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## LAMPIRAN



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**TEST REPORT**  
 NO : 807 /CE/QA/STAX/2019

Product type : Portland Composite Cement  
 Produced by : PT. Semen Tonasa  
 Date of production : July 26,2019 up to August 25,2019  
 Sampling Area : Outlet Silo II, III, IV & V  
 Sample Code : 23.1/80 PCC up to 23.1/87 PCC, 23.3/13 PCC up to 23.3/18 PCC  
 : 4.1/74 PCC up to 4.1/82, 4.3/88 up to 4.3/97 PCC  
 : 5.1/69 PCC up to 5.1 /75 PCC, 5.2/57 PCC up to 5.2/65 PCC  
 : 5.3/77 PCC up to 5.3 /80 PCC,  
 Date of Analysis : August 26,2019 up to September 07,2019  
 Environment Condition : Temperature (22 ± 1.7) ° C, Humidity 64% up to 72 %  
 Reference : SNI 7064 : 2014  
 Published : Marketing

No.	Description	Reference Standard SNI 7064 : 2014	Test Result	Analytical Method SNI 2048 : 2015
<b>I.</b>	<b>CHEMICAL PROPERTIES :</b>			
	Magnesium Oxide (MgO) (%)	-	0.80	Pat 7.1.3.10
	Sulfur trioxide (SO <sub>3</sub> ) (%)	max. 4.00	1.86	Pat 7.1.3.11
	Loss Ignition (%)	-	10.23	Pat 7.1.3.12
	Insoluble residue (%)	-	5.96	Pat 7.1.3.1
	Silicon Dioxide ( SiO <sub>2</sub> ) (%)	-	16.90	Pat 7.1.3.2
	Aluminium Oxide ( Al <sub>2</sub> O <sub>3</sub> ) (%)	-	4.93	Pat 7.1.3.3
	Ferric Oxide ( Fe <sub>2</sub> O <sub>3</sub> ) (%)	-	3.94	Pat 7.1.3.4
	Calcium Oxide ( CaO ) (%)	-	55.69	Pat 7.1.3.9
	Total (%)	-	99.92	-
	Free Lime (%)	-	1.03	Pat 7.1.4.6
<b>II.</b>	<b>PHYSICAL PROPERTIES :</b>			
	Fineness, specific surface :			
	- Air permeability test (m <sup>2</sup> /kg)	min. 260	440	Pat 7.2.2
	- Residu on 45 mic. (%)	-	9.40	-
	Soundness :			
	- Autoclave expansion (%)	max. 0.80	0.03	Pat 7.2.5
	Compressive strength :			
	- 3 days (kg/cm <sup>2</sup> )	min. 130	154	Pat 7.2.6
	- 7 days (kg/cm <sup>2</sup> )	min. 200	214	Pat 7.2.6
	- 28 days (kg/cm <sup>2</sup> )	min. 280	295	Pat 7.2.6
	Time of setting, vicat test :			
	- Initial set (minutes)	min. 45	146	Pat 7.2.4
	- Final set (minutes)	max. 375	271	Pat 7.2.4
	Air of mortar, %	max. 12.00	6.26	Pat 7.2.10
	False set, final penetration (%)	min. 90.00	87.45	Pat 7.2.7

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Tonasa, September 08, 2019  
 Quality Assurance

  
 Yosi Neapredana, ST  
 Senior Manager



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**TEST REPORT**  
 NO : 808/CE/QA/ST/IX/2019

Product type : Portland Composite Cement  
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 Date of production : July 26,2019 up to August 25,2019  
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 : 4.1/74 PCC up to 4.1/82, 4.3/68 up to 4.3/97 PCC  
 : 5.1/69 PCC up to 5.1 /75 PCC, 5.2/57 PCC up to 5.2/65 PCC  
 : 5.3/77 PCC up to 5.3 /80 PCC,  
 Date of Analysis : August 26,2019 up to September 07,2019  
 Environment Condition : Temperature (22 ± 1.7) ° C, Humidity 64% up to 72 %  
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 Published : Marketing

No.	DESCRIPTION	Reference Standard SNI 7064 : 2014	Test Result	Analytical Method SNI 2049 : 2015
E.	PHYSICAL PROPERTIES :	-		
	Bulk Density (kg/liter)	-	1.15	-
	Specific Gravity (g/cm <sup>3</sup> )	-	2.97	-
	NC (%)		24.89	

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Tonasa, September 09, 2019  
 Quality Assurance

  
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 Senior Manager