



**WORKSHEET FOR DETERMINING CORRECTION FOR COARSE PARTICLES
 IN THE SOIL COMPACTION TEST
 AASHTO T 99 and AASHTO T 180**

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/ft³ (kg/m³)**
 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 3/4 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, $MC_F =$
 expressed as a decimal.
- MC_C = moisture content (T 265, T 217, or T 255) of oversize particles, $MC_C =$
 expressed as a decimal. *Note: If MC_C is unknown use 0.02 (2 percent).*

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

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

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

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

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

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

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

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

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 =

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

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

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

D_d = corrected total dry density (combined fine and oversize particles), lbs/ft³ (kg/m³);

D_F = dry density of the fine particles, lbs/ft³ (kg/m³); 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 = $1000G_m$ (kg/m³) or $62.4G_m$ (lbs/ft³) where:

G_m = Bulk Specific Gravity (oven-dry basis) of coarse particles (AASHTO T 85).

Note: If G_m is unknown use 2.60.

$$k = (\quad)(\quad) =$$

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

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