

ABA – Asphalt Binder Analyser

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**LCD
touchscreen
control**
**Afterburner for
cleaned waste
gases**

Asphalt binder content affects hot mix asphalt (HMA) mixture performance in the areas of strength, durability, fatigue life, ravelling, rutting and moisture damage.

ABA – Asphalt Binder Analyser

The ABA 7/35B is designed to measure the asphalt binder content of hot mix asphalt (HMA) using loss on ignition, in accordance with AASHTO T 308-10, ASTM D6307-10 & BSEN 12697-39:2012.

The integral microprocessor controlled weighing and calculation system is configurable to allow variations to the standard test method. Test result reports are available in both printed and software format. The high temperature afterburner minimises the production of noxious waste fumes. Supplied complete with 2 sets of sample baskets

Standard features

- Designed to measure asphalt binder content by loss on ignition
- Avoids the health, environmental & waste management issues & expense associated with the older solvent extraction methods
- Reduced emissions due to high temperature afterburner
- Controlled via a multi-lingual touchscreen interface
- Supplied as standard with English, Spanish, French, Chinese, Italian & Russian language display. Other languages are available to order
- Automatic calculation of final sample weight & binder % result
- Adjustable aggregate correction factor
- Precise weight measurements displayed to 0.1 g resolution
- Has the capacity for large sample sizes for more accurate results (maximum sample weight 4.5 kg)
- Average test times from 20 mins for 6 mm aggregates, to 45 mins for 40 mm aggregates
- Permanent (dot-matrix) printed reports
- USB data output compatible with most spread sheets
- Easy naming, storage & recall of recipes that can be transferred between ABA 7/35B units
- Simplified menu structure with secure 'Supervisor' & 'Operator' settings



ABA 7/35B
(mounted on
optional floor stand)

- 1 LCD touchscreen control
- 2 Integral fan assisted high-temperature afterburner greatly reduces emissions
- 3 Safety circuits warning lamps
- 4 Rapid heating main chamber with robust 1 mm Ø wire elements
- 5 Integral balance measures loss on ignition to 0.1 g resolution
- 6 Automatic capture of initial weight data is possible from an external balance by RS232 cable
- 7 Optional flat pack floor stand
- 8 Control panel with:
 - Instrument on/off switch
 - Printer on/off switch
 - Safety circuits test switch
 - Afterburner heating lamp
 - Main chamber heater lamps
 - USB data output
- 9 Printer

Hot mix asphalt (HMA) that has too much asphalt binder may experience problems such as, reduced skid resistance and reduced resistance to permanent deformation, eg rutting.

HMA that has too little asphalt binder may experience reduced fatigue resistance and problems with stripping.

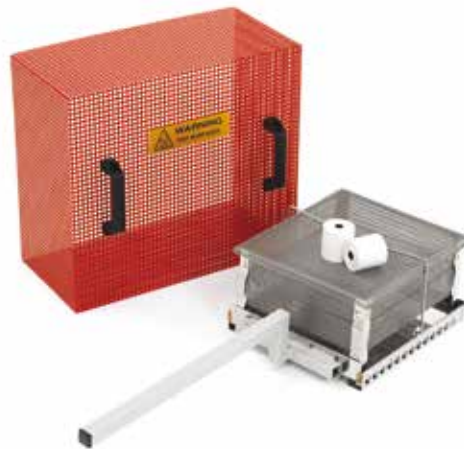
Safe solvent-free binder calculation

Safe design

- Failsafe door interlock keeps the door locked during a test even in the event of a power failure, protecting the operator from the burning test sample
- Electrical supply is isolated from the heating elements when the door is opened
- Afterburner temperature is controlled independently from the main chamber
- Automatic capture and calculation of weight loss values minimises human errors
- Double skin construction ensures safe external surface temperatures
- Corrosion resistant, stoved epoxy finish for a long working life
- Rapid heat up rate enables the ABA 7/35B to be switched off between tests, reducing power consumption
- Low thermal mass insulation & efficient element designs means that the ABA 7/35B is ready to use in approximately 30 minutes
- Internal balance is calibrated in position using a 5 kg standard calibration mass

Options (specify these at time of order)

- Floor stand
- Sample cooling stand
- Additional sample basket set
- Metal waste gas extraction pipe
- Touchscreen protection film
- Gloves
- Face shield
- Factory fitted thermocouple access port, if temperature calibration is to be carried out



Sample basket set, with loading handle attached, spare paper printer rolls and (red) sample basket cooling cover



3 level sample basket cooling stand, gloves and face shield

Technical data

Model	Max temp (°C)	Dimensions: Internal H x W x D (mm)	Dimensions: External H x W x D (mm)	Max power (W)	Thermocouple type	Weight (kg)
ABA 7/35B	750	220 x 350 x 450	980 x 600 x 775 (Bench-top or optional stand)	8000	K	120

i Please note:
 - The oven is rated at 8 kW for operation on 208/240 V, 50/60 Hz, three or single phase. Please state mains supply when ordering
 - The oven holding power is approximately 3 kW

```
21/02/2012 16:05:54
***** TEST STARTED *****
Recipe: ASPHALT TEST 1
```

```
21/02/2012 16:13:55
Recipe: ASPHALT TEST 1
Elapsed time (hh:mm:ss):
00:08:01
Main chamber temperature:
693 Deg C
Sample Weight: 1146.1g
Total Weight Loss:      52g
Total % Weight Loss:    4.3%
```

***** END OF TEST REPORT *****

```
Recipe: ASPHALT TEST 1
21/02/2012 16:34:28
Elapsed time (hh:mm:ss):
00:28:32
Calibration format:
Asphalt
Recipe type:      Standard
Recipe calibration factor:
0.50%
Constant weight delay: 10
minutes
Constant weight time:  3
minutes
Constant mass limit:   1g
(used)
Min % weight          0% (n/a)
Temperature setpoint: 520
Deg C
Main chamber temperature:
558.7 Deg C
Sample Weight: 1104.7g
Total Weight Loss:
93.4g
Total % Weight Loss:    7.8%
```

```
-----
ASPHALT
BINDER 7.3%
CONTENT
-----
```

```
Mix ID:
-----
```

```
Sample No:
-----
```

```
Binder Spec:
-----
```

```
Operator:
-----
```

Ignition test principles

Flexible enough for most methods derived from the ASTM, AASHTO and BS/EN loss on ignition standards, the ABA 7/35B replaces the older solvent based test methods.

Calibration factors are first calculated, using either pre-determined asphalt mixes as a benchmark or aggregate only samples in order to correct for small amounts of volatile components present within the aggregate itself. Also the effect of airflow passing through the chamber is tested and adjusted by a lift correction factor.

Sample size is based on the aggregates' nominal particle size, which is collected using standard sampling methods. Its weight before ignition is measured on a balance outside the ABA 7/35B furnace. The appropriate test recipe is entered or selected from the library, the sample is then loaded into the preheated ABA 7/35B and the test is started.

For operator safety the ABA 7/35B's door remains locked until the test is completed. The end point is automatically detected by the ABA 7/35B using absolute or percentage weight changes, whichever is required by the standard method used. The test end-point is signalled by an audible alarm and the results are automatically printed.



Loading sample basket



Easy to use LCD touchscreen to set up recipes

Example of test report print out