COLLOIDAL-SIL™ NS

Colloidal-Sil™ is a series of silica based binders/fillers used in cementing and concreting to impart specific performance benefits. It has shown strong results in both vertical and horizontal works.

COMMON USE CASES INCLUDE

- Nano particle binders that enhance binding in cement admixtures.
- Protective nano-binders for reinforced concrete exposed to corrosive/erosive environments (e.g., saline water).
- Larger-particle silica binders for tunnels and dams to improve water resistance, reduce seepage and strengthen reinforced concrete.
- Remedial works to address seepage and erosion in dams, tunnels, bridges, and similar structures.

FEATURES/ADVANTAGES

- Densifies the C–S–H gel (better particle packing), reducing creep and extending service life.
- Mitigates carbonation by lowering free calcium and its capillary migration to surfaces.
- Nano-fillers occupy micro and nano pores, producing denser, less permeable concrete with improved resistance to chloride and sulphate attack and better compaction resistance.
- Compared with silica fume, nano-silica improves pumpability and reduces segregation; it can also allow binder optimisation in mixes.
- Demonstrated advantages over fumed silica in comparable applications.
- Compatible with fly ash, rice-husk ash and related pozzolans; improves workability and overall performance.
- Excellent additive for recycled concrete (supporting data available).

TYPICAL PRODUCT SPECIFICATIONS

PARAMETER	**GRADE***		
	1416	2930	3940
Active Nano Content (%wt/wt)	14.0-16.0	29.50-30.50	38.50-39.50
pH (20 o C)	9.3-9.6	9.0-10.0	9.4-10.0
Specific Gravity	1.08 to 1.11	1.20-1.22	1.30-1.32

HOW COLLOIDAL-SIL™ HELPS IN CONSTRUCTION

- Early-age strength: mixes with Colloidal-Sil have shown up to ~36% higher early strength (days 1–7) versus reference mixes without it useful for bridges, dams, tunnels, barrages/weirs and similar projects.
- Faster turnaround: reduced moulding/stripping times in concrete roadworks; beneficial for shotcrete and industrial flooring where high early strength is required.
- Durability: increases final strength, lowers chloride-ion permeability, and improves sulphate resistance. A 0.20–0.50% addition has reduced chloride permeability to ~1,700 (vs ~3,400 without Colloidal-Sil), depending on mix design.
- Civil/geo uses: improves watertightness, soil adhesion, stabilisation of loose/unstable slope soils, and concrete hardening valuable in hydropower projects.

Notes: Additional test data and technical papers are available on request. Results here are indicative for general cement/mortar mixes. Users should fine-tune grade and dosage for performance and cost optimization.

CHEMPORT
Specialty Chemical Experts

LIMITED WARRANTY INFORMATION.
PLEASE READ CAREFULLY.

Chemport Pty Ltd provides the information contained in this document in good faith based on the best knowledge available at the time of publication. While we believe the information to be accurate and reliable, it is intended for general guidance only and is provided without warranty of any kind, express or implied.

Users are solely responsible for determining the suitability of this product for their specific application and for ensuring compliance with all relevant regulations, industry standards, and intellectual property rights. The product must not be used in violation of any law, statute, or third-party rights.

Chemport Pty Ltd shall not be liable for any direct, indirect, or consequential loss or damage arising from the use of this product or reliance on the information provided in this document. Users should refer to the current Safety Data Sheet (SDS) and perform their own evaluations, including any necessary testing, to confirm the product's suitability for use in their particular conditions.

This document is subject to revision without notice as new data becomes available.

TECHNICAL SUPPORT
+61294103317
info@chemport.com.au

Suite 2.08
32 Delhi Road
Macquarie Park
NSW 2113
Australia

chemport.com.au

USAGE

Colloidal-Sil™ is supplied as a liquid and is simple to dose. Reduce mix water accordingly and adjust superplasticiser and cement dosages as needed to achieve target workability and strength. Always confirm compatibility within the full admixture package.

PACKAGING

50 Lt. Carboys, 200 lts. Barrels, 1000 Lts. IBC (Tote Tanks)