

Which type of Dust Monitor do I need

Smoke and dust are both known as particulate matter (PM). PM can be measured via a number of different techniques, including Opacity and Triboelectric effect.

Opacity is a measure of light attenuated as it crosses a stack. A proportion of the light is lost through scattering, absorption and reflection by the PM in the stack. The amount of light lost depends on the number and the size of the particles. This loss of light density can directly be related to the PM in the stack. Opacity can be used directly as a volumetric measurement or it can be converted to a mass concentration (Dust) via a calibration factor related to that specific installation.

Triboelectric detectors use an In-Situ probe to detect the impact of charged particles on to an electrically isolated metallic probe. This voltage is related to the PM via a calibration factor.

Which units you choose as an output depends on what the regulatory body has set as an emission limit value (ELV). Most large industrial plants must report their PM as Dust (mg/Nm³) whilst some smaller plants may report in Opacity (%).

The choice of Triboelectric or Opacity as a measurement technique depends on several factors. These include, but are not limited to, PM range, cost, duct size, temperature, flow, H₂O and regulatory limitations. At SHAPA we have members who treat each measurement location as a unique installation and can give professional advice on which techniques suit your needs and which model analyser is best suited to the task.

The complete Dust Monitoring design, installation and testing service is available from within the SHAPA community of companies. To inspire real confidence at an economic cost throughout the lifetime of the installation check out the equipment finder at <https://www.shapa.co.uk/equipment.php> or download one of the many related technical documents which can be found at <https://www.shapa.co.uk/technical.php> or email your enquiry to info@shapa.co.uk.