

NYCO Today

Wollastonite... One Mineral, A World of Applications

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Wollastonite in Cement/Concrete

Wollastonite chemistry (CaSiO_3) will react and bond with Portland Cement.

The acicular or needle-like structure of wollastonite provides improved crack resistance and strength.

The whiteness of the wollastonite is an advantage in white cement systems versus gray fly ash.

A recent published scientific study¹ tested a low aspect ratio wollastonite as a partial substitute of cementitious material (cement and fly ash) or sand in concrete and found the following benefits:

- 35% increase in compressive strength
- 42% increase in flexural strength
- Reduction in water absorption
- Reduction in drying—shrinkage
- Reduction in abrasion loss
- Improved durability against freeze-thaw and sulphate attack

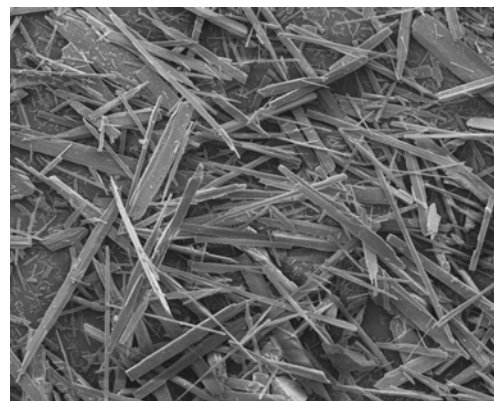
The use of wollastonite as a **super additive** also shows strength and durability improvements:

- 20% increase in compressive strength
- 25% increase in flexural strength
- 30% reduction in expansion from Alkali Silica Reactivity
- Excellent freeze-thaw property
- Maintains shrinkage

¹Mathur, R., Misra A., and Goel, P. (2007). Influence of wollastonite on mechanical properties of concrete. *Journal of Scientific and Industrial Research*, 66, 1029-1034

This data contains general information and describes typical properties only. It is offered for use by persons qualified to determine for themselves the suitability of our products for particular purposes. No guarantee is made or liability assumed, the application of this data and products described herein being at the sole risk of the user. Wollastonite is a naturally occurring mineral, is non-hazardous, and is not regulated by shipping agencies. Based upon toxicological studies, there is no evidence of any significant health risks to workers.

Typical Property	Value
Chemical Composition	CaSiO_3
Appearance	White
Morphology	Acicular
Molecular Weight	116
Specific Gravity	2.9
Refractive Index	1.63
pH (10% Slurry)	9.9
Water Solubility (g/100cc)	0.0095
Density (lbs./cu.ft.)	181
Mohs Hardness	4.5
Coefficient of Expansion (mm/mm/°C)	6.5×10^{-6}
Melting Point (°C)	1540



High Aspect Ratio Wollastonite (x100)

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