

QUESTIONS FOR “TESTS ON PORTLAND CEMENT”

Specific Gravities and Specific Surface Areas of the some binding materials were determined according to ASTM C188 and C204 respectively. Following data were obtained experimentally. Answer questions 1 to 5 by using the data given in the above table:

Material	Le Chatelier Flask Final reading (mL)	Le Chatelier Flask 1 st reading (mL)	T(°C)	t (seconds)	S (cm ² /g)
Reference Cement	20	0,3	24	103	3600
A	21	1,2	20	96	?
B	26	0,9	26	26	?
C	28	0,4	22	121	?
D	22,52	1,23	24	89	?

1. Determine the specific gravities and specific surface areas of the Materials A, B, C, and D according to ASTM C204. Considering the fineness of the cements, state whether these cements meet the requirements of ASTM C 150. Are they coarser or finer than what is specified in the standard?
2. Calculate the diameter of a spherical cement particle representative of the whole cement for each material.
3. List three consequences of using water instead of naphtha and kerosene when determining the specific gravity in ASTM C188.
4. Is it possible to determine a specific gravity value less than 2.66 with this method? Why /why not?
5. Some of the data given in the above table are not possible to be determined experimentally. Read ASTM C 188 and ASTM C204 and identify the illogical data.
6. According to ASTM C191, explain the procedure for setting time determination in your own words.
7. What is “soundness” of cement? What makes cement unsound?
8. Name two ASTM standards for determining the compressive strength of hydraulic cement mortars. What are the similarities and differences of these standards?

ASTM Standards can be accessed inside the METU Campus under:

<https://login.ihserc.com/cgi-bin/ihlogin>

searching through IHS Standards Experts link.