

DIN EN 14034-2:2011-04 (E)

Determination of explosion characteristics of dust clouds - Part 2: Determination of the maximum rate of explosion pressure rise $(dp/dt)_{max}$ of dust clouds (includes Amendment A1:2011)

Contents		Page
Foreword		4
Introduction		5
1 Scope		6
2 Normative references		6
3 Terms and definitions		6
4 Test apparatus		7
4.1 General		7
4.2 Explosion vessel		8
4.3 Dust dispersion system (dust container, fast acting valve, connecting tube, dust disperser)		10
4.4 Ignition source		13
4.5 Control unit		13
4.6 Pressure measuring system		13
5 Dust sample		13
6 Test procedure		13
7 Calibration and verification		16
7.1 Calibration		16
7.2 Verification		16
8 Safety precautions / instructions		17
9 Alternative test equipment / procedures		17
10 Test report		18
Annex A (normative) Electro Pneumatic Valve		19
Annex B (normative) Dust dispenser with 5 mm holes		22
Annex C (normative) 20 l sphere		25
C.1 General		25
C.2 Test apparatus		25
C.3 Test conditions		26
C.4 Test procedure		26
C.5 Calculation of $(dp/dt)_{max}$, 20 l, K_{max} and K_{St}		27
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 94/9/EC		28
Bibliography		29

Figures		
Figure 1	-- 1 m ³ vessel (schematic)	9
Figure 2	-- Dust container with blasting cap activated valve as commonly used for explosion suppression (schematic; it is commercially available)	10
Figure 3	-- Location of the 6 mm holes in the dust disperser	12
Figure 4	-- Dust dispersion and pressure-time curve	15
Figure 5	-- Determination of the maximum rate of explosion pressure rise (dp/dt) _{max}	16
Figure A.1	-- Electro Pneumatic Valve (schematic)	20
Figure A.2	-- Discharge characteristic of dust dispersers (without dust)	21
Figure B.1	-- Location of the 5 mm holes in the dust disperser	23
Figure B.2	-- Rebound nozzle	24
Figure B.3	-- Dispersion cup	24
Figure C.1	-- Test equipment 20 l sphere (schematic)	26
Tables		
Table 1	-- Maximum permissible deviations SEQ	17