

## PERFORMANCE EXAM CHECK LIST

### DETERMINING THE LIQUID LIMIT OF SOILS AASHTO T-89 (METHOD "B" ONE POINT)

Participant Name: \_\_\_\_\_ Exam Date: \_\_\_\_\_

**Record the symbols "P" for passing or "F" for failing on each step of the checklist:**

Procedure Elements:	Trial#1	Trial#2
<p>1. <b>Prepare sample.</b> Using AASHTO T-87 or AASHTO T-146. This test requires a minimum of 50g of minus # 40 (0.425 mm) material.</p>	_____	_____
<p>2. <b>Inspect and adjust test apparatus.</b> Apparatus includes liquid limit device, porcelain mixing dish, spatula, grooving tool, gauge for cup height drop, containers with lids, balance readable to the hundredth and a drying oven. All apparatus shall be clean, dry and within specifications. Moisture containers and lids will be weighed and recorded before each test. Check the drop height on the liquid limit device using the gauge and a piece of tape and adjust as necessary.</p>	_____	_____
<p>3. <b>Adjust sample moisture and mix.</b> Use distilled or demineralized water only Add 8 to 10 ml of water to material and mix thoroughly, approximately 5 to 10 minutes. Moisture may then be adjusted by adding increments of 1 to 3 ml of water and mixing thoroughly, approximately 1 minute, or by air drying while mixing and kneading. Moisture <b>may not</b> be adjusted by adding dry soil to the moistened sample. Cover the sample and allow to season for 30 minutes.</p>	_____	_____
<p>4. <b>Spread sample into cup of device.</b> Remix sample and spread above the spot where cup rests on the base. The top surface should be as level as possible and 10 mm in thickness at its maximum depth. Use as few strokes as possible, do not entrap air into the sample. Return excess material to the mixing dish.</p>	_____	_____
<p>5. <b>Cut groove into the sample.</b> Cut groove through the center of the sample, perpendicular to the hinge pin of the cup. Use as few strokes as possible. Up to 6 strokes may be used, only the last stroke should touch the bottom of the cup.</p>	_____	_____
<p>6. <b>Turn the device on and count the taps.</b> Count the number of taps required to close the groove for a length of approx. ½" (13 mm). If sample slides instead of flowing, add water, remix and repeat test. If problem re-occurs discontinue test and note.</p>	_____	_____
<p>7. <b>Repeat steps 3 through 6 until the groove closes with a range of 22 and 28 taps.</b> Return remaining soil in the brass cup to the mixing dish with something other than the spatula. Apparatus shall be cleaned and dried between tests. Adjustment of moisture shall follow the guidelines in step 3.</p>	_____	_____
<p>8. <b>Take sample for moisture content determination.</b> Using the spatula, take a slice of the sample the width of the spatula at the point of closure. The slice shall extend from edge to edge of the soil and perpendicular to the groove for the full depth of the sample. Place the moisture sample in a suitable container, <b>cover immediately, determine the mass</b> to the nearest 0.01g and record immediately.</p>	_____	_____
<p>9. <b>Remove cover, place in oven at 110±5° C (230±9° F) and dry to a constant mass.</b> When removing the sample from the oven to determine constant mass <b>cover immediately.</b></p>	_____	_____

OVER

**Procedure Elements continued:**

**Trial#1 Trial#2**

**10. Complete moisture content determination on samples.** After drying to a constant mass Cool to room temperature and determine the mass to a 0.01g and record. Calculate moisture content to the nearest 0.1%

\_\_\_\_\_

**11. Calculate the Liquid Limit.** Using the formula  $LL = (w_N) (N/25)^{0.121}$  calculate the corrected Liquid Limit for 25 taps to the nearest 0.1%.

\_\_\_\_\_

**12. Report the Liquid Limit.** The Liquid Limit is the nearest whole number.

\_\_\_\_\_

COMMENTS: First Attempt : Pass  Fail  Second Attempt: Pass  Fail

Examiner Signature: \_\_\_\_\_ Sampler / Tester Qualification # \_\_\_\_\_

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