

NBN EN 126007-1: Rolling Thing Film Oven Test (RTFOT)

General

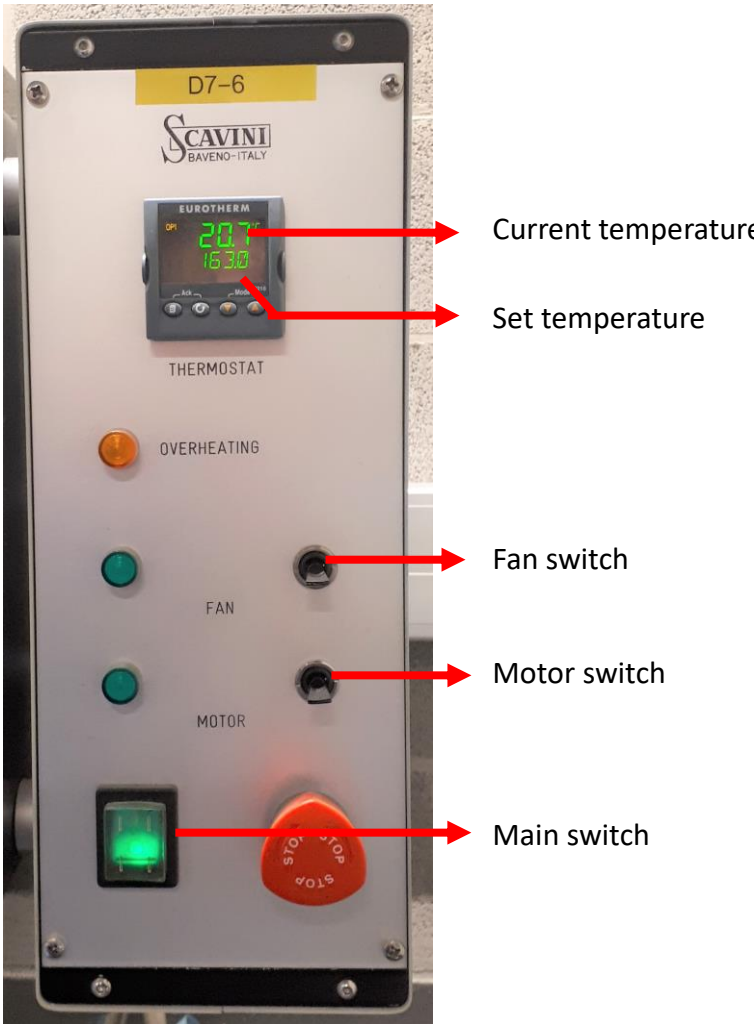
The Rolling Thin Film Oven Test is developed to simulate short-term ageing of bituminous binders in the laboratory. Short-term ageing is ageing due to elevated temperatures of the bituminous mixture during production, transport and paving. The test is described in EN 12607-1 . During the test, the binder is exposed to heat (163°C) and oxygen (4l/min of fresh air) during 75 minutes.

Sample preparation

- Heat a sample of binder until it is liquid enough to pour. Stir the sample to ensure homogeneity and remove air bubbles.
- If a determination of mass change is desired, label two RTFOT bottles and weigh them empty. These are designated as the “mass change” bottles. Record the weights.
- Pour 35±0,5g of binder into each bottle. Immediately after pouring each bottle, turn the bottles on their side without rotating or twisting and place them on a cooling rack.
- Allow all bottles to cool for 60 to 180 minutes.
- After cooling, weigh the two mass change bottles again. Record the weights.

Testing

- Preheat the oven on 163°C (main switch) with a turning fan (fan switch) for at least 1 hour.
- After 1 hour (the oven normally reached 163°C), place the bottles in the rack. If less than 8 bottles are used, distribute the weight evenly. Put empty containers in unused spaces in the rack. Place the leakage containers in the right place.
- Close the oven, start rotation of the sample rack (motor switch) and start the airflow at a rate of 4l/min (open flow meter on the left, check the desired value to reach 4l/min in the latest calibration report).
- From the moment the temperature reaches 163±1°C again, the 75±1 minutes start. If 163°C is not reached within 15 minutes after closing the oven, the test should be stopped.
- End the test after 75 ± 1 minutes and rapidly pour out the bitumen from the bottles in a bin. Scraping with a spatula helps to get the binder out. The standard asks for 90% of the binder to be removed form the container, but from experience it is noticed that approximately 70% removal is more realistic.
- Within 72 hours after the procedure, the change in rheological properties can be measured (PEN, R&B, DSR,...).
- For the determination of mass change: after cooling the two mass change bottles for 60 to 180 minutes, weigh the two bottles again. Record the weights.
- Clean the sample rack, glass and leakage containers. Consult the lab responsible for a check when finished.





1) Always contact the permanence in case of doubt.

2) Personal Protection Equipment



3) Risks



