



EXPLOSION HAZARD TESTING LIMITED

**DETERMINATION OF THE FLAMMABILITY CLASSIFICATION OF A
SAMPLE OF HOLI COLOURS ITALIA PROVIDED BY GIUSEPPE
FERRARA.**

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BY

EXPLOSION HAZARD TESTING LIMITED.

SUMMARY RESULTS

The following material properties were determined for the sample Holi Colours Italia provided by Giuseppe Ferrara.

Tested as received

Test material	Moisture	Median particle size
	%w/w	µm
Holi Colours Italia	0.2	38 to 63

The sample of Holi Colours Italia proved to be non flammable under the conditions of the test and is classified as Non Flammable Dust

1. **BACKGROUND**

A sample of Holi Colours Italia was received from Giuseppe Ferrara for flammability classification determination under VDI 2263 in the closed 20L sphere apparatus with 2kJ ignition

2. **SAMPLE DESCRIPTION**

The sample of Holi Colours Italia consisted of a fine light blue powder.

3. **TEST METHOD**

3.1 **Particle Size Analysis**

The particle size distribution of the material was measured using sieve shaker and standard 200 mm diameter sieves. A sample of the material was weighed onto the sieves and shaken intermittently (8 seconds on / 4 seconds off) for 30 minutes. The resultant fractions were weighed to determine the particle size distribution.

3.2 **Moisture Content Determination**

The moisture content of the sample was determined by loss in weight measurement of the sample dried in an oven at $103^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for a period of 4 hours. The samples were repeatedly weighed and returned to the oven for 30 minute periods until consecutive weighing were within 0.005g of one another.

3.3 **Flammability Classification**

Testing based on VDI 2263 using 20L sphere as closed apparatus with various sample powder concentrations and 2kJ ignition.

The test apparatus used was a spherical 20-litre test chamber surrounded by a water jacket. Dust was dispersed into the sphere from a pressurised storage chamber via a pneumatically operated outlet valve and dispersion nozzle. After a 60 millisecond delay two 1kJ chemical igniters were automatically fired and the resulting pressure rise measured with time by piezo-electric pressure transducers. This procedure was repeated for a range of dust concentrations. The results as measured by the pressure transducers is evaluated as follows

No pressure increase $<0.5\text{bar}$ above initial pressure the sample is not dust explosible.

Pressure increase $\geq 0.5\text{bar}$ above initial pressure the sample is dust explosible

4. RESULTS

4.1 Particle Size Analysis

Holi Colours Italia (as received)

Sieve Size (μm)	Weight on Sieve (g)	% by Weight
>2000	2.4	1.0
>1000	4.6	2.0
>500	4.9	2.1
>250	7.4	3.2
>125	2.8	1.2
>90	4.7	2.0
>63	6.6	2.9
>38	100.8	43.8
Receiver	95.9	41.7

Median Particle size is 38 to 63 μm

4.2 Moisture Content Determination

Holi Colours Italia (as received)

	Sample A	Sample B
Weight of Sample (g)	7.4822	7.0742
Dry weight of sample (1)	7.4822	7.0742
Dry weight of sample (2)	7.4822	7.0742

Average Moisture = 0.2%w/w

4.3 Flammability Classification (A/B)

Material: - Holi Colours Italia (as received)

20L Sphere with 2kJ Igniter

Sample weight	Pressure Rise	Propagation
g m ⁻³	Bar	
125	0	No Propagation
250	<0.1	No Propagation
500	<0.1	No Propagation
750	0	No Propagation
1000	<0.1	No Propagation
1250	0	No Propagation
1500	<0.1	No Propagation

Classification – non explosible dust under conditions of the test