

## Determination of Moisture Content Oven Dry Method

Include your Laboratory Test Reference:

Include your Personal Reference

Was BS 812: Part 109: 1990

The Current British Standard is

**BS EN 1097-5 2008**  
**Tests for Mechanical and Physical Properties of Aggregates**  
**Determination of the Water Content by Drying in a Well Ventilated Oven**

Principal Apparatus as follows:

It is suggested that each of the Pieces of equipment should be given an Inventory Number

- i. A ventilated drying oven controlled to maintain a temperature of 105 +/- 5 deg. C. Inv No. xxx
- ii. Electronic Balance to weigh at least 30kg to 0.1g. Inv No. xxx
- iii. Clean non corrodible air-tight container about 3kg capacity.
- iv. Metal scoop about 200mm long and 120mm wide.

General Laboratory ware

1. Preliminaries
  - 1.0 A designated area will be used to perform this test and a clear area of bench must first be allotted before this test proceeds.
    - 1.1 Ensure that the Sample Number and the Test Schedule correspond.
    - 1.2 Obtain the Test Worksheet No.xxx from Cabinet.
    - 1.3 Ensure that the oven has had a recent calibration and is in working order. Only ovens designated for moisture content determination shall be used.
    - 1.4 Ensure that the balance is reading accurately and the calibration certificate is valid.
      - 1.4.1 The appropriate log will then be signed accepting that the equipment is in a satisfactory condition before testing begins.

### 2 Standard Test Method

2.0 The aggregate used in this test will have been obtained from a bulk sample that was initially taken and prepared in the manner described in both:

BS EN 932-1:1999. **Tests for general properties of aggregates Part 1: Methods for sampling**

BS EN 932-2:1997. **Tests for general properties of aggregates Part 2: Methods for reducing laboratory Samples**

2.1 The test portion should have a minimum mass as shown in Table 1 below:

Table 1

Nominal Size of Aggregate (mm)	Minimum Mass of Test Portion (kg)
63 to 50	15
40 to 20	10
20 to 10	5
10 to 5	1
less than 5	0.5

- 2.2 A container plus lid will be weighed to the nearest 0.1g and the weight recorded on the test sheet as (mass M<sub>1</sub>).
- 2.3 The sample will be placed in the container and lid replaced.
- 2.4 The container with the sample will then be weighed to the nearest 0.1g and the weight recorded on the test sheet as (mass M<sub>2</sub>).
- 2.5 Remove the lid from the container and place the sample, container and lid in the oven and dry at a temperature of 105+/- 5 deg C for a period of 16 to 24 hrs.
- 2.6 Remove these from the oven, replace the lid and allowed to cool for 0.5 to 1 hour.
- 2.6.1 Weigh to the nearest 0.1g and record the weight on the test sheet as (mass M<sub>3</sub>).
- 3.0 Calculation of Result
- 3.1 The moisture content will be calculated as follows:
- $$\text{Moisture Content (\% dry mass)} = \frac{(M_2 - M_3)}{(M_3 - M_1)} \times 100$$
- 4.0 Reporting Result
- 4.1 The moisture content will be reported to the nearest 0.1% stating that it is by dry weight, in accordance with BS EN 1097-2008, and also stating whether a sampling certificate is available.
- 4.2 The method of test used shall also be stated.