

MATERIALS LABORATORY
Method of Test for
**VIALIT TEST FOR AGGREGATE RETENTION IN
CHIP SEALS “FRENCH CHIP”**

SCOPE

- 1.1 This method is an indicator of aggregate retention for chip seals.

SUMMARY OF METHOD

- 2.1 Asphalt emulsion or hot asphalt cement is applied to standard size stainless-steel pans. Exactly one hundred graded aggregates are embedded in the binder. The material is allowed to cure under specified conditions. Following this cure, the trays are conditioned at -22° C for 30 minutes. Then a 500 g ball is dropped 3 times from a distance of 50 cm onto the inverted trays. The results are recorded as percent aggregate retention.

APPARATUS

- 3.1 Vialit Stand - See attached drawing
- 3.2 Pans - the pans are constructed of 304 stainless-steel 2 mm thick. The pans shall be 20 X 20 cm with a lip around the entire edge. The lip shall be high enough to prevent the emulsion or cement from over flowing, and no higher than 75% of the smallest aggregate sieve size.
- 3.3 Vialit drop test unit - see attached drawing.
- 3.4 Ball - the ball shall be stainless-steel and weigh 500 ± 5 g.
- 3.5 Oven - the oven shall be a forced recirculating oven capable of regulating temperature within $\pm 2^\circ$ C.
- 3.6 Freezer - for test below 0° C, a freezer capable of regulating temperature within $\pm 1.5^\circ$ C is required.

PREPARATION OF TEST SPECIMENS

- 4.1 One hundred 6.3 – 9.5 mm reference aggregates are washed. The reference aggregates shall be dried at 50° C for 24 hours.
- 4.2 79g asphalt cement emulsion is poured onto the clean and dry plate. The plate shall be tilted back and forth to give a uniform thickness. Place the plate in a horizontal position. Place stones uniformly using a 10 X 10 matrix spacing technique (10 rows and 10 columns).

CURE OF SPECIMENS

- 5.1 The standard cure is to place the pan in the oven for 48 hours at 60° C.

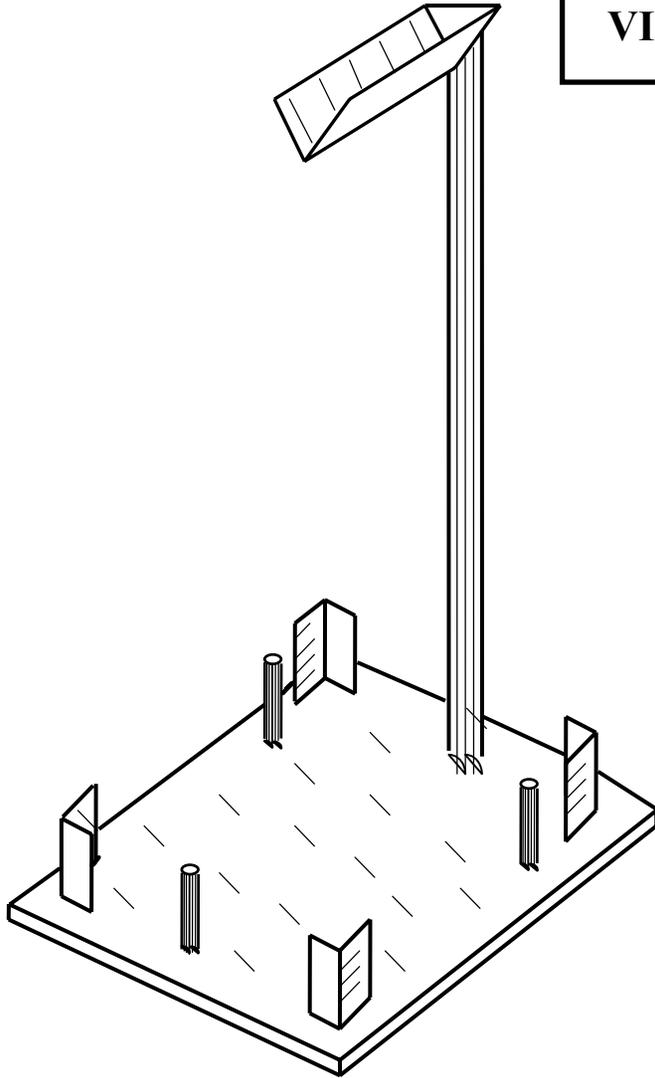
SAMPLE CONDITIONING

- 6.1 The pan is removed from the oven, and allowed to cool for 30 minutes at $25 \pm 5^\circ \text{C}$. The pan is then placed in a freezer at the specified temperature for 30 minutes. Sample conditioning is then completed.

TEST PROCEDURE

- 7.1 Remove the pan from the freezer and place it in an inverted position in the test apparatus. Place the ball in the V-holder and let it free-fall. Repeat the procedure until the ball has been dropped a total of three times. The entire sequence must be completed in 10 seconds for the test to be valid.
- 7.2 Flip the pan over and count the stones attached. Report the number attached as percent aggregate retention.

