

POROSITY CALCULATION OF COMPACTED SALT SAMPLE USING VACUUM SEALING METHOD

Scope: To determine the bulk specific gravity & porosity of specimen of compacted salt sample

Apparatus used: Corelok InstronTek, Inc

Test Specimen:

Sample ID: 175_09 (Oven dried)

Sample Type: Salt, Core

Shape: Cylindrical

Figure 1: Salt Sample 175_09



Calculation:

Sample (Oven dried) weight in air, $W_1 = 1035.280 \text{ g}$

Membrane (InstronTek provided) weight, $W_p = 20.240 \text{ g}$

Sample weight in water (Submerged), $W_2 = 544.180 \text{ g}$

Density of Water (g/cm^3) for 20.9°C (recorded) 0.99768

Bulk Specific Gravity of the sample, $G_b = 2.132$

Using CoreGravity (Software)

So, bulk density, $D_b = 2.127 \text{ g/cm}^3$

Sample volume, $V = 486.721 \text{ cm}^3$

Maximum Specific gravity, $G_m = [W_1 / (W_1 - W_3)] \times \rho_s = 2.157$

(Based on calculation for Sample 90_05, where W_3 = sample weight in Silica oil- pores filled with same fluid)

Hence we will assume, $G_m = 2.157$

% Porosity = $(1 - G_b / G_m) \times 100 = 1.16\%$

Results:

Therefore the sample volume = 486.721 cm^3

Bulk Specific Gravity, $G_b = 2.132$

And calculated Porosity = 1.16%