DETERMINATION OF INITIAL & FINAL SETTING TIMES

STANDARD

OBJECTIVE
- To determine the initial and final setting times of cement.

APPARATUS
- Vicat apparatus conforming to IS: 5513-1976.
- Balance of capacity 1kg and sensitivity 1 gram.
- Gauging trowel conforming to IS: 10086-1982.

PROCEDURE
- Unless otherwise specified this test shall be conducted at a temperature of $27 \pm 2^\circ$C and $65 \pm 5\%$ of relative humidity of the Laboratory.
- Prepare a paste of 300 grams of cement with 0.85 times the water required to give a paste of standard consistency IS: 4031 (Part 4) 1988.
- The time of gauging in any case shall not be less than 3 minutes not more than 5 minutes and the gauging shall be completed before any sign of setting occurs.
- Count the time of gauging from the time of adding water to the dry cement until commencing to fill the mould.
- Fill the vicat mould with this paste making it level with the top of the mould.
- Slightly shake the mould to expel the air.
- In filling the mould the operator hands and the blade the gauging trowel shall only be used.

Initial Setting Time
- Immediately place the test block with the non-porous resting plate, under the rod bearing the initial setting needle.
- Lower the needle and quickly release allowing it to penetrate in to the mould.
- In the beginning the needle will completely pierce the mould.
Repeat this procedure until the needle fails to pierce the mould for 5 ± 0.5mm.
Record the period elapsed between the time of adding water to the cement to the
time when needle fails to pierce the mould by 5 ± 0.5mm as the initial setting time.

Final Setting Time
Replace the needle of the vicat apparatus by the needle with an annular ring
Lower the needle and quickly release.
Repeat the process until the annular ring makes an impression on the mould.
Record the period elapsed between the time of adding water to the cement to the
time when the annular ring fails to make the impression on the mould as the final
setting time.

REPORT
Report the initial setting time and final setting time in minutes.

PRECAUTION
The time of gauging in any case shall not be less than 3 minutes not more than
5 minutes.
FORM D48

Punjab State Road Sector Project
PWD B&R Branch, Govt. of Punjab
Punjab Roads & Bridges Development Board

DETERMINATION OF INITIAL AND FINAL SETTING TIME
OF HYDRAULIC CEMENT BY VICAT NEEDLE
(IS 4031)

Cement Brand : __________________ Date of Sampling : __________________
Source : __________________ Date of Testing : __________________
Size of Sample : __________________ Size of Lot : __________________

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<th>Determination No.</th>
<th>Normal Consistency</th>
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<th>Time When Water is Added to Cement</th>
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<th>Time at Initial Setting</th>
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<th>Total Time Taken for Initial Setting</th>
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Remarks : ______________________________________

Approved / Not Approved:

Contractor’s Representative  Materials Engineer  Resident Engineer
Consultant  Consultant  Consultant