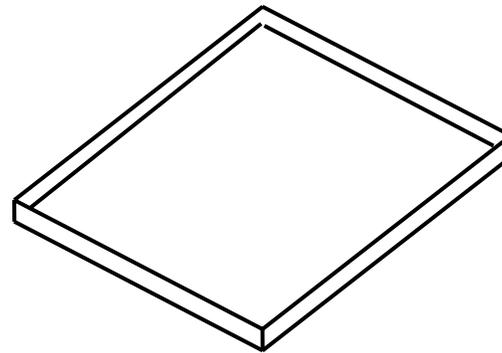
VIALIT TEST METHOD



VIALIT DROP - TEST UNIT



Ball is 5.08 cm Dia. 500 ± 5 g
Material: Stainless Steel Impact



Specimen Plates Are 200 mm Sq.
Material: .635 cm Hot Rolled Steel

.635 cm Sq. Edge Welded All Around
Material: 1018 Cold Rolled Steel

Finish: Bead Blast Both Sides

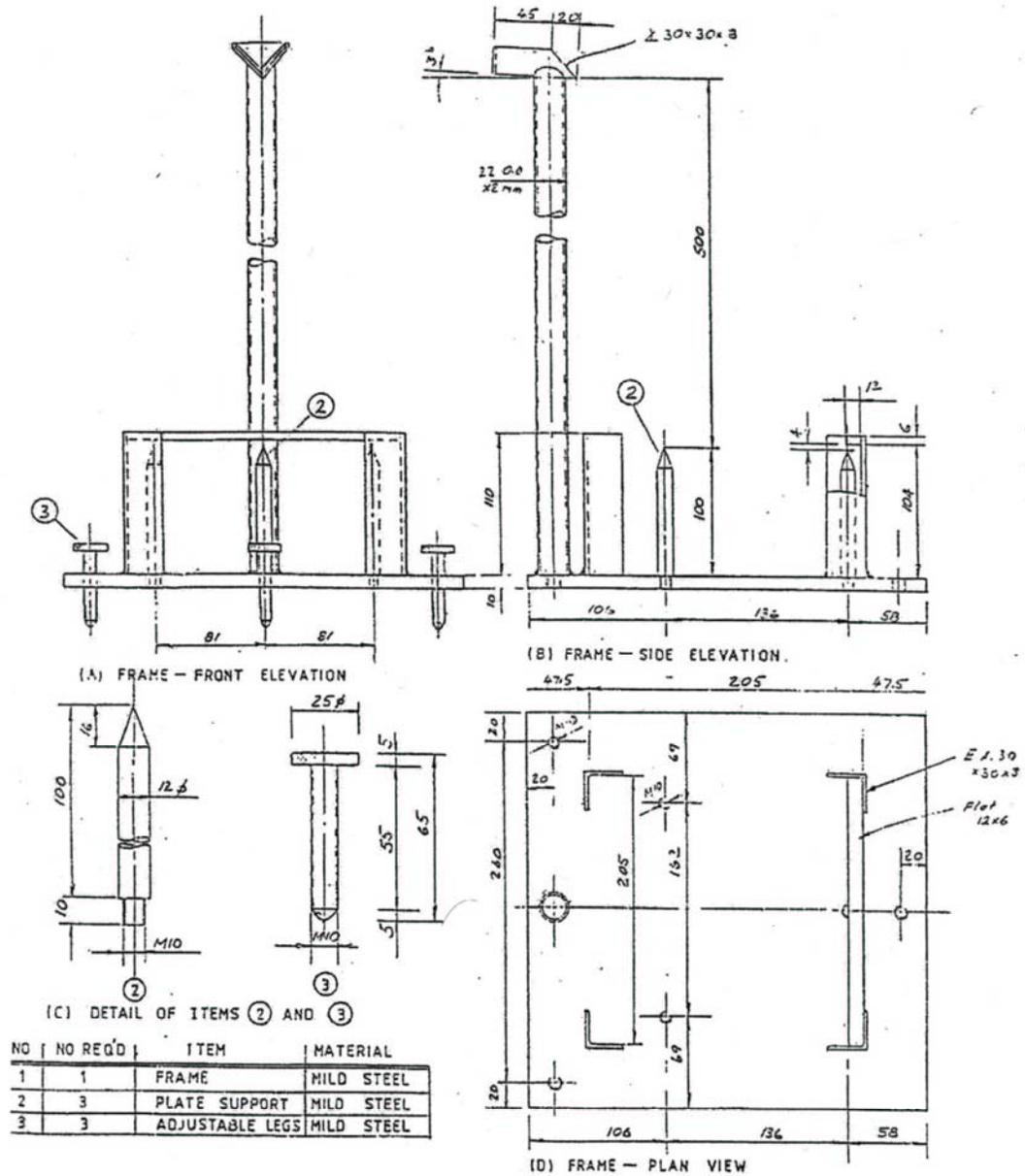


FIGURE 1 VIALIT DROP-TEST UNIT
 DIMENSIONS: MM
 TOLERANCES: ± 0.5 MM