

Aging - Loss-On-Heat Method - LOH 4 (semi-automatic)

ASTM D 6, EN 13303, IP 45 (obs.), IP 506, JIS K2207, NF T66-011 (obs.), AASHTO T47 (obs.)

Product group(s): Bitumen

User group(s): Asphalt, Bitumen, Tar

Scope: To determine the effects of heat & air during conventional hot-mixing on a thin film of semi-solid bitumen.
The determination of the loss in mass is used to determine the volatility upon heating.
Suitable for bitumen (asphalt), flux oil & bituminous binders.

The effects of heat and air are determined by physical tests measured before and after the oven treatment.

The TFOT & LOH 4 - Semi-Automatic Thin-Film & Loss-On-Heat Oven with different accessories also suitable for:

Therefore a thin film of a sample is heated in an constantly vented oven with a horizontal rotating shelf.

TFOT - Resistance to Hardening (Thin-Film-Oven-Test):

ASTM D 1754 - EN 12 607-2 - IP 460-2:

LOH - Loss in Mass (Loss-on-Heat):

Examine the loss in mass (by analytical balance) and the changed properties (by Viscosity, Penetration, Ductility or Softening-Point).

ASTM D 6 - EN 13 303 - IP 506:

To determine the loss in mass a sample is weighed before and after being heated at a certain temperature for a specified time.

(Requires a shelf with: 4 sample containers (stainless steel, Ø 140 mm x 9.5 mm)

(Requires a shelf with: 9 sample containers (metal, Ø 55 mm x 35 mm).

- for bitumen, flux oil & bituminous compounds
- digital display of temperature with a 1°C resolution
- overheat protection acc. to DIN 12 880 class 2
- venting continuously variable
- multi-purpose use due to removable gratings and motor switch-off



Loss-On-Heat Test Equipment


to be composed of:

- Thin Film & Loss-On-Heat Oven (with or without timer)



Technical Data

<u>Test places:</u>	acc. to the accessories
<u>Temperature max.:</u>	300 °C (resolution: 1°C) (572 °F)
<u>Warming-up rate:</u>	8 - 10 K/min
<u>Air change:</u>	2 m ³ /h continuously variable
<u>Rotating speed:</u>	5- 6 rpm
<u>Dimensions, interior:</u>	403 x 370 x 380 mm (WxDxH), 57 liter
<u>Dimensions:</u>	744 x 535 x 576 mm (WxDxH)
<u>Weight:</u>	50 kg

Main Unit

10-0117	TFOT & LOH 4 - Semi-Automatic Thin-Film & Loss-On-Heat Oven
	<p>Depending on accessories suitable for:</p> <p><u>TFOT - Resistance to Hardening (Thin-Film-Oven-Test):</u> ASTM D 1754 - JIS K2207 EN 12 607-2 (NF T66-047) - IP 460-2</p> <p><u>LOH - Loss in Mass (Loss-On-Heat):</u> ASTM D 6 (AASHTO T 47) - JIS K2207 EN 13 303 (IP 45, NF T66-011) - IP 506</p> <p><u>Consisting of:</u> double-walled electrically heated convection type oven with illuminated stainless steel chamber, door with twin paned observation window (260 x 200 mm), safety thermostat with cut-off limit (thermal safety class 2), electronic PID-temperature controller with Pt-100 temperature probe and digital display of set point & actual values, continuously variable venting, switchable gear-motor assembly with axle (Ø 10 mm) to connect a horizontal rotating shelf.</p> <p><u>Supplied with:</u> 1 thermometer ASTM 13C, 1 thermometer support, 2 removable gratings (W 387 x D 365 mm)</p> <p><u>Note:</u> Test equipment according to the standards has to be ordered separately!</p> <p>Power supply: 220-250 V, 50/60 Hz, 6.5 A, EU-plug</p>
10-0118	TFOT & LOH 4 - Semi-Automatic Thin-Film & Loss-On-Heat Oven
	<p><u>Like 10-0117 but:</u> Power supply: 110-125 V, 50/60 Hz, 13 A</p>
10-1117	TFOT & LOH 4/TI - Semi-Automatic Thin-Film & Loss-On-Heat Oven with Timer
	<p>Depending on accessories suitable for:</p> <p><u>TFOT - Resistance to Hardening (Thin-Film-Oven-Test):</u> ASTM D 1754 - JIS K2207 EN 12 607-2 (NF T66-047) - IP 460-2</p> <p><u>LOH - Loss in Mass (Loss-On-Heat):</u> ASTM D 6 (AASHTO T 47) - JIS K2207 EN 13 303 (IP 45, NF T66-011) - IP 506</p> <p><u>Like TFOT & LOH 4 but additionally with:</u> daily program timer (15 minutes intermittent) and high temperature-resolution (0.1°C)</p> <p>Power supply: 220-250 V, 50/60 Hz, 6.5 A, EU-plug</p>
10-0211	Test Kit - LOH ASTM D 6 (AASHTO T 47) - JIS K2207 EN 13303 (IP 45, NF T66-011) - IP 506
	<p><u>Consisting of:</u> 1 rotating shelf, dual-purpose nickel-plated brass (Ø 266 mm x 3 mm), 9 sample jars LOH, nickel-plated brass (Ø 55 mm x 35 mm), flanged rim</p>

