

Micrasil®

High activity natural pozzolana for use in high performance concrete

The Product

Micrasil® is a super pozzolanic product produced from a naturally occurring highly active aluminosilicate mineral of volcanic origin. It is only physically processed and brought to a powder form with the mean grain size below 5 µm.

Application

The main application of **Micrasil®** is in both structural and non-structural Portland cement based concrete mixtures with the purpose to increase mechanical properties, durability and resistance to chemical attack (e.g. chlorides and sulphates), suppress the alkali silica reactions and lower the heat of hydration.

Technical Specifications

Chemical Properties (% Wt.)

SiO ₂	71.0 ± 2.0
Al ₂ O ₃	13.7 ± 1.0
Fe ₂ O ₃	1.0 ± 0.5
MgO	0.5 ± 0.3
CaO	0.7 ± 0.3
Available Alkalis	1.2 ± 0.2
L.O.I.	5.0 ± 1.0 *

* Including combined water

Physical Properties

Retained on 45 µm	2.0 Max.
Mean Particle Size	6 µm
Surface Area (N ₂ – BET)	3.0 m ² /g Min.
Loose Bulk Density	400 ± 100 kg/m ³
Specific Gravity	2300 ± 100 kg/m ³
Moisture Content	3.0 % Max

Advantages

- Improved workability and workability retention
- Improved consistency and pumping of concrete
- Reduced stickiness of concrete
- Reduced heat of hydration and related crack formation
- Improved durability by reduction of water permeability, thus Chloride penetration
- Improved mechanical properties
- Reduced cost by reduction of plasticizer dosage
- Compatible with all types of cement, admixtures and other pozzolanic materials

Standard Compliance

Micrasil® complies with various international codes and standard specifications as listed below:

- ASTM C618: Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
- BS EN 197-1: Cement — Part 1: Composition, specifications and conformity criteria for common cements.
- ACI 232-1R: Guide for Use of Raw or Processed Natural Pozzolans in Concrete.
- AASHTO M 295: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as Mineral Admixture in Portland Cement Concrete.
- European Technical Approval according to EN206-1 by DiBT (Germany)



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Typical Application Rate

Micrasil® may reduce the chloride permeability of concrete to safe levels at a replacement rate of 5.0% of total cementitious material. For the purpose of obtaining high mechanical properties in concrete, **Micrasil®** can be used at a replacement rate of 8.0 – 15.0 % of the total cementitious materials. The use of **Micrasil®** in concrete will require admixture to be added but at a less extent than those required by silica fume and this is clearly because water demand of **Micrasil®** is remarkably less. Higher dosages of **Micrasil®** can be added if improving concrete properties is deemed obvious.

Supply and Storage

Micrasil® is supplied by road bulkers of 15 – 20 tons or in jumbo bags. It is recommended to be stored under shelter or in silos.

Micrasil® is not considered as hazardous material and it can be disposed according to the municipality regulations. For more information please refer to the material safety data sheet.

Technical Expertise

Imerys has a well trained staff capable of providing the necessary technical support to customers to achieve the maximum profitable advantage of their concrete with the best cost efficiency.

