

BLENDED CEMENTS (TYPE 1L)

BEST PRACTICES QUICK GUIDE



MIX DESIGN & PLACEMENT

- ▶ **Water Demand:** Expect slightly higher water demand and reduced bleeding; strictly control $w/cm \leq 0.45$.
- ▶ **Air Content:** Maintain $6.5 \pm 1.5\%$ entrained air for freeze – thaw durability.
- ▶ **Admixtures:** Adjust water reducers, accelerators, or retarders as needed—trial batches strongly recommended.
- ▶ **Placement Timing:** Anticipate variable set times and plan for proper manpower/equipment.

FINISHING

- ▶ **Window of Finishability:** Type 1L often has a shorter and less predictable finishing window.
- ▶ **Avoid Overworking:** Delayed bleeding can trap water at the surface, leading to delamination.
- ▶ **Finishing Aids:** Use colloidal silica products (e.g., Day 1, E5, etc.) to reduce crusting, improve surface density, and extend workability.
- ▶ **Evaporation Retarders:** Use evaporation retarder products to reduce plastic shrinkage cracking, rapid evaporation on the concrete surface
- ▶ **Weather Sensitivity:** More prone to plastic shrinkage and crusting—monitor evaporation rate (stay below 0.2 lb/ft²/hr).



CURING

- ▶ **Start Immediately:** Apply curing methods as soon as final finishing is complete—do not wait for bleed water.
- ▶ **ACI 308 Guidance:** Initial, intermediate, and final curing should all be planned.
- ▶ **Methods:** Use curing compounds (ASTM C309 or C1315 compliant), wet curing, or coverings. Ensure continuous, uniform coverage.
- ▶ **Duration:** Maintain curing until at least 70% of design strength is achieved (often 7+ days depending on conditions).

SEALING & LONG-TERM PROTECTION

- ▶ **Cure-then-Seal Sequence:** For best durability, apply a curing compound first, then follow up with a penetrating sealer (silane/siloxane, $\geq 40\%$ solids) ~45 days after placement.
- ▶ **Cure-and-Seal Blends:** These provide good curing but only moderate sealing; consider a secondary treatment for improved durability.
- ▶ **Cold-Climate Consideration:** Apply clear penetrating sealer before the first winter season to reduce scaling and spalling risk.

KEY TAKEAWAYS

- ▶ Type 1L cement is not “plug-and-play” with Type I/II practices. Success depends on:
 - ▶ Adjusting mix designs
 - ▶ Monitoring finishing windows closely
 - ▶ Starting curing immediately and maintaining it diligently
 - ▶ Following with a two-step cure-and-seal approach for long-term durability
- ▶ Plan ahead, test locally, and communicate expectations with your supplier to ensure durable, trouble-free concrete.