

(c) **Mixing and Delivery.** Maintain concrete temperature after mixing between 50F and 90F for general concrete, and between 50F and 80F for bridge deck concrete. Do not ship concrete exceeding these temperature ranges. Maintain adequate two-way communications between the concrete plant and the work site to provide both uniformity and control of the concrete mixture.

For each truck, ~~transmit the following information to the Inspector-in-Charge at the time of each delivery; furnish a plant delivery slip signed at the plant by the technician or other designated person. Include the following information on the delivery slip:~~

- Contract number, complete state project number or purchase order number.
- The concrete plant supplier code.
- Method of concrete mixing (i.e., central or truck).
- Class of concrete, JMF number, and trial mix number (i.e., trial #1, 2, etc.).
- Number of cubic yards.
- Time of completion of mixing.
- Truck number.
- Number of mixing revolutions, if applicable.
- Total amount of batch water used in each truck (pounds).
- The total weight in pounds of the total cementitious materials.
- The types of additives used in each truck (i.e., water reducer, AEA, retarder, etc.).

~~—Transmit the information required on the Submit the plant delivery slip and~~ batcher-mixer slip [PennDOT Form xxxCS-4220](#) (as specified in AASHTO M 157) to the Inspector-in-Charge. Do not use any concrete until it is approved for use by the Inspector-in-Charge.

Comply with the requirements of AASHTO M 157, except as follows:

- If mixing in a plant, mix for not less than 50 seconds or more than 90 seconds for normal strength concrete, and not less than 70 seconds for HES concrete.
- If mixing in the truck drum at the plant, mix for not less than 70 or more than 125 truck-drum revolutions, at a mixing speed of not less than 6 truck-drum revolutions per minute (rpm) nor more than 18 truck-drum rpm. Upon completion of the designated number of mixing revolutions, reduce the truck-drum speed to not less than 2 rpm or more than 6 rpm. Do not exceed a total of 300 truck-drum revolutions.
- Deliver the mixed concrete to the work site and discharge within 1 1/2 hours after completion of mixing. As an alternative, use a set retarding admixture, listed in Bulletin 15, to extend the initial set time and deliver the mixed concrete to the work site and discharge within ~~two (2)~~ hours after the completion of mixing. Agitate, but do not mix the concrete en-route to the work site.

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- In hot weather, under conditions contributing to quick concrete stiffening, or if the concrete temperature is 80F or above, do not allow the time between completion of mixing and discharge to exceed 1 hour. As an alternative to maintaining the concrete temperature below 80F, use an approved, set retarding admixture to extend the initial set time and enable the mix to remain workable for the full 1 1/2 hours of allowable mixing time.
- If using mixer or agitator trucks, agitate concrete for at least 20 revolutions immediately before placement. Do not use concrete that has exceeded 45 minutes without agitation.
- If wash water is used to clean the truck drum, completely discharge this wash water before the introduction of the succeeding batch.
- Do not allow concrete to come in contact with aluminum unless the aluminum is coated with an acceptable coating (delivery of concrete in an aluminum truck bed is allowed).