DETERMINATION OF BINDER CONTENT FOR ASPHALT MIX

STANDARD

OBJECTIVE
- To determine the binder content in the asphalt mix by cold solvent extraction

APPARATUS
- Centrifuge
- Balance of capacity 500 gram and sensitivity 0.01grams.
- Thermostatically controlled oven with capacity up to 250°C.
- Beaker for collecting extracted material.

PROCEDURE
- Take exactly 500 grams of representative sample and place in the bowl of extraction apparatus (W1).
- Add benzene to the sample until it is completely submerged.
- Dry and weigh the filter paper and place it over the bowl of the extraction apparatus containing the sample (F1).
- Clamp the cover of the bowl tightly.
- Place a beaker under the drainpipe to collect the extract
- Sufficient time (not more than an hour) is allowed for the solvent to disintegrate the sample before running the centrifuge.

Bitumen Extractor.
- Run the centrifuge slowly and then gradually increase the speed to a maximum of 3600 rpm
- Maintain the same speed till the solvent ceases to flow from the drainpipe.
- Run the centrifuge until the bitumen and benzene are drained out completely.
- Stop the machine, remove the cover and add 200ml of benzene to the material in the extraction bowl and the extraction is done in the same process as described above.
- Repeat the same process not less than three times till the extraction is clear and not darker than a light straw colour.
- Collect the material from the bowl of the extraction machine along with the filter paper and dry it to constant weight in the oven at a temperature of 105°C to 110°C and cool to room temperature.
- Weigh the material (W₂) and the filter paper (F₂) separately to an accuracy of 0.01 grams.

CALCULATIONS

\[ W_1 - (W_2 + W_3) \]

- Percentage of binder in the total mix = \[ \frac{W_1 - (W_2 + W_3)}{W_1} \] x 100
  
  \[ W_1 = \text{Weight of sample taken} \]
  
  \[ W_2 = \text{Weight of sample after extraction} \]
  
  \[ W_3 = \text{Increased weight of filter paper (} F_2 - F_1 \text{)} \]

REPORT

- The result obtained shall be reported as the percentage of binder content in the mix to the nearest second decimal.
# CONTENT & GRADATION OF THE MIX

**[I.R.C. : SP :11]**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE OF MIX</th>
<th>DATE OF TESTING</th>
<th>SAMPLED BY</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type of Material tested</th>
<th>Wt. Before Extraction Gms.</th>
<th>Wt. Before Extraction Gms.</th>
<th>Diff. Gms. (A-B)</th>
<th>Total ash in Mix (Frol L)</th>
<th>Bitumen in Mix Gms</th>
<th>Bitumen in Mix E/Av x 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>PER PAPER (OVEN DRIED)</td>
<td></td>
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Measure total Bitumen solution in c.c. record Total solution here

Take 100 c.c. from total solution for correction

<table>
<thead>
<tr>
<th>WEIGHT AFTER WASHED (GMS.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wt. Retained</td>
</tr>
<tr>
<td>% Retained</td>
</tr>
<tr>
<td>% passing</td>
</tr>
<tr>
<td>Limits</td>
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</tbody>
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Approved/Not Approved:

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Client's Representative:  
Contractor's Representative:  
Consultant's Representative: