Draft *Indian Standard*

FOUNDRY PARTING AGENTS – SPECIFICATION

(*Second Revision of* IS 8250)

FOREWARD

This Indian Standard (Second Revision) is to be adopted by the Bureau of Indian Standards, after the draft finalized by the Foundry and steel casting Sectional Committee has been approved by Metallurgical Engineering Metals Division Council.

This standard was first published in 1976 and first revision of this standard was done in 1988. In the first revision, the requirements of proprietory parting agents like proprietory powders liquid based on mineral oils and liquid based on solvents and containing fillers to impart lubricity to the pattern/core box surface have been included.

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) Amendment no. 1 July 1995 has been incorporated. Accordingly, requirement of Soap Stone Powder at clause 6.1 has been modified.
b) Clause 8.1 on Marking has been modified and Clause 8.2 on BIS certification marking has been added.

Parting agents are used in foundries for easy release of moulds and cores from pattern equipment and core boxes Different types of liquid or powder agents are used depending upon the process being employed It is felt that this standard will be of great assistance to the foundries to enable them to check the quality of the parting agents

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*)". The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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FOUNDRY PARTING AGENTS – SPECIFICATION

(*Second Revision)*

1. SCOPE– This standard covers the requirements of soap stone powder, graphite powder, silicone release agents and proprietary agents

2. REFERENCES

The standards listed below contain provisions, which through references in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below;

IS No.	Title
1387 : 1993	General requirements for the supply of metallurgical materials (*Second Revision*)
1305 : 1984	Specification for graphite for use in foundry coatings (*Third Revision*)

3. SUPPLY OF MATERIAL— General requirements relating to supply of release agents for foundries shall be as laid down in IS 1387 General requirements for the supply of metallurgical materials (first revision)

4. CLASSIFICATION— On the basis of the foundry sand practice employed the parting agents shall be classified as follows

a) Green Sand Practice

1) Kerosene oil either as such or blended with graphite powder paraffin wax or stearates.

2) Dry powder like soap stone or graphite powder,

3) Proprietary liquids based on mineral oils with flash point in the range of 38 to 41°C.

4) Proprietary liquids with flash point in the range of 49 to 52 C, and

5) Proprietary powder lubricants,

b) Dry Sand Practice— Dry powders like soap stone graphite, fine silica or proprietary powder lubricants,

c) Shell and Hot Box Practice — Mineral oil based or water based silicone solution; and

d) No bake Process and Co, Process — Proprietary solvent based lubricants containing fillers may be used, if felt necessary

5 MANUFACTURE

5.1 Soap stone powder shall be manufactured by pulverizing natural soap stone mineral.

5.2 Graphite powder shall be manufactured by pulverizing natural flaky graphite of required purity or benehciation of low grade natural graphite powder.

5.3 Silicone release agent (oil base) shall be prepared by thoroughly mixing the required quantities of pure silicone fluid and mineral turpentine/kerosene oil Water base silicone release agent shall be prepared by dilution of silicone emulsion with water

6. REQUIREMENTS

6.1Soap Stone Powder ─ The material shall be offwhite or cream colour having a very smooth and slippery feel The material shall pass completely through 75 micron IS sieve

The material shall be predommently magnesium silicate base soap stone mineral The chemical composition shall be as agreed to heiween the buyer and the purchaser and it shall be compatible with the chemical composition of naturally occurring soap stone ’

6 2Graphite Powder — The material shall have the characteristic smooth and slippery feel of natural graphite The requirements for the fixed carbon content shall conform to Grade 3 of IS 1305 Specification for graphite use in foundry coatings (*third revision*) (66 percent Min) The non-carbonaceous matter shall be predominantly micaceous which does not very much reduce the smooth feel of the graphite The material shall completely pass through 150 micron IS Sieve

6 3 Silicone release agent (mineral turpentine base) shall meet the following requirements

a) Silicone content (obtained as residue on distillation up to 250°C) shall be 5 percent, minimum

b) Boiling range of base material shall be between 120 and 230°C

c) Specific gravity of distillate (base material) shall be between 0.78 and 0.783 at 15°C, and

d) Specific gravity of the release agent shall be between 0.788 and 0 /92 at 15°C

Note — Mineral turpendine base is preferred over kerosene base because of its improved performance with regard to soot deposit in the core boxes and fumes.

6.4 Silicone release agent (water base) shall contain at least 5 percent dimethyl silicone fluid in a non-fugitive and primarily non-ionic water emulsion The emulsion should be so designed that a carbonaceous or rubbery deposit shall not form on core boxes after continuous use up to one week.

6.5 Proprietary Parting Agents

6.5.1 Proprietary powders/lubricants — The lubricants shall have bulk density in the range of 1 04 to 1 08 g/cm2

6.5.2 Proprietary solvent based parting agents with fillers — Minimum filler content - 12 percent air drying time 30 minutes

6.5.3*Proprietary liquid parting agents* (*Grade 1*)

Sl. No.	Parameter	Specified requirement
1	Flash point	38 to 41°C
2	Ash	0.1 percent, Max

6.5.4*Proprietary liquid parting agents* (*Grade 2*)

Sl. No.	Parameter	Specified requirement
1	Flash point	49 to 52°C
2	Ash	0.1 percent, Max

7. PACKING

7 1 Soap stone powder and graphite powder shall be packed in polythene lined gunny bags of 50 kg capacity Silicone release agent shall be packed in either 50-litre or 200-litre capacity steel drums These may also be supplied in concentrated form in 5 litre or 20-litre containers to be diluted at the consumers end by mineral turpentine or water.

7.2 Proprietary powder lubricants shall be packed in 50 kg polythene lined bags

7.3 Proprietory solvent base lubricants shall be packed in 20 litre stoppered polythene carboys

7.4 Proprietary liquid parting agents. Grade 1 and Grade 2 shall be packed either in 35 or 50 litres containers or 200-litre drums

8. MARKING

8.1 The bags/container containing Foundry parting agent shall be clearly marked with the following:

a) Indication of the source of manufacture;

b) Quantity;

c) Batch Number;

d) Date of manufacture; and

e) Shelf life, as applicable.

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 thereunder, and the products may be marked with the Standard Mark.