

## Laboratory Test Report

**Test no:** QGL88-202001-003  
**Date:** 24 Jan 2020  
**Sample Received:** 19 Dec 2019

**Product :** TS168G Duct Grout Mat.  
**Batch no:** DGM1687.12.2019.3  
**Sample type:** Random sample




### Test Results

Sl.	Tests Description	Standard of Test Procedure	Manufacture's Test Results	Post Tensioning Institute (PTI) Spec. Limits
1.	<b>Setting Time</b>	ASTM C953	Initial setting: 6 hours and final setting: 9 hours at 25°C	The setting time should be more than 3 but less than 12 hours
2.	<b>Grout Strength</b>	ASTM C942	31 Mpa at 7 days and 45 Mpa at 28 days	The strength should be 21 Mpa at 7 days and 35 Mpa at 28 Days
3.	<b>Permeability</b>	ASTM C1202	1250 coulombs after 6 hours subject to a potential of 3 volts	A value less than 2500 coulombs after 6 hours is generally accepted when subjected to a potential of 3 Volts
4.	<b>Volume Change</b>	ASTM C1090	0.05% at 24 hours and 0.2% at 28 days	A value of 0.0 % to less than +0.1% at 24 hours and no more than +0.32 % at 28 days is acceptable
5.	<b>Fluidity (Efflux Time)</b>	ASTM C939	18 sec	The Efflux time should be between 5 and 30 sec immediately after mixing
6.	<b>Bleed Characteristics</b>	ASTM C940	0.0% after 24 hours	A bleed of 0.0% after 3 hours
7.	<b>Corrosion level</b>		No corrosion occurs after grouting	
8.	<b>Wet Density</b>		1897 kg/m <sup>3</sup>	Compared to Manufacturer
9.	<b>Segregation of material after mixing</b>		No segregation is observed after mixing till to setting time.	
10.	<b>Chloride Ion Content of cement grout mix.</b>		Chloride ion content is 0.03%	Max Chloride content 0.08%

#### Remarks:

#### Affirmation:

  
 Jeonghang-myung  
 Lab Supervisor

  
 Seongho Yi  
 Head of QC



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