QUICK FACTS: SB 101 **DRAFT**

TEX-105-E

Plastic Limit of Soils and Base Materials

Why

To determine the moisture content at which soil cannot be remolded without cracking.

When

For Type A embankment, untreated base, treated new base, when required on the plans, or plasticity index is required.

- Specification 132
- Specification 247

How

Equipment

- Porcelain mixing dish
- Plastic Limit Rolling Device (PLRD)
- Scale; readable to 0.01g.
- Oven maintaining 230 ± 9°F.
- Plaster of Paris disks

Procedure

- Use 20 g prepared in accordance with Tex-104-E
- Reduce the water content by putting in between two plaster of Paris disks.
- Select four or five 1.5 - 2 g portions.
- Place a few portions in the PLRD evenly spaced apart and roll at a rate of 80-90 strokes per minute,
- Take no more than two minutes to deform the material to 1/8 ± 0.02 in
- Recombined back together, knead and reform into starting portion size.
- Repeat until the portions can no longer be rolled into 1/8 in threads.
- Put portions into a tared container and immediately cover.
- Collect a minimum of 10 g of rolled material.
- Weigh and record the material and container to the nearest 0.01 g. Record as A
- Place into an oven at 230 ± 9°F and dry to constant mass.
- Weigh and record dry weight of sample and container. Record as B

Action

- Calculations
  - Weight of water: $W_{water} = W_{wet} - W_{dry}$
  - Plastic Limit: $PL\ (\%) = 100\ X\ [W_{water} \div (W_{dry} - W_{tare})]$
- Report plastic limit to the nearest whole percent.

W_{water} = Weight of water + tare, g.
W_{wet} = Weight of wet threads + tare, g.
W_{dry} = Weight of dry threads + tare, g.
W_{tare} = Weight of tare, g.