Print Form | Reset Form

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/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 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} = ________

Print Form Reset Form

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

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

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

$MC_T = (MC_F\ P_F + MC_C\ P_C) / 100$ 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 = ______

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

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

$D_d = 100D_F\,k / (D_F\ P_C + k\ P_F)$ 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 = 1000G_m (kg/m^3) or 62.4G_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 = (______)(______) = ______

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

100(______)(______) / [(______)(______) + (______)(______)] = ______