भारतीय मानक **IS 6461 (Part 2) : 2024**

Indian Standard

सीमेंट कंक्रीट — पारिभाषिक शब्दावली

भाग 2 सामग्री (सीमेंट और एग्रीगेट के अलावा)

(पहला पुनरीक्षण)

Cement Concrete — Glossary of Terms

Part 2 Materials (Other than Cement and Aggregate)

(First Revision)

ICS 01.040.91

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Cement and Concrete Sectional Committee, CED 02

FOREWORD

This Indian Standard (Part 2) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Cement and Concrete Sectional Committee had been approved by the Civil Engineering Division Council.

Cement concrete is one of the most versatile and extensively used building materials in all civil engineering constructions. There are a number of technical terms connected with the basic materials for concrete as well as the production and use of concrete which quite often require clarification to give precise meaning to the stipulations in the standard specifications, codes of practices and other technical documents. Based on this necessity and to standardize the various terms and definitions used in cement and concrete technology, this standard was published in 12 parts.

The other parts in the series are:

Part 1 Concrete aggregates

Part 3 Concrete reinforcement

Part 4 Types of concrete

Part 5 Formwork for concrete

Part 6 Equipment, tools and plant

Part 7 Mixing, laying, compaction, curing and other construction aspects

Part 8 Properties of concrete

Part 9 Structural aspects

Part 10 Tests and testing apparatus

Part 11 Prestressed concrete

Part 12 Miscellaneous terms

In addition to the above, the terminology relating to hydraulic cement and pozzolanic materials are separately covered in IS 4845 and IS 4305.

This standard was first published in 1972. This revision was taken up to incorporate the modifications found necessary in the light of experience gained in its use and also to bring it in line with the latest development on the subject.

In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from the following publications:

BS 6100-9 : 2007 ‘Building and civil engineering — Vocabulary — Part 9: Work with concrete and plaster’, British Standards Institution

ASTM C125 : 2021 ‘Standard terminology relating to concrete and concrete aggregates’, American Society for Testing and Materials (Revision 21A)

ACI CT-23 : 2023 ‘Concrete terminology’, American Concrete Institute

ACI 617 : 1968 ‘Recommended practice for concrete formwork’, American Concrete Institute

(*Continued on third cover*)

Indian Standard

CEMENT CONCRETE — GLOSSARY OF TERMS

PART 2 MATERIALS (OTHER THAN CEMENT AND AGGREGATE)

(First Revision)

1 SCOPE

This standard (Part 2) covers definitions of terms relating to materials (other than cement and aggregates).

2 REFERENCES

The standards given below contain provisions which through reference 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 edition of these standards:

IS No.	*Title*
IS 4305 : 1967	Glossary of terms relating to pozzolana
IS 4845 : 1968	Definitions and terminology relating to hydraulic cement
IS 9103 : 1999	Concrete admixtures — Specification (*first revision*)
IS 15388 : 2003	Silica fume — Specification
IS 16714 : 2018	Ground granulated blast furnace slag for use in cement, mortar and concrete — Specification
IS 16715 : 2018	Ultrafine ground granulated blast furnace slag — Specification

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Accelerator — A substance which, when added to concrete, mortar, or grout, increases the rate of hydration of a hydraulic cement, shortens the time of set, or increases the rate of hardening or strength development.

3.2 Addition — A material that is interground or blended in limited amounts into a hydraulic cement during manufacture either as a ‘processing addition’ to aid in manufacturing and handling the cement or as a functional addition to modify the use properties of the finished product.

3.3 Additive — *See* 3.2.

3.4 Admixture — A material other than water, aggregates, and hydraulic cement, used as an ingredient of concrete or mortar, and added to the batch immediately before or during its mixing to modify one or more of the properties of concrete. Also refer IS 9103.

3.5 Air-Entraining — The capability of a material or process to develop a system of minute bubbles of air in cement paste, mortar, or concrete.

3.6 Air-Entraining Agent — An addition for hydraulic cement or an admixture for concrete or mortar which causes air to be incorporated in the form of minute bubbles in the concrete or mortar during mixing, usually to increase its workability and frost resistance.

3.7 Air-Entraining Hydraulic Cement — Hydraulic cement containing an air-entraining addition in such amount as to cause the product to entrain air in mortar within specified limits.

3.8 Alabaster — A massive densely crystalline, softly textured form of practically pure gypsum.

3.9 Alkyl Aryl Sulfonate — Synthetic detergent from petroleum fractions.

3.10 Barite — A mineral, barium sulphate ($BaSO_4$), used in pure or impure form as concrete aggregate primarily for the construction of high density radiation shielding concrete.

3.11 Bonding Agent — A substance applied to a suitable substrate to create a bond between it and a succeeding layer as between a subsurface and a terrazzo topping or a succeeding plaster application.

3.12 Breeze — Usually cinder; also fine divided material from coke production.

3.13 Brown Oxide — A brown mineral pigment having an iron oxide content between 28 percent and 95 percent.

3.14 Carbon Black — A finely divided amorphous carbon used to colour concrete; produced by burning natural gas in supply of air insufficient for combustion; characterized by a high oil absorption and a low specific gravity.

