**Faulty of Engineering and Technology**

**Faulty of Engineering and Technology**

**Civil Engineering Department**

**Civil Engineering Department**

**Construction Materials Laboratory**

**Construction Materials Laboratory**

**ENCE215**

**Experiment :**

**" Cement Consistency "**

**Instructors :**

Dr. Khalil Qatu

Eng. Nasser

**Done by :**

**: Mohammad Al-Swaity " 1181136** "

Date of performing the experiment : 17/6/2020

Date of performing the experiment : 17/6/2020

Date of submitting the experiment : 12/8/2020 Date of submitting the experiment : 12/8/2020

**Introduction :**

Standard Consistency , It is that cement consistency which will allow the Vicat plunger to penetrate to 5-7 mm point from the bottom of Vicat mould is known as standard consistency .

The vicat apparatus consists of a frame having a movable rod with a cap at one end and at the other end any one of the following attachment, which are interchangeable :

1. Needle for determining the initial setting time .

2. Needle for determining the final setting time .

3. Plunger for determining the standard consistency .

**Purpose :**

• Find the normal water cement ratio ( W/C ) .

• Find the initial setting time .

• Find the final setting time .

**Materials and Equipment's :**

| Equipment | The name of it : | Equipment | The name of it : |
| --- | --- | --- | --- |
| Figure 1 | **Vicat mould** | Figure 2 | **Cement** |
| Figure 3 | **Dropper filled with water** | Figure 4 | **Iron plate** |

" Table 1 "

**Procedure :**

• Weigh approximately 400g of cement and mix it with a weighed quantity of water. The time of gauging should be between 3 to 5 minutes .

• Fill the Vicat mould with paste and level it with a trowel .

• Lower the plunger gently till it touches the cement surface .

• Release the plunger allowing it to sink into the paste .

• Note the reading on the gauge .

• Repeat the above procedure taking fresh samples of cement and different quantities of water until the reading on the gauge is 5 to 7mm .

**Result and Conclusion :**

**Results :**

| Amount of cement (g) | Amount of water (g) | The amount of concrete that has been filled : (mm) |
| --- | --- | --- |
| 400 g | 28% of the cement  amount = 112 g | 26 mm |
| 400 g | 30% of the cement  amount = 120 g | 32 mm |
| 400 g | 32% of the cement  amount = 128 g | 8 mm |
| 400 g | 33% of the cement  amount = 132 g | 7 mm |

**Conclusion :**

The time of gauging should not be less than 3 minutes and not more than 5 minutes. Gauging time is the time elapsing from the time of adding water to the dry cement until commencing to fill the mould .

The test should be conducted at room temperature 27oC +/- 2oC

There should be no vibration on the working table.

The plunger should be cleaned during every repetition.