NEBRASKA DEPARTMENT OF ROADS
NDR STANDARD METHOD T 520

Determination of the Percent Imperfect of Glass Beads

NDR T 520 is identical to **FLH T 520** except for the following provisions:

Replace title with the following:

Determination of the Percent Imperfect of Glass Beads

Replace Section 2.1 with the following:

2.1. This procedure is designed to determine the percent of imperfect beads in a sample of large size beads. An imperfect bead is defined as ovate or otherwise non spherical in shape; two or more beads fused together; and beads that show turbidity, pitting, scratching, surface wrinkling, internal air bubbles, or other inclusions.

Replace Section 4 with the following:

4.1. Videomicroscope
4.2. Microscope slide
4.3. Grease (such as petroleum jelly)
4.4. Applicator (such as a Q-Tip)
4.5. 1/1 Mini-splitter
4.6. Appropriate containers and utensils such as scoops, spoons, brushes, etc.

Replace Section 6.2 with the following:

6.2. After determining the gradation by sieving, retain separately all four fractions (#20, #30, #50, and #80). Use the mini-splitter to reduce each fraction to just enough beads to cover a microscope slide[1]. Retain each reduced specimen separately.

[1] Sometimes the #20 size of beads will not have enough beads to do the analysis.

Replace Section 6.3 with the following:

6.3. Using the applicator, spread some grease on the microscope slide to cover at least a square inch in the center of the slide. Carefully pour one of the specimens onto the grease so all the particles adhere.

Replace Section 6.4 with the following:

6.4. Repeat step 6.3 for the other specimens.

Remove Section 6.5.

Replace Section 6.6 with the following:

6.5. Place the slide (beads up) on the microscope. Turn on the light and adjust the sample tray so the beads are visible on the television screen. Count at least 200 beads on each slide. If necessary, use more than one field on a slide to obtain a minimum 200 count. Focus in on the beads and count the number of perfect and imperfect beads.

Remove Section 6.7.

Replace the Calculations section with the following:

7.1. Calculate the percentage of imperfect beads in each sieve fraction as follows:

$$\% \text{ Imperfect} = \frac{N_I}{N_I + N_P} \times 100\%$$

Where:
N_I = Number of imperfect beads
N_P = Number of perfect beads

7.2. Calculate the Imperfect Beads, percent by weight as follows:

$$\% \text{ Imperfect, by weight} = \frac{P_I \times P_R}{100}$$

Where:
P_I = Percent Imperfect (calculated in 7.1)
P_R = Percent retained (non-cumulative of each sieve)