

Moisture Conditioning of STALITE

Expanded Lightweight Coarse Aggregate Prior to Batching

The fundamentals of handling aggregate and batching concrete described in ACI 304 and ASTM C 94 (which are followed by most ready mixed concrete plants) apply to Stalite expanded slate lightweight aggregate. However, because of the cellular nature of lightweight aggregates, the absorption is higher than most normalweight aggregates. Therefore, we recommend the following procedures to address the increased absorption of lightweight aggregate.

Stalite expanded slate lightweight aggregate may be moisture conditioned by sprinkling with water to reduce the absorption of mix water from concrete, which can result in loss of slump during mixing and delivery. This is of particular importance when concrete is to be placed by pumping. The 24 hour immersed absorption (from an oven-dry condition) of Stalite is approximately 6%. Because aggregate storage arrangements and water delivery and distribution systems are so variable, it is difficult to give specific recommendations regarding the duration of aggregate preparation by water sprinkling. However, when concrete is to be placed by pumping, we recommend that Stalite have a minimum absorbed moisture content of approximately 6% by mass. The absorbed moisture content is determined by oven drying after removing the visible film of water from the aggregate surface with an absorbent cloth. We recommend that sprinkling be discontinued and the prepared stockpiles then be allowed to drain prior to batching (usually overnight) to avoid excessive surface moisture and to provide more uniform moisture content. It has been our experience that adequate aggregate conditioning by sprinkling with water can usually be achieved in 2 to 4 days.