Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel (PAV)

test method

For accelerated aging (oxidation) of asphalt binders by means of pressurized air and elevated temperature. This is intended to simulate the type of changes which occur in asphalt binders during in-service oxidative aging but may not accurately simulate the relative rates of aging. It is intended for use with residue from Test Method D2872 (RTFOT) which is designed to simulate plant aging.

pressure aging vessel (PAV)

The Pressure Aging Vessel (PAV) is used to simulate in service oxidative aging of asphalt binder according to procedures developed by the Strategic Highway Research Program (SHRP). The K88100 is fully compliant with the most recent ASTM and AASHTO standards for these tests. The complete PAV system consists of an ASME-code stainless steel pressure vessel in a stainless steel cabinet with encased band heaters, a precision sample holder for simultaneous testing of ten specimens, a set of ten TFOT specimen trays, a pressure controller, temperature controller, pressure and temperature measurement devices, temperature recorder, and a specimen loading and unloading tool.

The K88100 PAV takes the hassle out of running and documenting asphalt binder aging operations. Three easy, non-complicated steps produce accurate and reliable results. Just press the “heat” button, inset specimens when prompted and press the “Age” button and let the PAV do the rest. Custom status screens guide the user step-by-step through the entire process. Each display screen (preheat start-up, preheat ready, aging heat up, aging pressurized, and aging complete) is simple and direct, with detailed process and status information. The final output screen, when the test is complete, shows the current vessel pressure, as well as minimum and maximum temperatures achieved during the test procedure. Process data (temperature and pressure) is continually stored at regular intervals in the programmable logic controller (PLC) that controls and monitors the process.

The K88100 features a compact, bench top design with integral pressure vessel. Its rotating vessel lid with rounded support block provides easy opening and closing. A built-in timer accumulates and records out-ofrange time (out of range time for the PAV is typically less than 10 minutes during a 20-hour test). Minimum and maximum temperature data is recorded and is displayed at the end of each test.

K88100 Pressure Aging Vessel

specifications

Conforms to the specifications of:
ASTM D6521; AASHTO R28
Operating Pressure: 2.10 ± 0.05 MPa (304 psi)
Temperature Range: 90°C to 110°C (194°F to 230°F)
Temperature Control Resolution: ± 0.1°C
Test Temperature Uniformity: ± 0.5°C
Time to Set point: 3 hours from ambient
Return to Set point: 120 min. after preheating and lading of specimens
Pressure Vessel: ASME code section VIII, division 1; 1992 A 93
Maximum Pressure: 325 psi (2.24 MPa) at 120°C (250°F)
Pressure Safety Release: 325 psi (2.24 MPa)

ordering information

catalog no.	description
K88100	Pressure Aging Vessel, 230V 50/60Hz

accessories

K88100-1	UPS Battery Backup System
K88100-2	PAV Verification Kit
K88100-3	PAV O-Ring
K88100-4	CGA Adapter
K88100-5	High Pressure Hose
K88100-6	Specimen Pans Set (Pk / 10)

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