



Materials Test Report

AS 2758.1
Concrete aggregate



Client Société Le Nickel Client Address 2 rue Desjardins, B.P. E5 98 848 NOUMEA, NEW CALEDONIA		Report Number Date Issue Authorized Signatory Position																																																													
Product Name Le Sland Project Location Vanuatu Sample Location Stockpile -010917 Material source FerroNicle Slag (FNS) Purchase Order		Accreditation number																																																													
Sample Details Sample No: Date Sampled: Sampled by: Sampling Method: Material Type: Sand		Other Test Information <table border="1"> <thead> <tr> <th>Description</th> <th>Method</th> <th>Result</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Particle Density (T/m³)</td> <td>AS 1141.5</td> <td>-</td> <td>-</td> </tr> <tr> <td><i>Apparent</i></td> <td></td> <td>2.94</td> <td></td> </tr> <tr> <td><i>On a dry basis</i></td> <td></td> <td>2.9</td> <td></td> </tr> <tr> <td><i>On a saturated surface-dry basis</i></td> <td></td> <td>2.91</td> <td></td> </tr> <tr> <td>Bulk Density (loose) (T/m³)</td> <td></td> <td>1.3</td> <td>1.2 - 1.4</td> </tr> <tr> <td>Water absorption (%)</td> <td>AS 1141.5</td> <td>0.5</td> <td>0.4 - 0.6</td> </tr> <tr> <td>Sodium sulfate soundness (%w. loss)</td> <td>AS 1141.24</td> <td>0.9</td> <td><6</td> </tr> <tr> <td>Clay and fine silt (%)</td> <td>AS 1141.33</td> <td>0</td> <td>0</td> </tr> <tr> <td>Chloride (%)</td> <td>AS 1141.20</td> <td>< 0.01</td> <td></td> </tr> <tr> <td>Sulfate (%)</td> <td>AS 1141.20</td> <td>0.01</td> <td></td> </tr> <tr> <td>Presence of sugar</td> <td>AS 1141.35</td> <td>NEGATIVE</td> <td></td> </tr> <tr> <td>Organic impurities other than sugar</td> <td>AS 1141.34</td> <td>PASS</td> <td></td> </tr> <tr> <td>Potential alkaline reactivity</td> <td>CSIRO</td> <td>REACTIVE</td> <td></td> </tr> <tr> <td>AMBT AAR assessment (25%FA/75%OPC)</td> <td>PASS</td> <td>(25% Fly Ash recommended)</td> <td></td> </tr> </tbody> </table>		Description	Method	Result	Limits	Particle Density (T/m ³)	AS 1141.5	-	-	<i>Apparent</i>		2.94		<i>On a dry basis</i>		2.9		<i>On a saturated surface-dry basis</i>		2.91		Bulk Density (loose) (T/m ³)		1.3	1.2 - 1.4	Water absorption (%)	AS 1141.5	0.5	0.4 - 0.6	Sodium sulfate soundness (%w. loss)	AS 1141.24	0.9	<6	Clay and fine silt (%)	AS 1141.33	0	0	Chloride (%)	AS 1141.20	< 0.01		Sulfate (%)	AS 1141.20	0.01		Presence of sugar	AS 1141.35	NEGATIVE		Organic impurities other than sugar	AS 1141.34	PASS		Potential alkaline reactivity	CSIRO	REACTIVE		AMBT AAR assessment (25%FA/75%OPC)	PASS	(25% Fly Ash recommended)	
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Particle Size Distribution Test Method: AS 1141.11.1 Date Tested: Specification:		<table border="1"> <thead> <tr> <th>Sieve Size (mm)</th> <th>% Passing</th> <th>Limits</th> </tr> </thead> <tbody> <tr><td>0,075</td><td>0</td><td>0 - 2</td></tr> <tr><td>0,15</td><td>1</td><td>0 - 5</td></tr> <tr><td>0,3</td><td>4</td><td>2 - 8</td></tr> <tr><td>0,425</td><td>8</td><td>4 - 12</td></tr> <tr><td>0,6</td><td>15</td><td>6 - 24</td></tr> <tr><td>1,18</td><td>45</td><td>20 - 60</td></tr> <tr><td>2,36</td><td>88</td><td>55 - 95</td></tr> <tr><td>4,75</td><td>100</td><td>95 - 100</td></tr> <tr><td>6,7</td><td>100</td><td>100</td></tr> <tr><td>9,5</td><td>100</td><td>100</td></tr> </tbody> </table>		Sieve Size (mm)	% Passing	Limits	0,075	0	0 - 2	0,15	1	0 - 5	0,3	4	2 - 8	0,425	8	4 - 12	0,6	15	6 - 24	1,18	45	20 - 60	2,36	88	55 - 95	4,75	100	95 - 100	6,7	100	100	9,5	100	100																											
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Mineralogy SiO ₂ : 53 % MgO : 33 % Fe ₂ O ₃ : 11 % Al ₂ O ₃ : 2 %		50 - 55 30 - 35 10 - 15 1 - 3 No Periclase (reactive MgO) Crystalline phase:																																																													
Remarks Safety screening @ 20 mm. (Max particle size) Max Ni metal 0,1% No crystalline silica		MnO < 1 % CaO < 1 % Forsterite, ferroan (XRD) Clinoenstatite 0,2 - 0,6																																																													