Loss of Stability test

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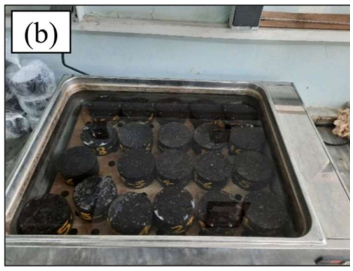
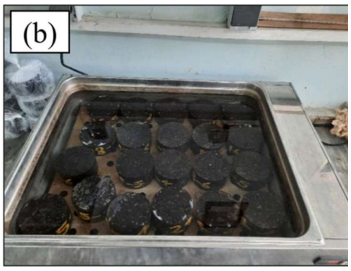
Specimen Sets Loss of Stability test

1. **Set 1: 30-Minute Water Conditioning**
   - *Immerse specimens in water at 60 °C for 30 minutes.*
   - *After 30 minutes, test the stability of the water-conditioned specimens.*
2. **Set 1: 24-hour Water Conditioning**
   - *Immerse specimens in water at 60 °C for 24 hour minutes.*
   - *After 24 hour minutes, test the stability of the water-conditioned specimens*





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Calculation:

- The **Loss of Stability** is determined by comparing the stability values of the 30 min and 24 hour and unconditioned samples, likely using the formula:

$$\text{Loss of Stability (\%)} = \frac{\text{Stability (30 min) - Stability (24 hour)}}{\text{Stability (30 min)}} \times 100$$

Where:

- **Stability (30 min)** is the stability value after 30 minutes of water conditioning.
- **Stability (24 hour)** is the stability value after 24 hours of water conditioning.

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Index of retained strength

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Index of retained strength

Specimen Sets in Index of Retained Strength: Sets

- **Set 1: Dry Specimens**
  - *These specimens are tested in their original, unconditioned state (dry condition).*
  - *They represent the baseline (control) group for the test.*
  - *Compressive strength is measured and recorded as S1.*
- **Set 2: Immersed Specimens**
  - *These specimens are immersed in water at a specified temperature (e.g., 60°C) for a specified time (e.g., 24 hours).*
  - *After immersion, the compressive strength is measured and recorded as S2*

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Index of retained strength (AASHTO T 165-86)

Effect of Water on Cohesion of Compacted Bituminous Mixtures

$$\text{Index of Retained Strength (IRS, \%)} = \frac{\text{Strength of Immersed Specimen } (S_2)}{\text{Strength of Dry Specimen } (S_1)} \times 100$$

Where:

- S_1 = Compressive strength of the dry specimens (unconditioned, Group 1).
- S_2 = Compressive strength of the immersed specimens (water-conditioned, Group 2).

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Marshall stiffness test

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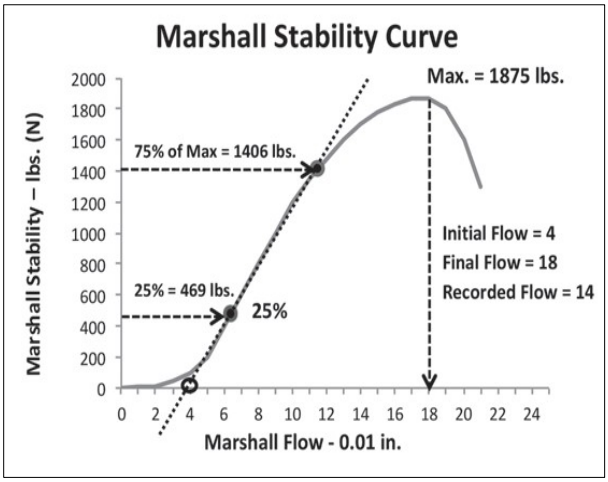
Jordanian National Building council

Stiffness

$$Marshall\ Stiffness = \frac{stability}{flow}$$

$$Marshall\ Stiffness = \frac{850\ kg}{4.5\ mm} = 188\ kg/mm$$



Stability = 1875 ibs =8340 N = 850. Kg

flow = 18 0.01in = 18 0.25mm =4.5 mm

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