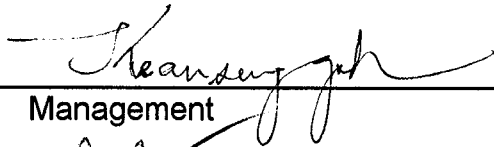


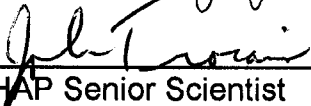
STANDARD OPERATING PROCEDURE
Soil Water Content Determination

KEY WORDS-

Soil; gravimetric method; moisture; water content

APPROVALS

APPROVED BY:  DATE: 3/9/99
Management

APPROVED BY:  DATE: 2/23/99
EHAP Senior Scientist

APPROVED BY:  DATE: 2/23/99
EHAP Quality Assurance Officer

PREPARED BY: Cindy Garretson DATE: 2/19/99

Environmental Hazards Assessment Program (EHAP) organization and personnel such as management, senior scientist, quality assurance officer, project leader, etc. are defined and discussed in SOP ADMN002.

STANDARD OPERATING PROCEDURE

Soil Water Content Determination

1.0 INTRODUCTION

1.1 Purpose

This SOP defines the method for the determination of the water content of a soil expressed as a percent of the oven-dry mass of the sample. A gravimetric method is used in which a soil sample is dried at 105°C to a constant weight. The dry weight of the soil is used as the divisor in the calculation because it expresses the absolute quantity of soil present.

2.0 EQUIPMENT

- 2.1 Drying Oven (105°C)
- 2.2 1/2 pint wide mouth mason jars
- 2.3 Samples accompanied by EHAP Soil Analysis Data Sheets (see attached)
- 2.4 Balance (accurate to 0.1g)

3.0 PROCEDURE

- 3.1 Weigh the empty sample jars (without lids) and record the weight in the tare weight column of the EHAP Soil Analysis Data Sheet.
- 3.2 After placing the soil sample in the jars weigh the jars (without lids) and record the weight in the wet weight column on the Soil Analysis Data Sheet .
- 3.3 Cap the jars and store at room temperature until ready to proceed.
- 3.4 Remove lids from sample jars and place in 105°C oven and dry for 24 hours or until weight becomes constant.
- 3.5 Remove from oven, replace lids and let cool.
- 3.6 Remove lids and weigh. Record weight on Soil Analysis Data Sheet in the soil dry weight column.

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4.0 CALCULATION

$$\text{Water content (\%)} = (M_w - M_d) / M_d \times 100$$

M_w = Mass of wet soil sample (wet weight - tare weight) (grams)

M_d = Mass of dry soil sample (dry weight - tare weight) (grams)

5.0 REFERENCE

Hausenbuiller, R.L., Soil Science Principles and Practice, page 90, 4th printing 1975,
Wm. C. Brown Co., Dubuque, Iowa

