

Illinois Modified Test Procedure  
Effective Date: February 28, 2019

Standard Method of Test  
for  
**Automated Extraction of Asphalt Binder from Asphalt Mixtures**

Reference ASTM D8159-18

| <b>AASHTO<br/>Section</b> | <b>Illinois Modification</b>  |
|---------------------------|---|
| 2.1                       | <p>Replace ASTM D979/979M with AASHTO T168<br/>                     Replace ASTM D1461 with AASHTO T110<br/>                     Replace ASTM D1856 with AASHTO R59<br/>                     Replace ASTM D2042 with AASHTO T44<br/>                     Replace ASTM D2172/2172M with IL Modified AASHTO T164<br/>                     Replace ASTM D2872 with AASHTO T240<br/>                     Replace ASTM D3666 with AASHTO R89<br/>                     Replace ASTM D4753 with AASHTO M231<br/>                     Replace ASTM D5444 with AASHTO T30</p>  |
| 5.2                       | <p>Replace the first paragraph with the following:</p> <p>Washing Drum (Fig. 2)—A stainless steel washing drum able to contain the specimen. The cylindrical wall is made of mesh having an aperture of 0.075 mm. The mesh shall be interchangeable and resistant to wear and impacts from the aggregates during the test. The mesh should be maintained and verified according Appendix X1. The drum shall have a closing system (lid). The connection between the parts of the drum and the closing lid will ensure the sealing with regards to fine particles. (Any aperture should be smaller than the mesh filtering grade.)</p> |
| 5.3                       | <p>Replace with the following:</p> <p>Centrifuge Cup (Fig. 3)—A stainless steel cup to collect mineral filler. Centrifuge cup capacity minimum capacity is 200 g. The total estimated mineral filler content passing through the washing drum mesh should not exceed the capacity of the centrifuge cup in order to avoid overflowing into recovery plant.</p> <p>NOTE 3—Centrifuge cup geometry varies; refer to manufacturer for appropriate centrifuge cup specifications.</p>   |
| 6.2                       | <p>Replace with the following:</p> <p>Solvent – One of the following solvents shall be used. No other solvents are approved for use in this procedure. The pH of the solvent shall meet the requirements of the manufacturer and shall be verified according to manufacturer recommendations.</p>   |
| 6.2.1                     | Delete the last two sentences.  |
| 6.2.2                     | Delete the last two sentences.  |

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|--|---|----------------|---------------------------------|----------------|------------|-----|-----|----|---|--|------|----|---|-------------------------------|------|----|---|
| 7.2.1  | <p>Replace with the following:</p> <p>Separate specimen by hand spatula or trowel, then split and reduce specimen to required testing size listed in Table 1 in accordance with Illinois Modified AASHTO T248. If specimen is not able to be separated or split, place specimen in a large, flat pan and warm it in a <math>110 \pm 5^{\circ}\text{C}</math> (<math>230 \pm 9^{\circ}\text{F}</math>) oven only until splitting can be performed.</p> <p>Table 1 Test Specimen Size and Cycles</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Material</th> <th style="text-align: center;">Minimum<br/>Mass of<br/>Sample, g</th> <th style="text-align: center;">Wash<br/>Cycles</th> <th style="text-align: center;">Dry Cycles</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">RAS</td> <td style="text-align: center;">750</td> <td style="text-align: center;">12</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">IL4.75, IL9.5, IL9.5FG,<br/>RAP, FRAP, 9.5SMA</td> <td style="text-align: center;">1250</td> <td style="text-align: center;">10</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">12.5 SMA, IL19.0,<br/>IL19.0FG</td> <td style="text-align: center;">1750</td> <td style="text-align: center;">10</td> <td style="text-align: center;">5</td> </tr> </tbody> </table> <p>NOTE 8—When the mass of the test specimen exceeds the capacity of the equipment used (specifically, the capacity of the centrifuge cup is the limiting factor for sampling in this particular method), the test specimen may be divided into suitable increments, tested, and the masses of each increment combined before calculating the asphalt binder content (Section 9).</p> | Material       | Minimum<br>Mass of<br>Sample, g | Wash<br>Cycles | Dry Cycles | RAS | 750 | 12 | 5 | IL4.75, IL9.5, IL9.5FG,<br>RAP, FRAP, 9.5SMA | 1250 | 10 | 5 | 12.5 SMA, IL19.0,<br>IL19.0FG | 1750 | 10 | 5 |
| Material                                     | Minimum<br>Mass of<br>Sample, g   | Wash<br>Cycles | Dry Cycles                      |                |            |     |     |    |   |  |      |    |   |                               |      |    |   |
| RAS  | 750   | 12             | 5                               |                |            |     |     |    |   |  |      |    |   |                               |      |    |   |
| IL4.75, IL9.5, IL9.5FG,<br>RAP, FRAP, 9.5SMA | 1250  | 10             | 5                               |                |            |     |     |    |   |  |      |    |   |                               |      |    |   |
| 12.5 SMA, IL19.0,<br>IL19.0FG                | 1750  | 10             | 5                               |                |            |     |     |    |   |  |      |    |   |                               |      |    |   |
| 7.2.2  | <p>Replace the last sentence with the following:</p> <p>Constant mass shall be defined as the mass at which further drying does not alter the mass by more than 0.5 g when weighed at 1 hour intervals.</p>   |                |                                 |                |            |     |     |    |   |  |      |    |   |                               |      |    |   |
| 8.7  | <p>Replace with the following:</p> <p>Via the built-in HMI system, set the number of washing and drying cycles in accordance with Table 1.</p>  |                |                                 |                |            |     |     |    |   |  |      |    |   |                               |      |    |   |

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| 8.8.1                 | Replace with the following:<br><br>Start the extraction process in accordance with manufacturer instructions. If the solvent is not running at least light straw or running clear as seen through the inspection window (Fig. 1, #3), continue increasing the number of washing cycles until removal of the binder from the mixture is complete. If the number of wash cycles is greater than Table 1, report the actual number of wash cycles completed. Once the set number of washing cycles is achieved, the drying phase begins automatically. |
| 8.9.2                 | Add the following sentence after the first sentence:<br><br>Brush any remaining aggregate from the washing chamber into the filler cup.   |
| 9.3                   | Add the following:<br><br>Record and calculate M1 – M9 values to the nearest 0.1 g. Calculate the PB to the nearest 0.1%  |

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