

**STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENT 1049  
REFLECTIVE SIGN SHEETING  
PREQUALIFICATION PROCEDURE  
(730.19, 730.191, 730.192, 730.193)**

**January 17, 2003**

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**1049.01 Description.** This supplement describes the prequalification procedure by which ODOT will establish and maintain a List of Prequalified Reflective Sign Sheeting Materials meeting the requirements of 730.19, 730.191, 730.192 and 730.193 for use by the Ohio Department of Transportation and on contracts administered by ODOT.

**1049.02 Definitions.** The following definitions shall apply.

- a. Item numbers (e.g. 730.19) correspond to sections in the ODOT Construction and Material Specifications.
- b. "ODOT" means the Ohio Department of Transportation.
- c. "Prequalified List" means the List of Prequalified Reflective Sign Sheeting Materials.
- d. "Sheeting" and "Reflective Sheeting" refer to retroreflective materials for use on signs.
- e. "Sign" refers to a traffic control device, including a traffic control sign, construction sign, barricade, vertical panel, drum or delineator.
- f. "NTPEP" means the American Association of State Highway and Transportation Officials' National Transportation Product Evaluation Program.
- g. "Satisfactory Performance" means that the reflective sheeting has not deteriorated due to natural causes, to the extent that the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions, and does not show evidence of failure for reasons stated in Section 1049.07 of this supplement.

**1049.03 Approval.** For a reflective sheeting to be included on the prequalified list, all of the following must be satisfied.

- a. Certification has been received by ODOT indicating that the sheeting manufacturer agrees to abide by the provisions contained in Sections 1049.07 and 1049.08 of this supplement for sheeting purchased by ODOT and for sheeting obtained by ODOT through contracts administered by ODOT.
- b. ODOT has received NTPEP test data indicating that the sheeting has performed satisfactorily in the judgment of ODOT in the laboratory and one year outdoor exposure tests. (NTPEP test data are not required for reflective sheetings contained on the June 1, 1997 prequalified list which have not been modified, and for which ODOT has not experienced a substantial or recurrent failure in the last three years.)
- c. The certification and NTPEP test reports have been reviewed and approved by ODOT.
- d. Opaque and transparent process color inks appropriate for the sheeting are available, as recommended by the sheeting manufacturer. The sheeting manufacturer agrees to abide by the provisions contained in Section 1049.07 of this supplement for areas where recommended inks have been silk-screened onto the manufacturer's reflective sheeting.

**1049.04 Removal from the Prequalified List.** A reflective sheeting will be removed from the prequalified list if the sheeting manufacturer withdraws the test panel on which the one year test results are based from NTPEP prior to the completion of the three year outdoor exposure tests, or the NTPEP two or three year outdoor exposure tests indicate that the sheeting has not performed satisfactorily in the judgment of ODOT. ODOT also may remove a sheeting from the prequalified list if, in ODOT's sole discretion, the sheeting has substantially or recurrently failed to perform satisfactorily in the field.

**1049.05 Reapproval.** A reflective sheeting removed from the prequalified list due to unsatisfactory field performance shall not be returned to the list until the manufacturer identifies the reason for the failure, the problem has been corrected to the satisfaction of ODOT, and restitution has been made to ODOT in accordance with Section 1049.08 of this supplement. Experiences of other States or governmental agencies may be considered in this action.

A reflective sheeting removed from the prequalified list due to unsatisfactory performance in the NTPEP two or three year outdoor exposure tests, or the withdrawal by the manufacturer of a test panel from NTPEP prior to the completion of the three year outdoor exposure tests, shall not be returned to the list until the requirements of Section 1049.03 of this supplement are met.

Use of reflective sheetings returned to the prequalified list may be limited in quantity until field performance can be assured.

**1049.06 Modifications to Prequalified Reflective Sheetings.** It is recognized that manufacturers will occasionally modify certain aspects of their products in an effort to enhance performance, improve durability, reduce costs, or for other similar reasons. Sheeting manufacturers shall notify ODOT whenever modifications are made to products contained on the prequalified list. ODOT will review the changes being made to the material, and, at its sole discretion, decide what action, if any, is appropriate. Appropriate action includes limitation of usage or removal from the prequalified list.

**1049.07 Guarantee for Reflective Sheeting.** The reflective sheeting shall be guaranteed by the manufacturer to be of the best quality and shall be fully fit for the purposes for which it is used, provided that the sheeting is applied by the sign fabricator according to the recommendations of the sheeting manufacturer within one year of the date of delivery, and the electronic cuttable transparent films and process color inks used are appropriate for the sheeting. The reflective sheeting, electronic cuttable films, and silk screened areas on the reflective sheeting, shall be guaranteed for the effective performance life as specified below. The reflective sheeting shall be guaranteed by the reflective sheeting manufacturer when used on a sign in combination with reflective sheeting of another manufacturer.

During the effective performance life, the sheeting shall retain the minimum specific intensity per unit area as described below, and must be free from wrinkles, blisters, alligatoring, peeling, cracking, fading, shrinking, discoloring and delamination, and any other failure which in the opinion of ODOT renders the sheeting or sign fabricated with the sheeting unsuitable for use. The effective performance life begins when the sheeting is used in the fabrication of a sign.

For 730.19 Type G, 730.192 Type H and 730.193 Type J, the sheeting shall retain at least 80 percent of the initial minimum coefficients of retroreflection for the effective performance life of ten years, for white, yellow, blue, red, green, brown, fluorescent yellow-green and fluorescent yellow sheeting. For standard orange and fluorescent orange Type G, Type H and Type J, the sheeting shall retain at least 80 percent of the initial minimum coefficients of retroreflection for the effective performance life of three years.

For 730.191 Type G, Reboundable, the sheeting shall retain at least 80 percent of the initial minimum coefficients of retroreflection for the effective performance life of three years.

All measurements of specific intensity per unit area shall be made in accordance with ASTM E 810, except that a portable retroreflectometer shall be used. Measurements shall be taken at observation and entrance angles of 0.2 degrees and - 4 degrees respectively. Measurements shall be made after the sign is cleaned in accordance with the sheeting manufacturer's recommendations.

For colored signs made with electronic cuttable transparent films and screenprinted transparent colored areas on white Type G, Type H and Type J sheeting, the coefficients

of retroreflection shall not be less than 70 percent of the values for the corresponding colors for Type G, Type H and Type J sheeting, respectively.

**1049.08 Restitution.** In the event of defect or failure of the reflective sheeting within its effective performance life, restitution shall be made by the sheeting manufacturer to ODOT within 90 days after receipt of official notice from ODOT, in accordance with the requirements contained herein.

For white, yellow, blue, red, green, brown, fluorescent yellow-green and fluorescent yellow Type G, Type H and Type J sheeting, if the failure occurs during the effective performance life, new sheeting shall be furnished as restitution in an amount equal to that of the failed sheeting. In addition, if failure occurs within the first seven years of the effective performance life, the sheeting manufacturer shall replace the sign in the field with a new sign at no cost to ODOT for materials and labor. For standard orange and fluorescent orange Type G, Type H and Type J sheeting, if the failure occurs during the effective performance life, new sheeting shall be furnished as restitution in an amount equal to that of the failed sheeting.

For 730.191 Type G, Reboundable, if the failure occurs during the effective performance life, new sheeting shall be furnished as restitution in an amount equal to that of the failed sheeting.