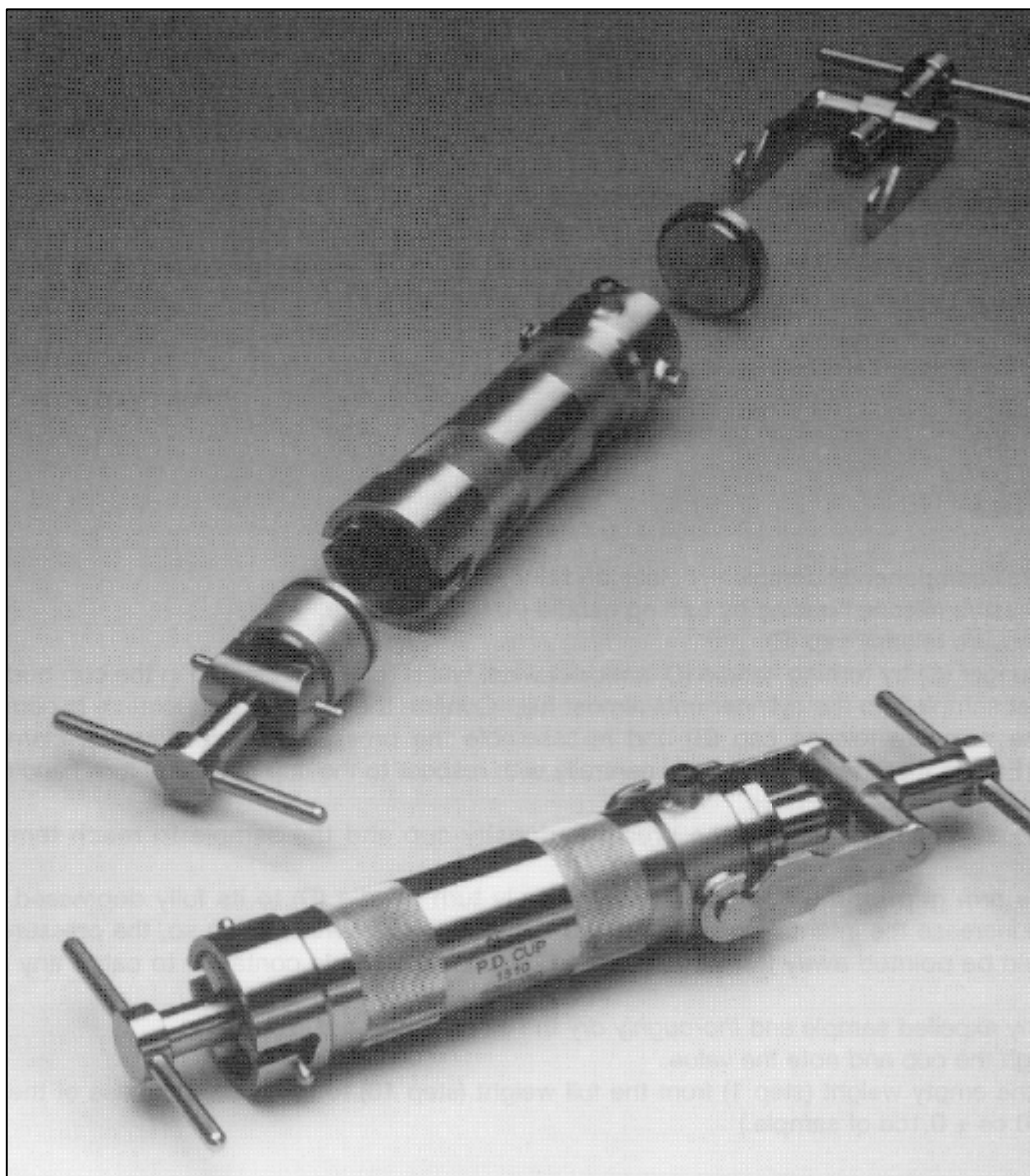




REF. 1510 PRESSURE DENSITY CUP

(also known as Pressure Weight per Gallon Cup and Pressure Pyknometer)

