

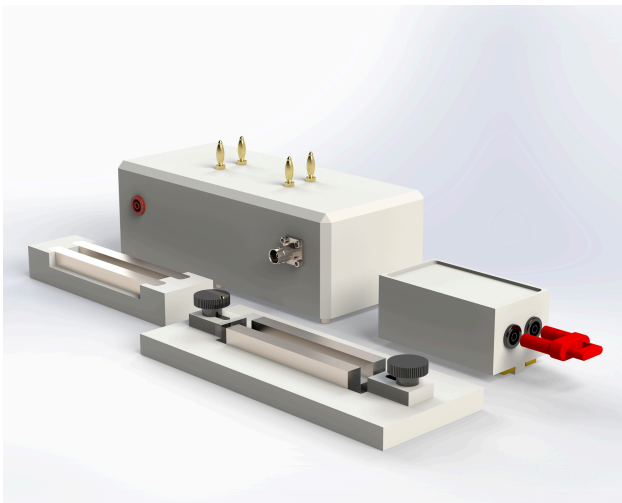
CTL028 – Powder Resistivity Test Apparatus Data Sheet

For measurement of conductivity/resistivity of powder samples to enable identification of highly insulating powders which may create electrostatic ignition risks.

Powders will nearly always acquire electrostatic charge during processing, the level of charge being largely determined by the violence of the process.

The CTL 028 Powder Resistivity Test Apparatus allows testing to the newer BS EN / IEC 80079-20-2 and BS EN / IEC 60079-32-1 test standards. It comes supplied with an interlock test chamber, power supply and picoammeter included.

The older BS5958 standard test cell, now discontinued, is still available upon request. This cell type gave a range of charge levels which might be expected from lots of different processes. The BS5958 test cell is therefore still considered useful for generalised testing, development or research purposes. The new standards similarly give typical ranges of charge level but perhaps not in as much detail.



Power Resistivity



Test Chamber

Benefits

- Simple to use
- Small and compact equipment
- BS EN / IEC 80079-20-2 and BS EN / IEC 60079-32-1 test cells for assessing material properties against a current explosive atmospheres test standard.
- Calibration test cells for checking accuracy of the measurement system used for the IEC 80079-20-2 and IEC 60079-32-1 test apparatus.
- An optional BS5958 Test cell is available at additional cost. This test cell sits on a support base in a precise position so that uniform and reliable pressure is applied to the top of the test substance for every test.
- Optional calibration check test electrode for older discontinued BS5958 test cell cross checking only (value 10Meg ohms and/or 1Gohm – other test values may be possible) giving confidence in system operation. Available at additional cost

Safety

Whether or not charge levels prove to be a problem, or indeed whether they can be observed at all, depends largely upon the rate at which the charge is dissipated, particularly from the bulked powder. If the bulked powder is ohmic (that is, electric current through the powder is directly proportional to applied voltage for all voltages) an indication of the severity of electrostatic problems to be expected can be obtained by measuring the resistivity of the powder.

It is important to appreciate both powder resistivity and charge decay data, in conjunction with one another, when considering electrostatic risks or when indeed applying the data to develop new products. This is because the powder charge decay times (time to $1/e$) of many powder products are nonexponential in nature. Our JCI 155v6 Charge Decay Time Analyser, is the best measuring device for monitoring charge decay parameters of products that have non-exponential and exponential charge decay times.

Functional specification and deliverables

- Power supply with 100V, 500 V, 1 kV, 2 kV, 3kV (fixed settings). Mains 220-240V / 1A
- Interlock Test Chamber
- Minimum resistance measurement possible is approximately 1-2 M Ω (resistivity ca 400 k Ω .m) – dependent on sample properties and power supply voltage output tolerances.
- New style IEC 60079 test cell now supplied as standard (custom manufactured BS5958 old standard available as an optional extra)
- Pico-ammeter for measurement of current through or across the test sample (2nA to 20mA ranges) – 2nA range has 10fA resolution +/- 400fA. Noise 20fA.
- Calibration certificate supplied. Mains 220-240V / 1A
- Miscellaneous cables
- In line transorb over voltage protection unit (for protecting the sensitive picoammeter from over voltage)
- BS EN / IEC 80079-20-2 and BS EN / IEC 60079-32-1 calibration test cells for cross checking the main electrode.

Dimensions

Footprint: 30 x 30 x 30cm for test cell and 40 x 45 x 40cm for the power supply and 40 x 45 x 50 for the pico-ammeter. Interlocked enclosure is 40cm x30cm x 30cm deep.



Optional extras

- Calibration services
- Old, discontinued powder resistivity test cell to BS5958. The BS5958 test cell is now only sold as an optional extra and can be purchased additionally by those companies who wish to use a generalised measurement cell to aid their research and development programs.
- Calibration test cell assembly/electrode for cross checking the resistivity system when using older discontinued BS5958 cell.
- JCI 155v6 Charge Decay Analyser with JCI 173 Powder Sample support insert for testing charge decay time of powders. (JCI 176 sample support base is included in this optional package)

DEKRA Organisational & Process Safety

Contact

DEKRA Organisational and Process Safety are a behavioural change and process safety consultancy company. Working in collaboration with our clients, our approach is to assess the process safety and influence the safety culture with the aim of making a difference.

In terms of behavioural change, we deliver the skills, methods, and motivation to change leadership attitudes, behaviours, and decision-making among employees. Supporting our clients in creating a culture of care and measurable sustainable improvement of safety outcomes is our goal. The breadth and depth of expertise in process safety makes us globally recognised specialists and trusted advisors. We help our clients understand and evaluate their risks, and we work together to develop pragmatic solutions. Our value-adding and practical approach integrate specialist process safety management, engineering, and testing. We seek to educate and grow client competence in order to provide sustainable performance improvement. Partnering with our clients, we combine technical expertise with a passion for life preservation, harm reduction and asset protection.

We are a service unit of DEKRA SE, a global leader in safety since 1925 with over 48,000 employees in 60 countries and five continents. As a part of the world's leading expert organisation DEKRA, we are the global partner for a safe world.

We have offices throughout North America, Europe, and Asia.

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Would you like more information?

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