

3. INSTRUMENTS AND MEASUREMENTS

3.1 INTRODUCTION

Measurements are needed to show you the electrostatic conditions that are present, to help understand why these conditions are present, to help confirm that control measures put in place are continuing to work and to help select and design suitable materials. Without measurements it is all guesswork!

An important area of measurement is assessing the characteristics of materials. Are materials in use, or being considered, suitable for their purpose? And when thinking about 'suitability' this is not only what is relevant for the immediate area of application (for instance within a processing operation) but also for the final 'end user'.

Guidance is provided in a number of Codes of Practice [1,2,3,4] on arrangements and procedures designed to avoid static problems and risks. However, there are always situations and materials where there is uncertainty. Is there a problem, what is it due to, will suggested remedial actions work, are alternative approaches prospectively more suitable, are remedial actions continuing to work?

In many cases measurements only need to be informative and to provide guidance. But measurements may have contractual, legal or safety implications. In such situations the instruments used need to be appropriate for the measurements required, the instruments need to be formally calibrated [5] and appropriate care is needed in the interpretation of results. Each of these aspects needs to be properly documented.

The following three sections describe:

- 3.2) instruments and basic methods for electrostatic measurements
- 3.3) methods for assessing performance features of materials
- 3.4) measurements in practical situations.

These descriptions draw attention to the approaches needed to ensure that measured values can be used with confidence.

Many people seem to find "electrostatics" difficult. It is hence wise to retain a healthy scepticism when making measurements. It is wise to cross check even simple and basic observations with an alternative approach when this is possible.

REFERENCES:

[1] *"Code of Practice for Control of undesirable static electricity"*
BS 5958: Part 1:1991

[2] *"Basic specification: Protection of electrostatic sensitive devices. Part 1: General requirements"* EN 100015: 1992

[3] *"Static electricity: Technical and safety aspects"* Shell Safety Committee 1988

[4] *"Electrostatics - Part 5.1: Protection of electronic devices from electrostatic phenomena - General requirements"* CENELEC EN 61340-5-1 May 2001

[5] *"Methods for measurements in electrostatics"* British Standard BS 7506: Part 2: 1996

