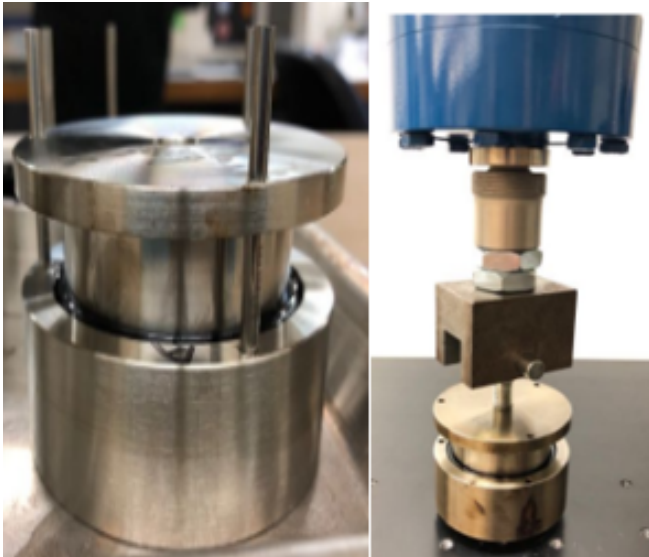




EIE INSTRUMENTS PVT. LTD.
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POKER CHIP TESTING MACHINE-5 KN- FOR ASPHALT



The test method was developed by Texas department of Transportation. This is a simple “poker chip” test to evaluate the cracking resistance of asphalt binders in terms of its ductility. This test demonstrate the sensitivity of the poker chip test to asphalt binder modifiers including polymers and chemical modifiers, polymer content, reclaimed asphalt pavement, and aging. This test also demonstrate that the test and resulting parameters are strongly related to the propensity of the asphalt pavement to crack. Based on the results, the test method and ductility parameter

- can distinguish differences within binders of the same PG,
- can distinguish between the quality of RAP binders from different stockpiles,
- is very sensitive to the type and concentration of modifier, and
- can be used to assess the impact of blending RAP, modifiers, and other additives on the mechanical response of the binder.

This test method evaluates the tensile failure characteristics of an asphalt binder under a state of stress that induces high triaxiality in the asphalt binder, which models a realistic stress state similar to asphalt binder confined between two aggregates. This test method is relevant for fatigue or thermal cracking in asphalt mixtures and can be used with material aged using RTFOT and PAV

The set up consist of the following :

1. Servo Hydraulic Load Frame of 5 KN Capacity, capable of applying a displacement rate of at least 5.9 in/minute (150 mm/minute using a feedback control and measuring displacement of 0.001 mm. The load frame will have the capability of applying tension in displacement-controlled mode, and switch to load-controlled mode until the sample fails and during this time the load and displacement are recorded. The load frame set up will apply tension in displacement-controlled mode of 0.04 in/minute (1 mm/minute) until a tensile load of 9 lbf (40 N) is reached. At this point the load frame will be switched to a load-controlled mode to apply a tensile load of 0.25 lbf/second (2 N/second) until the sample fails. During this time the load and

- displacement are recorded at a rate of 2 points per second. The testing machine will be coupled with an automatic cut off system that can be programmed using a digital controller to stop the equipment in case of emergency.
2. Measurement and Recording System – The system will include sensors for measuring and recording vertical deformations. The system will be capable of measuring vertical deformations with a resolution of at least 0.00004 in. (0.001 mm). Loads will be measured and recorded with a resolution of at least 0.0225 lbf (0.1 N). The vertical deformation can be measured by a linear variable differential transducer (LVDT) or other suitable device. The sensitivity and type of measurement device will provide the deformation readout required (0.00004 in. (0.001 mm).) .The load will be measured with an electronic load cell capable of satisfying the specified requirements mentioned above
 3. Stainless Steel Mold – The poker chip sample is prepared using a two-piece mold (top and bottom) Two parts of the mold are used to prepare a thin film specimen - 3 Nos.
 4. Alignment Pins : The pins are made of stainless steel and will be 0.122 ± 0.0002 in (3.1 ± 0.005 mm) diameter and $2 \frac{3}{4}$ in (69.85 mm) length. These alignment pins are run through the three holes in the top and bottom of the poker chip specimen mold to ensure proper alignment of the two parts. Three alignment pins are needed for each poker-chip mold. : 9 Nos.
 5. Spacing dowels: The spacer dowels will be made of alloy steel and will be $1/16 \pm 0.0003$ in ($0.0025 \pm 1.18E-05$ mm) diameter and $1/8$ in (0.005 mm) length. These spacer dowels are dropped in the liquid asphalt binder to achieve the target thickness when placing the top piece of the poker chip mold : 100 Nos
 6. Ball Joint rod end : Made of alloy steel with a ball joint end type. This ball joint rod end is used on the top piece of the poker chip mold to connect to the load frame using an appropriate clevis pin and dowel. : 1 No. 
 7. A Clevis Pin to connect the Poker chip to the Load frame
 8. Metal Can - 12 Nos.
 9. Silicon Mould : The silicone molds will be made of food grade silicone, bisphenol A (BPA) free, non-stick and flexible to easily release the asphalt binder from the molds. Typically, the temperature tolerance range of this material is from -40 to 466°F (-40 to 241°C). The diameter of each cavity is 1.0 in (25.4 mm) and 1/4 in (6.35 mm) depth. These dimensions hold approximately 0.159 oz (4.5 g) of asphalt binder properly. - 3 Nos.
 10. Heat resistant Gloves - 1 Pair
 11. 90 Degree Bent Nose Pliers – The 90 degree bent nose plier is a variation of needle nose pliers. It features non-serrated tapered jaws that are bent at a 90 degree angle, 3/8" from the tip. This allows the jaws to grip the spacer dowels : 2 Nos.
 12. Stainless-Steel Trays – The stainless-steel trays will have a size of 13 x 9.5 x 1 in (330.2 x 241.3 x 25.4 mm) with a flat rigid base to accommodate up to 10 molds and carry them in and out of the oven or temperature controlled chamber : 2 Nos.
 13. Stainless Steel Micro Spatula – The stainless steel spatula that is 22.5 cm (9.0 in) length and 5 x 0.78 cm (2 x 0.31 in) flat ends and mirror-like finish. : 1 No.
 14. Bubble Level – The bubble level can be used to indicate whether the surface of the stainless-steel trays containing the poker-chip molds are horizontal (level).
 15. Dry wipes – Dry paper tissue wipes provide an easy way to wipe up liquid and dust from the surface of the stainless steel and silicone molds.

Note

Acetone, Oven, Electronic weighing Balance (300gm X 0.01gm) and any other equipment and accessories that may be required to complete the test will be at extra cost

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