

# TEX-107-E

Determining the Bar Linear Shrinkage of Soils



## Why

To determine the shrinkage of soil in a linear dimension with water content equal to or more than the liquid limit (LL) of the designated soil.



## When

When specification requires or liquid limit (Tex-104-E) is not able to be obtained.

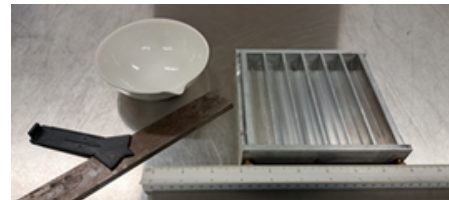
- Specification 132
- Specification 247
- Special Spec. 3076
- Special Spec. 3077
- Special Spec. 3080
- Special Spec. 3081
- Special Spec. 3082



## How

### Equipment

- Porcelain mixing dish
- Straight edge
- Scale
- Oven maintaining  $230 \pm 9^\circ\text{F}$
- Grooving tool
- Bar linear shrinkage mold  
0.75x0.75x5.0 in.
- Number 20 scale (optional)

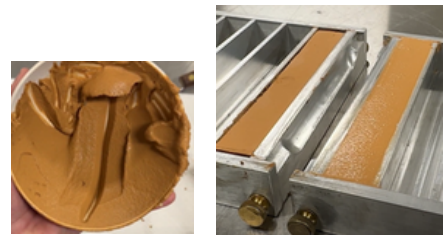


### Preparing Sample

- Use material remaining from Tex-104-E.
- If there is not enough material from Tex-104-E, mix in water to the consistency outlined in Tex-107-E

### Procedure

- Get enough material into the mixing dish to fill the mold.
- Mix in water uniformly.
- Check the sample is properly mixed by:
  - Smoothing the material in the bottom of the dish at a depth of 0.5 in.
  - Strike a groove in the material if the material immediately closes on its own accord at the bottom of the dish.
  - Grease with petroleum jelly the slots of shrinkage mold that are going to be used for testing.
  - Pour in a small portion of prepared material and gently tap the mold on the table/counter to remove the entrapped air, repeat until mold is full.
  - Remove the excess material from the top of the mold using the straightedge.
  - Let the sample air dry in the mold until a slight color change.
  - Place in an oven at  $230 \pm 9^\circ\text{F}$  and dry to constant mass.
  - Remove from oven let cool to room temperature and measure using the 20 scale or measuring device.



 **QUICK FACTS: SB 101 DRAFT** **Action**

- Calculations
  - If measured in inches:
    - $LS = 100X (LW - LD) \div LW$
    - LW = length of the wet soil bar, (5 in.)
    - LD = length of the dry soil bar, (in.)
  - If measured in percent:
    - $LS = LW - LD$
    - LW = length of the wet soil bar, 100%
    - LD = length of the dry soil bar, %.
- Report to the nearest whole number