

# Thermo Scientific Thermolyne NCAT Asphalt Content Furnace

Proven ignition method for  
determining asphalt content



Special patented filter  
system greatly reduces  
exhaust smoke.

Safety door lock prevents  
opening during critical  
time of process.

**In collaboration with the National Center for Asphalt Technology, we developed a fast, accurate, environmentally-friendly, and cost-effective method for determining asphalt content. For research, quality assurance or quality control, the Thermo Scientific Thermolyne NCAT asphalt content furnace is the ideal solution.**

A 12-lab round robin field test has been conducted exclusively with the Thermolyne® NCAT asphalt content furnace by NCAT. Results and proven performance are documented by NCAT.

The Thermolyne NCAT asphalt content furnace has set the standard for the industry in the determination of asphalt content by the ignition method. This system was an integral part of the drafting and eventual passage of the ignition method standard ASTM D6307, as well as AASHTO T308.

The Thermolyne NCAT asphalt content furnace provides asphalt content of bituminous paving mixtures, accurate to 0.11%.

## Efficient

- 1200-1800 gram sample of asphalt can be tested in 30-45 minutes.
- The unit can accommodate samples up to 5000 grams!
- The Thermolyne NCAT asphalt content furnace has an internal scale that automatically monitors the sample weight throughout the ignition process, saving valuable time and increasing productivity in the lab.

## Simple

- Simply enter the sample weight and calibration factor for your particular mix design. Place your sample load into furnace chamber, close chamber door, and press "start."
- Once the Ignition process is completed, the system will automatically end the test and print the results. A periodic "beep" indicates that the test has ended.

## Flexible

- The unit utilizes a standard 30 amp electrical service as compared to competitive models that require 50 amp service, which costs more to install and operate.
- The modular design of refractory embedded heating elements provides extended service life and inexpensive, easy replacement when compared to competitive systems that may require shipment back to the manufacturer for heating element replacement.

## Safe

The automatic door-lock feature prevents opening of the chamber door during the critical test time. This feature provides operator safety and helps ensure testing integrity.

## Environmentally Friendly

The Thermolyne NCAT asphalt content furnace is the only system on the market containing a high temperature afterburner used in conjunction with a patented ceramic filter to reduce the emissions of the ignition process by up to 95%.

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## The Thermo Scientific Thermolyne NCAT Asphalt Content Furnace is sensitive to your requirements

- The NCAT system has the **capability to accept positive or negative correction factors** for use with mixes containing hydrated lime.
- This unique furnace **automatically detects endpoint within .01% of the sample weight.** Stability of the sample is reached once the endpoint criterion has been met for 3 consecutive minutes during the test. Endpoint sensitivity is adjustable from .01% to 0.5%.
- NCAT furnace software allows you to **choose between automatic and manual test modes.** In the automatic mode the endpoint is detected; the software ends the test, prints out the results and beeps.
- In the **manual mode, the endpoint is detected; the unit begins to beep** but will continue to test until the user presses "stop" to end it. Once the "stop" button has been pressed, the door will unlock and the results will be printed.
- NCAT furnace software **automatically compensates for weight change** due to sample and basket assembly temperature change. This compensation is computed for each sample load tested, unlike competitive models that assign a fixed number to a given range of load sizes.
- Thermolyne NCAT asphalt content furnace software **computes test results as calibrated asphalt content** per total weight of HMA sample or bitumen ratio per weight of dry aggregate.
- System **contains 24-hour/7-day timer** that can be programmed to preheat the furnace prior to the arrival of technicians.
- An **RS232 port provides data interface** with a personal computer for graphical data analysis.

## Sample Test Data from Printer

Operator-entered beginning HMA sample weight	Elapsed Time:	36:12							
	Sample Weight:	1274g							Percentage of weight loss compared to total HMA sample weight
Total weight loss during test run	Weight Loss:	80.8g							
	Percent Loss:	6.34%							
	Temp Comp:	0.22%							
System compensates for sample weight at furnace temperature	Calib. Factor:	0.00%							Final calibrated asphalt cement content. No other calculations necessary
	Bitumen Ratio:	6.55%							
Operator-entered calibration data for specific aggregate	Calibrated Asphalt Cnt	6.12%							
	34	531	80.8	6.34					System senses when weight loss is stable and ends test automatically or begins an audible signal indicating test completion
	33	533	80.8	6.34					
	32	537	80.6	6.34					
	31	540	80.8	6.32					
	30	545	80.3	6.29					
	29	549	79.6	6.24					
	28	552	78.5	6.16					
	27	555	77.3	6.06					
	26	558	75.8	5.94					
	3	444	1.7	0.13					
	3	441	1.2	0.09					
	3	445	0.7	0.05					
	T	Temp	Wt. LOSS	%LOSS					
Furnace chamber temperature set point	Chamber Set Pt:	540°C							
	Sample Weight:	1274g							
	Tested by								
	Mix Type								
	Sample ID								
	Sample ID								
	Time:	15:02:10							
	Date:	2-14-10							

## Ordering Information

Model	Chamber Dimensions inches (cm)	Overall Dimensions inches (cm)	Weight lbs (kg)	Volts (phase)	Amps	Watts	Temp Range (°C)
F85930*	14 x 14 x 14 (35.5 x 35.5 x 35.5)	21.75 x 36.75 x 25.75 (55.2 x 93.3 x 65.4)	280 (127)	240 (1)	20	4879/6379	200-650
F85938*				208 (1)	23	5757	200-650
F85930-33**				208 (1)	23	4879/6379	200-650
AY1087X1	4 baskets, 2 trays, 2 covers, handle, cooling cage, insulated plate, gloves, face shield, 4 rolls of printer tape, balance calibration plate and anderol oil						

\* Patent issued — #5,558,029.  
\*\* F85930-33 model CE marked.

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