Photo shows two units, one disassembled to show its component parts

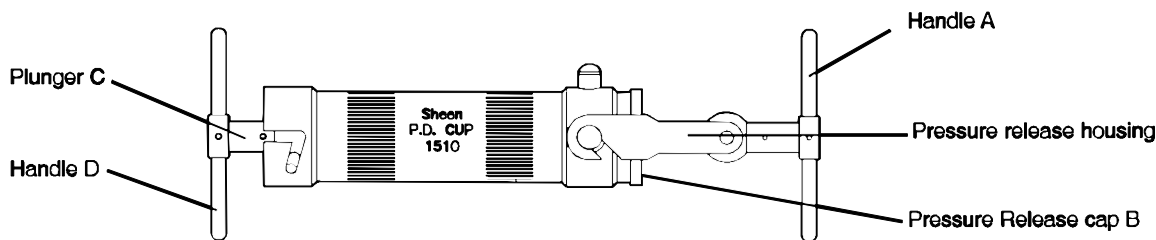


This newly redesigned cup features a stainless steel body with an internal volume of 100 cc and the ability to be completely stripped down to ensure thorough cleaning. Each cup is fully pressure tested to 31 bar (450 p.s.i.)

Ref. 1510 Pressure Density Cup

Simple pycnometers (our ref. 1501 and 1503) are best suited for measuring the density of non-aerated samples. Any materials which contain a significant volume of entrapped gas or air during manufacture can only be accurately measured using the Ref. 1510.

The Pressure Density Cup takes a fixed volume (100 c.c.) of the sample and compresses it so that any errors due to entrapped air or gas are eliminated. As air is more soluble at high pressures, it is believed that the entrapped air is lost by its dissolution into the test material. Any undissolved bubbles are then compressed to a fraction of their original size. By then weighing the pressurised sample, its true density may be calculated. Repeatability of this test is therefore very good.



Method of Use

- 1) Weigh cup (all components) completely clean and dry and note weight.
- 2) Remove pressure release housing by turning handle (A) anticlockwise.
- 3) Remove pressure release cap (B).
- 4) Unscrew plunger (C) by turning handle (D) anticlockwise, whilst leaving it located in the cup body.
- 5) Pour the test sample into the cylinder until almost full. Confirm that the test temperature is correct.
- 6) Replace the pressure release cap (B) and re-assemble the pressure release housing, clamping the cap in place. Ensure that the cap is located centrally with respect to the cup body and turn handle (A) fully clockwise to set the release pressure.
- 7) Allow up to 30 minutes for both the pressure density cup and the sample to reach temperature equilibrium.
- 8) By taking a firm grip on the body of the cup, slowly turn handle (D) to its fully depressed position (clockwise) to increase the internal pressure to 10.3 bar (150 p.s.i). Whilst doing so, the pressure release housing should be pointed away from the user and towards a suitable container to catch any expelled material.
- 9) Wash off any expelled sample and *thoroughly dry* the exterior of the cup.
- 10) Again weigh the cup and note the value.
- 11) Subtract the empty weight (step 1) from the full weight (step 10) to calculate the mass of the sample. (This is for 100 cc \pm 0.1 cc of sample.)

Calculation of Density:
$$\rho = \frac{m_2 - m_1}{V}$$
 where m_2 = total mass (g) of cup and contents
 m_1 = mass (g) of empty cup
 V = volume of cup in millilitres

- 12) Completely disassemble the cup and clean all surfaces thoroughly *before* the material dries or hardens.

ORDERING INFORMATION

Ref 1510 Pressure Density Cup 100 c.c.
Ref 1510A Pressure Density Cup 83.3 c.c.

Owing to continuous development, we reserve the right to introduce improvements and modify specifications without prior notice.

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