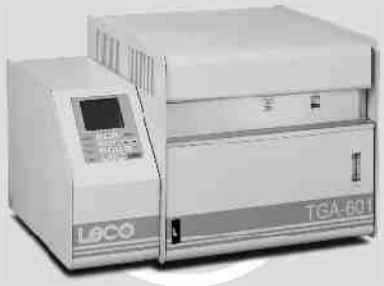
Organic Application Note

Two-Step Loss-on-Ignition (LOI) on Cement



Accessories

529-047 Ceramic Crucible, 778-891 Quartz (optional)

Sample Weight

~1.5 g

Analysis Time

~2 hours

Calibration Standard

No calibration necessary; check balance.

General Settings

Crucible Density:	3.00 (Crucible density should be set at 2.2 if quartz crucible is used)
Cover Density:	3.00
Sample Density:	1.50

Steps Information

	Step 1	*Step 2*
Covers:	Off	Off
Ramp Rate:	6	40
Ramp Time (h:m):	00:13	00:22
Starting Temp (°C):	25	105
Ending Temp (°C):	105	1000
Atmosphere:	Air	Air
Flow Rate:	Medium	Medium
Hold Time (h:m)	00:00	00:00

Constants

	Step 1	*Step 2*
Constant Weight:	0.04%	0.04%
Weight/Time (h:m):	00:09	00:09

Equations

Initial Weight:	W[Initial]
Wt Loss Step 1:	((W[Initial]-W[Step1])/W[Initial])*100
Wt Loss Step 2:	((W[Step1]-W[Step2])/W[Initial])*100
Residue:	(W[Step2]/W[Initial])*100

TGA-601

Procedure

1. Check furnace balance with 1 g weight in "sequence test."
2. Select method as described above.
3. Enter ID codes if a PC is used, if not, they will be entered later with the DSP.
4. Press Analyze.
5. Load empty crucibles into the furnace carousel making sure a crucible is in the reference position.
6. Press Start to locate and tare crucibles.
7. The furnace cover opens and each crucible is presented to the operator for sample loading.
8. Put 1.5 g sample into the crucible.
9. Press Next to continue.
10. When all crucibles are loaded, analysis begins.

Typical Results

Sample	Step 1	Step 2	Residue
Cement #1	1.774	11.78	86.44
	1.810	11.77	86.40
	1.786	11.77	86.40
	1.846	11.78	86.34
	1.941	11.77	86.24
	1.812	11.77	86.36
	1.789	11.76	86.40
Average	**1.823**	**11.77**	**86.37**
Std. Dev.	**0.057**	**0.007**	**0.066**
n = 7			
Cement #2	1.757	15.38	82.88
	1.755	15.42	82.83
	1.766	15.42	82.80
	1.754	15.45	82.76
	1.765	15.45	82.76
	1.756	15.43	82.78
	1.745	15.43	82.80
Average	**1.757**	**15.42**	**82.81**
Std. Dev.	**0.007**	**0.02**	**0.039**
n = 7			

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