Options & Accessories

	<p>10-0123 Test Kit - LOH & TFOT (Petrotest® modification) ASTM D 6 (AASHTO T 47) - JIS K2207 EN 13 303 (IP 45, NF T66-011) - IP 506</p> <p>and in analogy to ASTM D 1754 - JIS K2207 EN 12 607-2 (NF T66-047) - IP 460-2</p> <p>Consisting of: 1 rotating shelf, dual-purpose nickel-plated brass (Ø 266 mm x 3 mm) 9 sample jars LOH, nickel-plated brass (Ø 55 mm x 35 mm), flanged rim 3 sample dish TFOT, stainless steel (Ø 140 x 9.5 mm), flat-bottom</p>
<p>10-0126</p>	<p>Thermometer ASTM 13C / IP 47C Range: +155 to +170 : 0.5 °C Length: 155 mm, Immersion: total, Ø 6.5 mm</p>
<p>10-0127</p>	<p>Thermometer ASTM 13C / IP 47C Range: +155 to +170 : 0.5 °C (officially certified)</p>
<h3>Spare Parts</h3>	
<p>10-0146</p>	<p>Sample Dish Ø 140 x 9.5 mm (Ø 5 1/2 " x 3/8 "), stainless steel, flat-bottom</p>
<p>18-0066</p>	<p>Sample Jar (Size I), Ø 55 x 35 mm nickel-plated brass, flanged rim (ASTM D 5 - IP 49)</p>
	<p>10-0150 Rotating Shelf - LOH & TFOT nickel-plated brass (Ø 266 mm x 3 mm), dual-purpose, suitable for: 9 LOH-sample jars (18-0066) or 3 TFOT-sample dishes (10-0128 / 10-0146)</p>
<p>10-0222</p>	<p>Thermometer Holder for rotating shelf-axle</p>
<p>10-0242</p>	<p>Grating, chromium-plated steel (2 shelves with supports) Dimensions (W x D): 387 x 365 mm</p>
<p>10-0243</p>	<p>Axle (Ø 10 mm) for rotating shelf</p>
<p>10-0134</p>	<p>Gear-Motor for TFOT & LOH oven with connection-tube for shelf-axle, cable with plug Power supply: 230 V, 50/60 Hz</p>
<p>10-0135</p>	<p>Gear-Motor for TFOT & LOH oven <u>Like 10-0134 but:</u> Power supply: 115 V, 50/60 Hz</p>
<p>10-0244</p>	<p>Light bulb, 220 V, 15 W, E14</p>
<p>10-0245</p>	<p>Light bulb, 110 V, 15 W, E14</p>

Order Guideline

Minimum equipment:	1x 10-0117 or 10-1117, 1x Test Kit
Spares (approx. 1 year):	Test Equipment, Thermometer
Additional requirements:	