

## Glossary – Notation

<b>BSE</b>	BackScattered Electron
<b>C<sub>3</sub>S</b>	Tricalcium silicate – $3\text{CaO}\cdot\text{SiO}_2$
<b>CH</b>	Calcium hydroxide, portlandite – $\text{Ca}(\text{OH})_2$
<b>CSH</b>	Calcium silicate hydrate – $\text{CaO}\cdot\text{SiO}_2\cdot\text{H}_2\text{O}$
<b>OPC</b>	Ordinary Portland Cement
<b>S/S</b>	Solidification/Stabilization
<b>SEM</b>	Scanning Electron Microscopy
<b>TGA</b>	Thermogravimetric Analysis
<b>W/C</b>	Water to cement ratio
<b>XRD</b>	X-Ray diffraction

**Blended cements** – Produced by intimately mixing two or more types of cementitious material: primary blending materials are portland cement, ground granulated blast-furnace slag, fly ash, natural pozzolans, and silica fume.

**Calcination** – Chemical reaction from heating limestone obtaining lime by thermal decomposition. A carbon dioxide molecule is liberated from the calcium carbonate to form calcium oxide

**Calcium Silicate Hydrate (CSH)** – Main hydration product in cement and is the primarily responsible for the strength in cement-based materials.

**Cement** – Binding substance that sets and hardens independently, and can bind other materials together.

**Clinker** – Main component in cement resulting from heating a properly proportioned mixture of finely ground raw materials (calcium carbonate, silica, alumina, iron oxide) in a kiln for calcination at  $\sim 1450^\circ\text{C}$ , which can be blended with other materials included in the mix.

**Concrete** – Composite construction material composed of cement (commonly Portland cement), other cementitious materials (SCMs), aggregate (crushed rocks or gravel, plus fine aggregate such as sand), water and chemical admixtures.

**Hazardous wastes** – Waste with substantial or potential threats to public health or to the environment, characterised by its ignitability, reactivity, corrosivity and toxicity.

**Leaching** – process by which some components of a solid material are totally or partially dissolved in a liquid media (normally water) when entering in contact.

**Mortar** – Workable paste that hardens when it sets, resulting in a rigid aggregate structure, and it is usually made from a mixture of sand, a binder such as cement and finally water.

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**Ordinary Portland Cement (OPC)** – The most usually used type of cement resulting from adding gypsum to grounded clinker. It is the basic ingredient of concrete, and about 85% of the mass results from lime and silica.

**Oxyanions** – Chemical compound with the generic formula  $A_xO_y^{z-}$  (A represents a chemical element and O represents an oxygen atom).

**Portlandite (CH)** – Calcium hydroxide it is one among the two main hydration products in cement, together with CSH.

**Puzzolan** – Material that exhibits cementitious properties when combined with portlandite.

**Supplementary Cementitious Materials (SCMs)** – Concrete can contain fly ash, blast furnace slag, silica fume, metakaolin or other pozzolanic materials which are collectively referred to as SCMs. Used in conjunction with portland or blended cement, they contribute to the properties of the hardened concrete.

**Trace elements** – Elements whose presence is quantified below 1 ppm.