LATEX MODIFIER
M&T Procedure LM-DPS-A

** * This procedure does not purport to address all the safety concerns associated with its use. It's the responsibility of the user of this procedure to establish appropriate health and safety practices and dispose of hazardous materials in an approved manner.*
Latex Modifier is normally tested by NCDOT for Weight per Gallon (Density), pH, and Percent Solids. This procedure describes each of these tests.

References:
Weight per Gallon:
ASTM D-1475 Test Method for Density of Paint,Varnish, Lacquer and Related Products
Percent Solids:
ASTM D-2369 Test Method for Volatile Content of Coatings

Weight per Gallon (Density): A weight per gallon pycnometer is weighed and the weight recorded. A well-mixed latex modifier sample is then poured to the top of the pycnometer and the lid is then carefully pushed down onto the pycnometer, thus forcing the excess product and air out through the hole in the top. The outside of the pycnometer is then wiped clean of any product and weighed. The difference in the weight of the pycnometer plus the product and the weight of the empty pycnometer divided by 10 gives the density of the latex modifier in pounds per gallon.

Specification range for Weight per Gallon: 8.40 – 8.60 lbs/gal

pH: Calibrate the pH meter with 7.00, and 10.00 buffer solutions according to manufacturer's instructions. Fill a 50 mL plastic cup approximately ¾ full with the sample to be tested. Place the pH probe into the sample and swirl while measuring the pH value. Take and record the pH reading when the meter is stable.

Specification range for pH: 9.5 – 11.0 units

Percent Solids: Stir the sample to be analyzed well with a paint stick. Fill a plastic syringe with approximately 3 mL of the sample and record the weight of the full syringe. Add the sample from the syringe to a pre-weighed steel lid containing a bent paper clip (for stirring and breaking the skin of the sample). Record the weight of the empty syringe. The latex sample is then stirred with the paper clip, leaving the clip in the lid throughout the analysis. Place the specimen into a 105° C oven for 1 hour. Remove the lid and sample from the oven, break the skin which should have formed, and replace the sample in the oven for 90 minutes (total drying time is 2.5 hours).
(Continued on next page)

At the end of this period, remove the sample from the oven, allow it to cool completely in a desiccator, and weigh the sample, using an analytical balance. Obtain the percent solids value as follows:

$$\% \text{ Solids} = \frac{(W2 - W1)}{S} \times 100$$

where, W1 = weight of lid
W2 = weight of lid + the dried sample
S = sample weight

Example:

8.1565g (wt. of dried latex + lid)	6.2003g (wt. of syringe + latex)
- 6.7921g (wt. of lid)	- 3.3069g (wt. of empty syringe)
1.3644g (wt. of dried latex)	2.8934 g (wt. of wet latex)

$$\% \text{ Solids} = \frac{1.3644 \text{ g}}{2.8934 \text{ g}} = 0.4716 \times 100 = 47.16 \% \text{ Solids}$$

Specification range for Solids: 46.5 – 49.0%

(Revised by G.D. Roberts 10/04)