

Apparatus

1. Sieves:?
2. Mixer, Paddle and Mixing Bowl:?
3. Tamper and Trowel:?
4. Containers:?
5. Oven:?

Reagents and Materials

1. Sodium Hydroxide (NaOH): USP or technical grade. (Na⁺ and OH⁻ concentrations between 0.99N and 1.01N)?
2. Water purity is reagent water conforming to Type IV of ASTM D 1193?
3. Sodium Hydroxide Solution: Each litre contains 40.0 g of NaOH dissolved in 900 mL Of water diluted to 1.0 L of solution with additional water?
4. Control Aggregate: Spratt alkali-silica reactive aggregate from MTO?
5. Reference Cement: Reference Portland Cement from MTO?

Conditioning

1. Molding room temperature and dry materials maintained between 20°C and 27.5°C?
2. Temperature of mix water and moist room (closet) is 23 ± 1.7°C?
3. Relative humidity of moist room (closet) conforms to ASTM C 511?
4. Relative humidity of molding room is not less than 50%?
5. Temperature of oven(solution) for storage of specimens is 80 ± 2.0°C?

Preparation of Test Specimens

1. Aggregate meets gradation requirements of Table 1?

Sieve Size		Mass, %
Passing	Retained	
4.75 mm	2.36 mm	10
2.36 mm	1.18 mm	25
1.18 mm	600 μm	25
600 μm	300 μm	25
300 μm	150 μm	15

1. Cement is passed through 850 μm sieve?
2. Molds are prepared per ASTM C 490, with an acceptable release agent?
3. At least three specimens per cement/aggregate combination?
4. a) Dry materials proportioned 1 part cement to 2.25 parts aggregate, sufficient for 3 bars? ..
b) water / cement ratio shall be 0.44 for natural sands, 0.50 for processed aggregates?
5. Mortar is mixed in accordance with ASTM C 305?
6. Molding time is less than 2 minutes 15 seconds?
7. Specimens molded in 2 layers per section 7.4.5 of method?

Procedure

- 1. Molded samples placed in moist room (cabinet) for 24 ± 2 h?..... _____
- 2. Samples de-molded, identified and measured for initial length (protected from moisture loss) _____
- 3. Samples immersed in tap water, in covered containers, and stored at $80 \pm 2.0^\circ\text{C}$ for 24 h?. _____
- 4. Zero measurements made according to section 8.2?..... _____
- 5. Subsequent readings and storage made according to section 8.3? _____
- 6. If reading exceeds 0.14% @ 14 d, sample stored additional 14 days (1 reading/week)?..... _____
- 7. If reading exceeds 0.30% @ 28 d, sample stored additional 28 days (1 reading/week)?..... _____
- 8. Control sample tested every six months a sample is tested? _____

Comments: