U.S. Department of Transportation
Federal Highway Administration
Federal Lands Highway

WORKSHEET FOR DETERMINING CORRECTION FOR COARSE PARTICLES IN THE SOIL COMPACTION TEST
AASHTO T 224

Project: Sample of:

Where sampled: Quantity represented: Lot No.   Sample No.

Sampled by: Date: Tested by: Date:

Identify Laboratory Moisture - Density Relations used: **Maximum Dry Density, D_F =**   **lbs/ft^3(kg/m^3)**

   English   Metric   AASHTO T 99   AASHTO T 180   Method: A   B   C   D

Compacted Laboratory-Dry Density Corrected to Field-Dry Density

Note: This method is limited to samples containing 40 percent or less material retained on the No. 4 (4.75 mm) for Methods A or B; or 30 percent or less material retained on the ¾ inch (19.0 mm) for Methods C or D.

Calculate the dry mass of the fine particles and oversized particles as follows:

$M_{DF} = M_{MF} / (1+MC_F)$ *and*
$M_{DC} = M_{MC} / (1+MC_C)$ where:

M_{DF} = mass of dry material (fine particles), g;
M_{DC} = mass of dry material (oversized particles), g;
M_{MF} = mass of moist material (fine particles), g; and M_{MF} =
M_{MC} = mass of moist material (oversized particles), g; and M_{MC} =
MC_F = moisture content (T 265, T 217, or T 255) of fines particles,
        expressed as a decimal. MC_F =
MC_C = moisture content (T 265, T 217, or T 255) of oversize particles,
        expressed as a decimal. *Note: If MC_C is unknown use 0.02 (2 percent).* MC_C =

$$M_{DF} = M_{MF} / (1 + MC_F) =   / (1 +   ) =$$

$$M_{DC} = M_{MC} / (1 + MC_C) =   / (1 +   ) =$$

Calculate the percentage of the fine particles and oversized particles by dry mass of the total sample as follows:

$P_F = 100 M_{DF} / (M_{DF} + M_{DC})$ *and*
$P_C = 100 M_{DC} / (M_{DF} + M_{DC})$ where:

P_F = percent of fine particles of sieve used, by mass, %;
P_C = percent of oversize particles of sieve used, by mass, %;
M_{DF} = mass of dry material (fine particles); g; and M_{DF} =

M_{DC} = mass of dry material (oversize particles), g. M_{DC} =

$$P_F = 100 M_{DF} / (M_{DF} + M_{DC}) = 100\ (\qquad) / (\qquad + \qquad) =$$

$$P_C = 100 M_{DC} / (M_{DF} + M_{DC}) = 100\ (\qquad) / (\qquad + \qquad) =$$

Calculate the corrected moisture content of the total sample (combined fine and oversized particles) as follows:

$$MC_T = (MC_F\, P_F + MC_C\, P_C) / 100 \qquad \text{where:}$$

MC_T = corrected moisture content of the combined fine and oversized particles, expressed as a decimal;

P_F = percent of fine particles of sieve used, by mass, %; P_F =

P_C = percent of oversize particles of sieve used, by mass, %; P_C =

MC_F = moisture content of the fine particles, expressed as a decimal; and MC_F =

MC_C = moisture content of the oversize particles, expressed as a decimal,
Note: If MC_C is unknown use 0.02 (2 percent). MC_C =

$$MC_T = (MC_F\, P_F + MC_C\, P_C) / 100 = [(\qquad)(\qquad) + (\qquad)(\qquad)] / 100 =$$

Calculate the corrected dry density of the total sample (combined fine and oversized particles) as follows:

$$D_d = 100 D_F\, k / (D_F\, P_C + k\, P_F) \qquad \text{where:}$$

D_d = corrected total dry density (combined fine and oversize particles), lbs/ft^3 (kg/m^3);

D_F = dry density of the fine particles, lbs/ft^3 (kg/m^3); D_F =

P_C = percent of oversize particles of sieve used, by mass, %; P_C =

P_F = percent of fine particles of sieve used, by mass, %; and P_F =

k = $1000 G_m$ (kg/m^3) or $62.4 G_m$ (lbs/ft^3)   where:

      G_m = Bulk Specific Gravity (oven-dry basis) of coarse particles (AASHTO T 85).
Note: If G_m is unknown use 2.60.

$$k = (\qquad)(\qquad) =$$

$$D_d = 100 D_F\, k / (D_F\, P_C + k\, P_F) =$$

$$100(\qquad)(\qquad) / [(\qquad)(\qquad) + (\qquad)(\qquad)] = \boxed{\qquad\qquad}$$