

PITCH POWDER FOR USE IN CAST IRON FOUNDRY

(First Revision of IS 13100)

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Foundry Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1991. This revision has been brought out to bring the standard in the latest style and format of Indian Standard. In addition, the following changes have been made:

- a) Cross referred standards has been updated
- b) Marking clause has been modified.

A number of materials are used in Foundry to give protection to mould and core surface against the action of molten metal and help in producing smooth and clean surface on the casting.

Pitch powder is one of the carbonaceous facing material used in the foundry for mixing in green mould composition. When molten matter comes in contact with mould surface containing pitch powder, gaseous envelop is formed which resists the fusion of sand to the metal. Being a Tar it has got a binding effect and green strength of the mould is increased considerably. The ash contents being low as 0.8% to 0.4%, it improves casting finish and increases dry and green strength, it also reduces expansion.

The volatile matter being about 5'0 percent and ash less than 1'0 percent will improve the quality of castings to a considerable extent.

The softening point of the pitch powder should be as high as practicable and it is proposed that it should be 120 to 130°C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 2022 'Rules for rounding off numerical values (Second Revision)'. A number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

1.1 This standard covers the requirements for pitch powder for use in cast iron foundry.

2 REFERENCES

The following Indian standards are necessary adjuncts to this standard:

IS No.	Title
IS 436 (Part 1/Sec 1) : 1964	Methods for sampling of coal and coke: Part 1 sampling of coal, section 1 manual sampling (First Revision)
IS 460 (Part 1) : 2020	Test Sieves — Specification Part 1 Wire Cloth Test Sieves (Fourth Revision)
IS 1205 : 2022	Methods For Testing Tar And Bituminous Materials - Determination of Softening Point Ring and Ball Apparatus IS 1205
IS 1215 : 2021	Methods for testing tar and bituminous materials Determination of matter insoluble in toluene Second Revision of IS 1215
IS 1201 : 2021	Methods for testing tar and bituminous materials -Second Revision-IS 1201-sampling
IS 1387 : 1993	General requirements for the supply of metallurgical materials (Second Revision)

3 SUPPLY OF MATERIAL

3.1 The general requirement relating to supply of pitch powder shall be as laid down in IS 1387.

3.2 The material shall consist of approved quality, finely crushed pitch and shall be free from foreign material such as iron, pyrites and slates which may prove injurious to casting.

4 GRADES

4.1 Pitch powder shall be of three grades, namely, Grade 1, Grade 2 and Grade 3 as given in Table 1.

5 REQUIREMENTS

5.1 The material shall comply with the requirements given in Table 1 when tested in accordance with the methods specified in relevant Indian Standards.

5.2 Fineness The fineness of all three grades of pitch powder shall conform to the requirement specified in Table 2.

6 SAMPLING

Representative samples of the material shall be drawn as specified in IS 436 (Part I/Section 1)

7 PACKING

The material shall be supplied in polyethylene lined HDPE bags containing 50 kg of material.

8 MARKING

8.1 Each bag shall be clearly marked with the following information:

a) Name and grade of the material,

- b) Quantity,
- c) Batch No.,
- d) Date of manufacturing,
- e) Indication of the source of manufacture; and

8.2 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the Bureau of Indian Standards Act, 2016 and the Rules and Regulations framed there under, and the bag may also be marked with the Standard Mark.

Table 1 Physical Requirements of Pitch Powder (Clauses 4.1 and 5.1)					
Sl No.	Characteristic	Requirement for			IS Reference for Method of Test
		Grade 1	Grade 2	Grade 3	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Softening point (°C), <i>Min</i>	130	125	120	IS 1205
ii)	Volatile matter, Percent, <i>Min</i>	48	52	57	IS 1220
iii)	Ash, percent, <i>Max</i>	0.4	0.5	0.8	IS 1217
iv)	Carbon, percent, <i>Min</i>	36	30	27	IS 1215

Table 2 Fineness of All Three Grades of Pitch Powder (Clause 5.2)			
	Percentage Weight of Material to Pass Through IS Sieve		
Fine	500 micron	350 micron	212 micron
Medium	100 percent	90 percent	80 percent
	90 percent	80 percent	70 percent