

ITEM 526

MEMBRANE CURING

526.1 Description. This item shall consist of curing concrete pavement, concrete base, curbs, curb and gutters, sidewalks, driveways, medians, islands, concrete structures and slope paving, by the impervious membrane method.

526.2 Materials. The membrane curing compound shall comply with the "Standard Specification for Liquid Membrane Curing Compounds, for Curing Concrete", ASTM C309, Type 2. White pigmentation shall be used on concrete paving. Red or clear pigmentation shall be used on structures. The material shall not have a flash point less than 50° F when tested by ASTM Method D56, "Test Method for Flash Point by Tag Closed Cup Tester".

The material shall be of such consistency that it can be satisfactorily applied as a fine mist through an atomizing nozzle by means of approved pressure spraying equipment at atmospheric temperatures above 40°F.

The material shall be of such nature that it will not produce permanent discoloration of concrete surfaces nor react deleteriously with the concrete, or its components.

The compound shall not settle out excessively or cake in the container and shall be capable of being mixed to a uniform consistency by moderate stirring and shall exhibit a daylight reflectance of not less than 60% of that of magnesium oxide, when tested in accordance with ASTM Method E1347, "Test Method for Color and Color-Difference Measurement by Tristimulus (Filter) Colorimetry".

The compound shall produce a firm, continuous, uniform moisture-impermeable film, free from pinholes and shall adhere satisfactorily to the surfaces of damp concrete. It shall, when applied to the damp concrete at the rate specified by the manufacturer, dry to touch in not more than 4 hours and shall not be tacky or track off concrete after 12 hours. It shall be a tenacious film without running off or appreciably sagging. The compound shall not disintegrate, check, peel, or crack during the required curing period. The compound shall not peel or pickup under traffic and shall disappear from the surface of the concrete by gradual disintegration.

The compound shall be delivered to the job only in the manufacturer's original containers, which shall be clearly labeled with the manufacturer's name, the trade name of the material and a batch number or symbol with which test samples may be correlated. The permissible percentage moisture loss when tested for water retention by ASTM Method C156, "Test Method for Water Retention by Concrete Curing Materials" shall not exceed:

24 hours after application 2 percent

72 hours after application 4 percent

Construction Methods. Keep the concrete pavement surface from drying until the curing material has been applied. The membrane curing compound shall be applied after the surface finishing has been completed and immediately after the free surface moisture has disappeared. The surface shall be sealed with two uniform coatings of the specified type of curing compound applied at an individual application rate of 1 gallon per 180 square feet of area. The Contractor shall provide satisfactory means and facilities to properly control and check the rate of application of the compound. Use a towel or absorptive fabric to remove any standing water that may be present on the surface before applying the curing compound. Apply the first coat within 10 minutes after completing texturing operations. Apply the second coat within 30 minutes after completing texturing operations.

The compound shall be thoroughly agitated during its use and shall be applied by means of approved mechanical power pressure sprayers. The sprayers used to apply the membrane to concrete pavement shall travel at a uniform speed and be mechanically driven. The equipment will be of such design that it will ensure uniform and even application of the membrane material. The sprayers shall be equipped with satisfactory atomizing nozzles. Only on small miscellaneous items will the contractor be permitted to use hand-powered spraying equipment. For all spraying equipment, the contractor shall provide facilities to prevent the loss of the compound between the nozzle and the concrete surface during the spraying operations.

The compounds shall not be applied to a dry surface and if the concrete has become dry, it shall be thoroughly moistened prior to application of membrane by fogging or moist application. Sprinkling or coarse spraying will not be allowed.

At locations where the coating shows discontinuities, pinholes or other defects, or if rain falls on the newly coated surface before the film has dried sufficiently to resist damage, an additional coat of the compound shall be applied immediately at the same rate of coverage specified herein.

To insure proper coverage, the Engineer shall inspect all treated areas after application of the compounds for the period of time designated in the governing specification for curing, either for membrane curing or for other methods. Dry areas are identifiable because of the lighter color of dry concrete as compared to damp concrete. All suspected areas shall be tested by placing a few drops of water on the suspected areas. If the water stands in rounded beads of small pools which can be blown along the surface of the concrete without wetting the surface, the water impervious film is present. If the water wets the surface of the concrete as determined by obvious darkening of the surface, or by visible soaking into the surface, no water impervious film is present. Should the foregoing test indicate that any area, during the curing period is not protected by the required water impervious film, an additional coat or coats of the compound shall be applied

immediately, and the rate of application of the membrane compound shall be increased until all areas are uniformly covered by the required water impervious film.

When temperatures are such as to warrant protection against freezing, curing by this method shall be supplemented with an approved insulating material capable of protecting the concrete for the specified curing period.

If at any time there is a reason to believe that this method of curing is unsatisfactory or is detrimental to the work, the Contractor, when notified, shall immediately cease the use of this method and shall change to curing by one of the other methods specified e.g. use of burlap polyethylene material or cotton mats or burlap mats with polyethylene sheeting, in close contact with the concrete surfaces as approved by the Engineer.

526.4 Submittal Required. The contractor shall submit the vendor's data for the curing compound to be used for Engineer's approval. He shall also submit the manufacturer's recommended method of application.

526.5 Measurement & Payment. Work and materials prescribed herein will not be paid for directly but shall be included in the unit price bid for the items of construction in which those materials are used.

END OF ITEM 526