3.15 Catalyst (or Promoter) — A substance that accelerates or causes a chemical reaction without itself being transformed by the reaction (*see also* 3.1).

3.16 Cement Paste — A mixture of cement and water; may be either hardened or unhardened.

3.17 Compound, Joint Sealing — An impervious material used to fill joints in pavements or structures.

3.18 Compound, Sealing — An impervious material applied as a coating or to fill joints or cracks in concrete or mortar.

3.19 Compound, Waterproofing — Material used to impart water repellency to a structure or a construction unit.

3.20 Densified Silica Fume — Silica fume that has been treated to increase the bulk density by particle agglomeration. The bulk density typically being above 500 kg/m^3.

3.21 Dispersing Agent — An addition or admixture capable of increasing the fluidity of pastes, mortars, or concrete by reduction of interparticle attraction.

3.22 Filler

a) Finely divided inert material, such as pulverized limestone, silica, or colloidal substances sometimes added to Portland cement paint or other materials to reduce shrinkage, improve workability, or act as an extender; and

b) Material used to fill an opening in a form.

3.23 Flay Promoter — Substance added to coating to enhance brushability, flow and levelling.

3.24 Fluosilicate — A salt, usually of magnesium or zinc, used on concrete as a surface-hardening agent.

3.25 Fly Ash — A finely divided residue that results from the combustion of ground or pulverized coal and is transported from boilers by flue gases and collected by cyclone separation or electrostatic precipitation.

3.26 Granulated Blast Furnace Slag — A non-metallic product consisting essentially of glass containing silicates and alumino-silicates of lime and other bases, which is developed simultaneously with iron in blast furnace. Granulated blast furnace slag is obtained by further processing the molten slag by rapidly chilling or quenching with water or steam.

3.27 Ground Granulated Blast Furnace Slag — Granulated blast furnace slag duly ground so as to meet the requirements of IS 16714.

3.28 Grout — A cementitious mixture with or without aggregate or admixtures that is used primarily to fill voids.

3.29 Hardener

a) A chemical (including certain fluosilicates or sodium silicate) applied to concrete floors to reduce wear and dusting; and

b) In a two-component adhesive or coating, the chemical component which causes the resin component to cure.

3.30 Metakaoline — Metakaoline having fineness between 700 m^2/kg to 900 m^2/kg may be used as pozzolanic material in concrete.

NOTE — Metakaoline is obtained by calcination of pure or refined kaolintic clay at a temperature between 650 °C and 850 °C, followed by grinding to achieve a fineness of 700 m^2/kg to 900 m^2/kg. The resulting material has high pozzolanicity.

3.31 Plasticizer — A material that increases plasticity of a cement paste, mortar, or concrete mixture.

3.32 Preformed Foam — Foam produced in a foam generator prior to introduction of the foam into a mixer with other ingredients to produce cellular concrete.

3.33 Pumice — A highly porous and vesicular lava usually of relatively high silica content composed largely of glass drawn into approximately parallel or loosely entwined fibres, which themselves contain sealed vehicles.

3.34 Resin — A natural or synthetic, solid or semisolid organic material of indefinite and often high molecular weight having a tendency to flow under stress, usually has a softening or melting range and usually fractures conchoidally.

3.35 Retarder — An admixture which delays the setting of cement paste, and hence of mixtures, such as mortar or concrete containing cement.

3.36 Rotary Screen — Revolving cylinder of perforated metal, that has its axis inclined at a slight

angle to the horizontal used for screening aggregates.

3.37 Silica Fumes — Very fine pozzolanic material, composed mostly of amorphous silica produced by electric arc furnaces as a byproduct of the production of elemental silicon or ferro-silicon alloys as per IS 15388.

3.38 Silica Fume in Natural State — Silica fume taken directly from the collection filter. The bulk density typically being in the range of 150 kg/m^3 to 350 kg/m^3.

3.39 Silica Fume Slurry — A homogenous, liquid suspension of silica fume particles in water, typically with a dry content of 50 percent by mass, corresponding to about 700 kg/m^3 of silica fume.

3.40 Superplasticizers — An admixture for mortar or concrete which imparts very high workability or allows a large decrease in water content for a given workability.

3.41 Ultrafine Ground Granulated Blast Furnace Slag — Granulated blast furnace slag duly ground and classified to specified particle size distribution so as to meet the requirements of IS 16715.

3.42 Waterproofed Cement — Cement interground with a water repellent material such as calcium stearate.

3.43 Water-Reducing Agent — A material which either increases workability of freshly mixed mortar or concrete without increasing water content or maintains workability with a reduced amount of water.

3.44 Water-Repellent Cement — A hydraulic cement having a water repellent agent added during the process of manufacture, with the intention of resisting the absorption of water by then concrete or mortar.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Cement and Concrete Sectional Committee, CED 02

Organization	*Representative(s)*
In Personal Capacity (*Grace Villa, Kadamankulam PO, Thiruvalla - 689583*)	SHRI JOSE KURIAN **(*Chairperson*)**
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(*Continued from second cover*)

The composition of the Committee responsible for formulation of this standard is given in Annex A.

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 periodically removed to create more space for the future falling blocks.

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