

Maximum Rate of Pressure Rise (Kst) and Maximum Explosion Pressure (Pmax)

The explosion Indices test measures the maximum explosion pressure (Pmax) and rate of pressure rise. The Kst value is then calculated which may be used to design new explosion protection systems or verify existing designs. The tests follows ISO 6184/1:1985 and BS EN 14034 Parts 1 & 2 and the results will assist in making a DSEAR risk assessment

Explosion Indices—Test Method

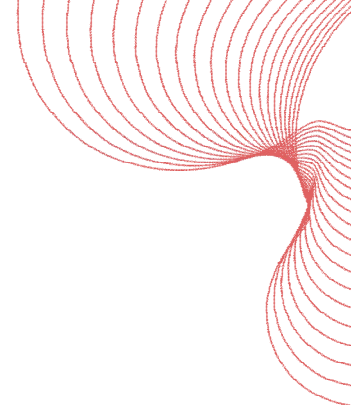
A weighed quantity of dust or powder is placed into the dust storage chamber. The explosion chamber is then evacuated to 0.4 bar absolute. An automatic test sequence is initiated to pressurise the dust storage chamber to 20 bar g and activate the ignition source 60ms after the dust has been dispersed. This procedure ensures that the explosion takes place at atmospheric pressure and at such a degree of turbulence that the explosion data obtained are compatible with that which would be obtained in a 1m³ vessel.

Test Results

The Maximum Explosion Pressure (Pmax) and the Kst of the dust sample tested is defined as the mean of the maximum values of each test series (total of 3 series) over the concentration range close to the observed maxima.

Examples of typical dangerous substances in the workplace:

- Acrylic Polymer
- Aluminium Dust
- Amino Alcohol
- Bronze Powder
- Carbon Black
- Carbon Fibre Dust
- Cereal Flake Dust
- Coal Dust
- Coke Dust
- Composite Dust
- Curry Powder
- Dimethyl-phenylpyrazolidone
- Dried Sewage Sludge
- Fibre Insulation
- Flour
- Glass Fibre Polyurethane
- Grain Dusts
- Gum Arabic
- HDPE
- Hydroxy-methyl-phenylpyraolidone
- Leather Dust
- Liquorice Powder
- Melamine Dust
- Paper Dust
- Paraformaldehyde
- Pharmaceutical Powders
- Phenolic Resin
- Pigment Powder
- Polyelectric Powder
- Plastic Dust
- Potato starch
- Refined sugar
- Resin Dust
- Sodium Flurbiprofen
- Sulfuramide
- Tea
- Wood



Please see our dust web page for a full list of BRE's dust services including:

- Dust or powder testing
- DSEAR consultancy
- Risk Assessment and hazard identification
- Hazardous area zoning
- DSEAR—Staff and safety training in fire and explosion awareness (health and safety)
- Explosion prevention and protection (risk management)
- Equipment for use in hazardous areas
- HAZOP for DSEAR/ATEX compliance

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- researching and writing standards
- testing and certification in the areas of fire, electronics, security, and sustainability
- undertaking research and consultancy for clients and regulators
- promulgating standards and knowledge throughout the industry through publications and events
- developing and delivering training

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