STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION 828
EPOXY PAVEMENT MARKING

December 14, 2000

828.01 Description. This work shall consist of furnishing and applying epoxy pavement markings in accordance with 641, 740 and the additional requirements described herein.

The epoxy material and installation shall be in compliance with all the applicable EPA and local environmental regulations.

In general, the marking material shall consist of four components: Part A (White or Yellow), Part B, Size I Glass Beads, and Size II Glass Beads, as described below.

828.02 Epoxy Pavement Marking Material. Epoxy pavement markings shall be prequalified in accordance with Supplement 1047. Material supplied shall be a two-part epoxy system capable of being applied at ambient temperature down to 10°C (50°F). The material shall be capable of retaining reflective glass beads of the drop-on type or spray-on type.

Epoxy shall comply with the following requirements:

a. Formulation: The epoxy shall be formulated as a Long Life Pavement Marking System, capable of providing a minimum of 4 years of performance, free of any peroxides. The epoxy should be designed to provide simple volumetric mixing ratio of its components (such as 2:1) .

b. Epoxide Number: The epoxide number of the epoxy resin shall be manufacturer target value ± 0.05 as determined by ASTM D 1652 for both white and yellow Part A on a pigment free basis.

c. Amine Number: The amine number of the curing agent (Part B) shall be manufacturer target

value ± 50 as per ASTM D 2074 on a pigment free basis.

d. Toxicity: Upon heating to application temperature, the material shall not exude fumes which are toxic or injurious to persons or property. After curing the materials should be completely inert with all components fully reacted and environmentally safe.

e. Drying Time (Laboratory): The pavement marking material, when mixed in the proper ratio and applied at the properly prescribed wet film thickness at 24°C ±0.5°C (75°F ±2°F) and with the proper saturation of glass beads, shall exhibit a no tracking time of no greater than 40-45 minutes when tested according to ASTM D 711.

f. Drying Time (field): The pavement marking material shall have a setting time to a no-tracking condition of not more than 35 minutes. The line must be protected from tracking during the setting period by coning off or as specified in the plans.

g. Curing: The epoxy pavement marking material shall be capable of fully curing at a constant surface temperature of 7°C (45°F) or above.

h. Adhesion to Pavement(Portland Cement Concrete and Asphalt): The cured pavement marking materials, when tested according to ACI Method 503, shall have such a high degree of adhesion to the specified Portland cement concrete [compressive strength, 27,000 kPa (4,000 PSI) minimum] or asphalt surface such that there shall be a 100 percent substrate failure in the performance of this test. The prepared specimens shall be conditioned at room temperature 24°C ±0.5°C (75°F ±2°F) for a minimum of 24 hours and a maximum of 72 hours prior to the performance of the indicated test

i. Hardness: The epoxy pavement marking materials, when tested according to ASTM D 224, shall have a Shore D Hardness of between 70 and 90. Samples shall be allowed to cure at room temperature 24°C ±0 .5°C (75°F ±2°F) for a minimum of 24 hours and a maximum of 72 hours prior to performing the indicated test.

j. Tensile Strength: When tested in accordance with ASTM D 638, the epoxy pavement marking materials shall have a tensile strength of not less than 34,000 kPa (5,000 psi). The Type IV specimens shall be cast in a suitable mold and pulled at a rate of 6 mm (1/4 inch) per minute, by a suitable dynamic testing machine. The samples shall be allowed to cure at room temperature 24°C ± 0.5°C (75°F ±2°F) for a minimum of 24 hours and a maximum of 72 hours prior to performing the indicated test.

k. Compressive Resistance: When tested according to ASTM D 695, a catalyzed epoxy pavement marking materials shall have a compressive strength of not less than 83,000 kPa (12,000 psi). The cast sample shall be conditioned at room temperature 24°C ±0.5°C (75°F ±2°F) for a minimum of 72 hours before performing the indicated test. The rate of compression for these samples shall be no more than 6 mm (1/4 inch) per minute.

l. Abrasion Resistance: The abrasion resistance shall be evaluated on a Taber Abrader with a 1.0