Determination of needle penetration – EN 1426

- ✓ For pen < 330 x 0.1 mm:
  - ➢ Temperature 25 °C
  - ➢ Loading duration 5 s
  - ➢ Applied load 100 g
- ✓ Bath filled with distilled water with accuracy ± 0,15 °C
- ✓ Transfer water dish > 350 ml

- ✓ Melt the samples according to EN 12594
- ✓ Fill the sample container up to the appropriate height + 10 mm than the expected pen

- ✓ For pen < 160 x 0.1 mm:
  - ➢ Depth (H_{bs}) & diameter of bituminous sample (D_{bs})
  - ➢ 35 mm ≤ H_{bs} ≤ 60 mm
  - ➢ 55 mm ≤ D_{bs} ≤ 70 mm

- ✓ Leave the sample to cool down at ambient temperature (15 – 30 °C)
- ✓ For depth of samples (H_{bs})
  - ➢ H_{bs} < 45 mm : 60-90 min
  - ➢ 45 < H_{bs} < 60 mm : 90-120 min
- ✓ Place the samples in the bath for a similar period to that for cooling

- Clean the penetration needle with a suitable solvent i.e. toluene
- Insert the needle in the holder

- Place the transfer water dish together with the sample containers on the stand of the penetrometer

- Make sure the temperature remains at 25 °C until the measurements are completed.
- Start the testing 1 min after removing the transfer water dish from the bath

- Slowly lower the needle (or the automatic penetrometer does it for you) until the needle just makes contact with the sample surface
- Release the needle for 5 s
- Carry out at least 3 valid repetitions at points > 10 mm of the sides of the container and from each other

Range of valid determinations:
Max difference of highest-lowest determination :

- 2 for pen ≤ 49
- 4 for 50 ≤ pen ≤ 149
- 6 for 150 ≤ pen ≤ 249

EMIB
Energy & Materials in Infrastructure & Buildings
University of Antwerp

Contact	
Lab manager	Johan Blom
Device manager	Georgios Pipintakos