

# Bitumen Product Guide

## ADVANCED PAVEMENTS TESTING SYSTEMS

TEST	DEFAULT METHOD	EQUIVALENT METHOD	IPC global <sup>®</sup>   CONTROLS GROUP
Accelerated aging of asphalt binder using PAV	AASHTO R 28	ASTM D6521	✓
Sampling asphalt materials	AASHTO R 66	ASTM D140	✓
Solubility of bituminous materials	AASHTO T 44	ASTM D2042	✓
Flash and fire points by Cleveland open cup	AASHTO T 48	ASTM D92	✓
Effect of heat and air (RTFOT)	AASHTO T 240	ASTM D2872	✓
Flexural creep stiffness using bending beam rheometer	AASHTO T 313	ASTM D6648	✓
Fracture properties of asphalt binder in direct tension	AASHTO T 314	ASTM D6723	✓
Rheological properties using dynamic shear rheometer	AASHTO T 315	ASTM D7175	✓
Viscosity using rotational viscometer	AASHTO T 316	ASTM D4402	✓
MSCR of asphalt binder using dynamic shear rheometer	AASHTO T 350	ASTM D7405	✓

**ALL  
AVAILABLE  
NOW**

### PIVOT Fully Automatic Penetrometer

EN 1426 | ASTM D5  
AASHTO T49 | JIS K 2207  
IP 49 | DIN 52210  
AFNOR T66-004 | ASTM D217  
NZTA M1: 2011

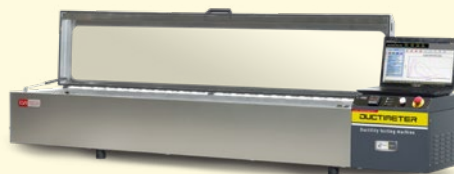
A fully automatic and compact instrument using the latest technologies and programming tools to determine material hardness. The instrument reaches the test start point automatically with vertical movement performed by a high precision stepper motor and measured by a contactless displacement transducer.



### Ductimeter Research Ductility Testing Machine

EN 13398 | ASTM D113 | AASHTO T51  
EN 13589 | EN 13703 | ASTM D6084  
AASHTO T300 | NZTA M1: 2011

Ductility Testing Machines are used to determine the ductility of bituminous materials by measuring the elongation before breaking when two ends of briquette specimens are pulled apart at a specified speed and temperature.



### RTFO Rolling Thin-film Oven

ASTM D2872  
AASHTO T240  
NZTA M1: 2011  
NZTA M01-A: 2019

Used for measuring the effect of heat and air on a moving film of semi-solid bituminous materials, RTFO fully conforms to temperatures specifications indicated by the Standards. Its robust internal chamber is made from stainless steel, insulated with fiberglass for ultimate results. Its exacting safety features ensures that IPC Global's RTFO fully conform to CE requirements.





## PAV & VDO

Pressure Aging Vessel & Vacuum Degassing Oven

EN 14769 | ASTM D6521 | AASHTO R28 | NZTA M01-A: 2019

### Pressure Aging Vessel (PAV)

Developed to simulate in-service aging of asphalt binder after five to 10 years, the CE and ASME certified IPC Global pressure vessel is ideal for long term aging conditioning of asphalt binder. Its user-friendly software allows the operator to view in real time vessel temperature and pressure on the 6" color touch screen display.

### Vacuum Degassing Oven (VDO)

VDO is a safe, and accurate system designed to remove air bubbles created during accelerated oxidative aging of asphalt binder by the PAV. This final conditioning makes the aged binder suitable for further tests such as BBR, DSR, penetration, ductility, softening point and many more.

## BBR

Bending Beam Rheometer

ASTM D6648 | AASHTO T313 | EN 14771  
NZTA M01-A: 2019



The Bending Beam Rheometer (BBR) test provides a measure of low temperature stiffness and relaxation properties of asphalt binders. These parameters give an indication of an asphalt binder's ability to resist low temperature cracking.

The Bending Beam Rheometer (BBR) is engineered to perform flexural tests on asphalt binder and similar specimens per ASTM D6648 and AASHTO T313. These tests consist of a constant force being applied to a specimen in a chilled bath in order to derive specific rates of deformation at various temperatures.

## Dynamic Shear Rheometer (DSR)

Determination of Asphalt Binder's Rheological Properties

AASHTO M320 | ASTM D4402 | AASHTO T316  
EN 13302 | AASHTO T315 | ASTM D7175  
ASTM D7405 | EN 14770 | NZTA M01-A: 2019



Designed specifically for Asphalt Testing and optimized for high throughput, the Dynamic Shear Rheometer exceeds AASHTO T315 and all ASTM requirements. User-friendly, this integrated compact unit, delivers precise and stable temperature control (patented). Its dedicated AASHTO specification software will ensure that you obtain accurate results every time.

## High Performance Rotational Viscometer

Apparent Viscosity of Unfilled Asphalt Evaluation

ASTM D2196 | ASTM D4402 | AASHTO T316 | EN 13302 | NZTA M01-A: 2019

Apparent viscosity of unfilled asphalt is evaluated by a rotational viscometer which measures the torque generated by a calibrated spindle rotating at a selected speed into a bitumen sample heated at precise temperature in the range between ambient temperature to 260°C.

The measured relative resistance to rotation is converted, by a factor, in viscosity units, cP or mPa·s.



## Kinematic & Dynamic Viscometers

Determining the viscosity of bitumen at 135°C and 60°C

EN 12595 | EN 12596 | ASTM D2170 | ASTM D2171 | AASHTO T201 | NZTA M1: 2011

**Cannon-Fenske opaque viscometers, Zeitfuchs cross-arm viscometers and BS U-Tube modified reverse flow viscometers** are used for the determination of kinematic viscosity of liquid asphalts (bitumens), road oils at 60°C and distillation residue of liquid asphalts and asphalt cements at 135°C. Cannon-Fenske Opaque models are suitable for opaque liquids. All supplied complete with calibration certificate.

**Cannon-Manning and Asphalt institute vacuum viscometers** are used for determining the viscosity of bitumen at 60°C. Supplied complete with calibration certificate.

\* Our viscometer bath can perform tests up to 200°C



## Cleveland Flash Tester

AASTM D92 | AASHTO T48 | EN ISO 2592  
NZTA M1: 2011 | NZTA M01-A: 2019

Used for determining the flash and fire point of petroleum products, it consists of a brass cup mounted on an electric heater with temperature controller. Conforming with the CE European directive, the Cleveland Flash Tester is supplied complete with double line-fuse, hot plate control system and thermometer -6 +400°C.



## Bacon Sampler

ASTM D140 | AASHTO T40  
NZTA M01-A: 2019

Used to obtain bitumen or oil samples from various levels. Made from brass.



## Determination of Solubility Test Set

EN 12592 | ASTM D2042 | NZTA M1: 2011 | NZTA M01-A: 2019

This test set is available in two versions: ASTM D2042 set and EN 12592 set.

