

**STATE OF OHIO
DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENTAL SPECIFICATION 873
WET REFLECTIVE REMOVABLE TAPE**

October 30, 2003

873.01	Description
873.02	Prequalification
873.03	Material Requirements
873.04	Installation
873.05	Acceptability and Expected Duration
873.06	Method of Measurement
873.07	Basis of Payment

873.01 Description. This Supplemental Specification describes the minimum acceptable design and performance requirements for Wet Reflective Removable Tape.

873.02 Prequalification. Furnish Wet Reflective Removable Tape prequalified according to Supplement 1085.

873.03 Material Requirements. Furnish Wet Reflective Removable Tape that conforms to the following criteria:

A. General

1. The tape consists of white or yellow retroreflective film on a conformable backing.
2. The tape is capable of being installed on asphalt concrete or portland cement concrete at temperatures as low as 50° F (10° C) in accordance with the manufacturer's recommendations. Use a surface preparation adhesive recommended by the manufacturer for all applications to improve initial and long term adhesion.
3. The tape is capable of being installed for up to one year after the date of purchase.
4. The tape is designed and constructed in such a manner that it can be readily removed when the markings are no longer applicable. The tape is capable of performing for the duration of a normal construction season.

B. Composition

1. The tape consists of a highly reflective, enclosed lens white or yellow film with a thin, flexible, conformable backing which is precoated with a pressure sensitive adhesive.

C. Reflectance

1. The white and yellow tapes have the initial minimum reflectance values as shown in Table 1 under dry, wet or rainy conditions at 1.05° observation angle and 88.76° entrance angle. These angles represent a simulated driver viewing geometry at 100 feet (30 m) distance. The photometric quantity to be measured, the coefficient of retroreflected luminance, is expressed as millicandelas per square foot per foot candle [(mcd/ft²)/fc] {millicandelas per square meter per lux [(mcd/m²)/lx]}.

Table 1

	White	Yellow
Retroreflected Luminance (mcd/m ²)/lx	750	450

2. Retroreflectance values are measured under dry conditions in accordance with ASTM D 4061. The angular aperture of both the photoreceptor and light projector is 6 minutes of arc. The geometric center of the sample is the reference center, and the reference axis is perpendicular to the test sample.
3. Retroreflectance values are measured under wet conditions in accordance with ASTM E 1710 using a portable retroreflectometer. Wet retroreflectance values measured under a “condition of continuous wetting” (simulated rain) are in accordance with ASTM E 2176. Wet retroreflectance values measured under a “condition of wetness” are in accordance with ASTM E 2177.

D. Adhesion

1. The manufacturer is required to demonstrate that the properly applied tape adheres to the roadway under climatic and traffic conditions normally encountered in work zones.

E. Removability

1. The tape is removable from asphalt concrete and portland cement concrete intact or in large pieces, at temperatures above 32° F (0° C)

without the use of heat, solvents, grinding or blasting and without permanently scarring the roadway surface.

F. Skid Resistance

1. The surface of the tape, when new, provides an average skid resistance value of 50 BPN when tested according to ASTM E 303.

G. Color

1. The base color of the pavement markings complies with Federal color 595B-33538 for yellow and 595B-37925 for white. To test the pavement marking colors either in the field or in the lab, the color coordinates listed in the following Table 2 [based on CIE 1931 (x,y) Chromaticity Diagram] are used.

Table 2

	x ₁	y ₁	x ₂	y ₂	x ₃	y ₃	x ₄	y ₄
White	0.30	0.31	0.36	0.31	0.36	0.37	0.30	0.37
Yellow	0.44	0.44	0.50	0.44	0.50	0.50	0.44	0.50

2. The appearance of the tape in daylight or under roadway lighting can be determined by measuring the reflection in diffuse conditions. The luminance coefficient in diffuse illumination (Qd) is measured using a portable Qd reflectometer incorporating “30 meter” geometry. Furnish tape with a diffuse illumination (Qd) greater than 130 [(mcd/ft²)/fc] when the tape is newly applied.

The luminance coefficient under diffuse illumination represents the brightness of a road marking as seen by drivers in typical or average daylight or under highway lighting conditions.

873.04 Installation. Apply Wet Reflective Removable Tape to clean, dry surfaces in accordance with the manufacturer’s instructions.

873.05 Acceptability and Expected Duration. Wet Reflective Removable Tape conforms to 614.11.A.

873.06 Method of Measurement. The Department will measure Wet Reflective Removable Tape complete in place in the units designated.

The Department will measure line quantities as the length of the completed stripe, including gaps, intersections and other sections of pavement not normally marked.

873.07 Basis of Payment. The price bid for Wet Reflective Removable Tape includes the cost of furnishing, installing, maintaining and removing the tape.

Payment includes replacement of all Wet Reflective Removable Tape which, in the judgment of the Engineer, fails.

Item	Unit	Description
873	Mile (Kilometer)	Work Zone Lane Line, Class
873	Mile (Kilometer)	Work Zone Center Line, Class
873	Mile (Kilometer)	Work Zone Edge Line, Class I
873	Foot (Meter)	Work Zone Channelizing Line, Class I
873	Foot (Meter)	Work Zone Gore Marking, Class II
873	Foot (Meter)	Work Zone Stop Line, Class I
873	Foot (Meter)	Work Zone Crosswalk Line, Class I
873	Foot (Meter)	Work Zone Dotted Line, Class I