



CERTIFICATE OF QUALITY

EcoSure® Type GP Cement

NZS3122:2009 (Bulk Despatch)



Issued to: National Sales Manager

Test Report No: 23#16

info@goldenbay.co.nz

| Code | Week Ending / Voyage | Specific Surface Area | Normal Consistency | Initial Set | Final Set | Soundness | Compressive Strength | | | | | | Free Lime | Sodium Equivalent (NaEq) | Sulphur Trioxide (SO3) | |
|----------------------------|----------------------|-----------------------|--------------------|-------------|-----------|-----------|----------------------|----------|----------|----------|--------|--------|-----------|--------------------------|------------------------|---------|
| | | | | | | | ISOECN | | | Concrete | | | | | | |
| | | | | | | | 3 days | 7 days | 28 days | Slump | 3 days | 7 days | | | | 28 days |
| Mean | | 344 | 29.1 | 137 | 3:45 | 1 | 31.1 | 44.4 | 64.8 | 95 | 23.1 | 33.1 | 48.6 | 2.0 | 0.54 | 2.2 |
| Standard Deviation | | 14 | 0.2 | 9 | 0:14 | 0 | 1.1 | 1.8 | 1.4 | 9 | 1.4 | 1.7 | 2.4 | 0.3 | 0.01 | 0.05 |
| Min | | 320 | 28.7 | 120 | 3:15 | 1 | 28.9 | 40.0 | 62.1 | 80 | 21.3 | 30.4 | 45.4 | 1.4 | 0.52 | 2.1 |
| Max | | 375 | 29.5 | 150 | 4:15 | 2 | 33.6 | 48.8 | 67.6 | 110 | 25.0 | 36.0 | 52.6 | 2.4 | 0.57 | 2.3 |
| NZS 3122:2009 Requirements | | | | 45 min | 6:00 max | 5 max | | 35.0 min | 45.0 min | | | | | | 0.6 max | 3.5 max |
| Units | | m2/kg | % | minutes | hrs:mins | mm | MPa | MPa | MPa | mm | MPa | MPa | MPa | % | % | % |
| 230124-814-GP | 24/01/23 | 345 | 29.2 | 120 | 3:45 | 1 | 32.6 | 46.0 | | 90 | 25.8 | 30.4 | | 1.4 | 0.55 | 2.1 |
| 230121-657-GP | 21/01/23 | 325 | 28.8 | 120 | 4:00 | 1 | 30.3 | 45.8 | | | | | | 2.3 | 0.53 | 2.1 |
| 230119-477-GP | 19/01/23 | 325 | 29.3 | 135 | 4:15 | 1 | 30.1 | 44.6 | | 90 | 22.7 | 32.4 | | 1.8 | 0.53 | 2.1 |
| 230113-325-GP | 13/01/23 | 345 | 29.1 | 150 | 3:45 | 1 | 31.6 | 46.6 | | | | | | 1.9 | 0.55 | 2.2 |
| 230107-315-GP | 07/01/23 | 345 | 29.1 | 150 | 3:45 | 2 | 30.8 | 42.7 | | 110 | 21.7 | 32.0 | | 1.8 | 0.53 | 2.2 |
| 221231-208-GP | 31/12/22 | 335 | 29.3 | 135 | 4:00 | 1 | 30.3 | 43.2 | 62.4 | 90 | 22.3 | 32.1 | | 1.7 | 0.52 | 2.2 |
| 221223-021-GP | 23/12/22 | 335 | 29.4 | 150 | 3:45 | 1 | 30.3 | 42.6 | 66.0 | 100 | 21.3 | 33.3 | 50.7 | 2.0 | 0.53 | 2.2 |
| 221220-706-GP | 20/12/22 | 320 | 29.5 | 135 | 4:00 | 1 | 30.9 | 44.4 | 67.6 | | | | | 1.8 | 0.52 | 2.2 |
| 221217-703-GP | 17/12/22 | 325 | 29.5 | 135 | 4:00 | 1 | 32.9 | 44.6 | 65.1 | 90 | 23.4 | 32.1 | | 1.8 | 0.54 | 2.2 |
| 221214-374-GP | 14/12/22 | 340 | 28.9 | 135 | 3:45 | 1 | 29.6 | 43.9 | 66.4 | | | | | 1.9 | 0.54 | 2.1 |
| 221212-372-GP | 12/12/22 | 335 | 28.8 | 120 | 3:30 | 1 | 31.1 | 43.2 | 65.2 | | | | | 2.2 | 0.56 | 2.1 |
| 221207-951-GP | 07/12/22 | 340 | 29.0 | 135 | 4:00 | 1 | 32.2 | 44.9 | 65.0 | | | | | 2.1 | 0.57 | 2.1 |
| 221205-949-GP | 05/12/22 | 340 | 29.2 | 135 | 3:45 | 1 | 32.3 | 44.5 | 65.3 | 100 | 22.5 | 30.5 | 45.4 | 2.2 | 0.57 | 2.1 |
| 221130-529-GP | 30/11/22 | 360 | 29.2 | 135 | 3:45 | 1 | 31.3 | 43.9 | 65.4 | 90 | 25.0 | 35.7 | 48.7 | 2.2 | 0.55 | 2.2 |
| 221128-527-GP | 28/11/22 | 355 | 29.1 | 135 | 4:00 | 2 | 31.5 | 44.1 | 64.6 | | | | | 2.3 | 0.55 | 2.2 |
| 221126-234-GP | 26/11/22 | 375 | 29.0 | 135 | 3:30 | 1 | 30.5 | 44.3 | 62.9 | 100 | 22.7 | 34.6 | 48.5 | 2.4 | 0.57 | 2.2 |
| 221124-236-GP | 24/11/22 | 355 | 29.1 | 135 | 3:30 | 1 | 31.1 | 43.3 | 62.1 | | | | | 2.4 | 0.55 | 2.1 |
| 221118-977-GP | 18/11/22 | 355 | 29.0 | 150 | 4:00 | 1 | 31.6 | 45.6 | 64.1 | | | | | 1.9 | 0.53 | 2.1 |
| 221113-975-GP | 13/11/22 | 350 | 28.9 | 150 | 3:45 | 1 | 33.6 | 48.8 | 65.7 | 90 | 24.4 | 34.2 | 52.6 | 1.4 | 0.54 | 2.2 |
| 221109-470-GP | 09/11/22 | 355 | 29.0 | 150 | 3:30 | 1 | 31.4 | 46.4 | 66.4 | 110 | 21.8 | 33.4 | 47.1 | 1.5 | 0.54 | 2.1 |
| 221107-504-GP | 07/11/22 | 370 | 29.0 | 150 | 3:45 | 1 | 31.2 | 46.7 | 64.8 | | | | | 2.0 | 0.53 | 2.2 |
| 221102-131-GP | 02/11/22 | 340 | 29.1 | 135 | 3:30 | 1 | 30.6 | 43.7 | 63.8 | | | | | 1.6 | 0.57 | 2.2 |
| 221031-129-GP | 31/10/22 | 350 | 29.1 | 135 | 3:30 | 1 | 31.3 | 42.8 | 65.3 | 100 | 22.5 | 33.3 | 46.3 | 2.0 | 0.53 | 2.3 |
| 221027-728-GP | 27/10/22 | 350 | 28.7 | 135 | 3:30 | 1 | 28.9 | 40.0 | 62.9 | 80 | 23.6 | 36.0 | 49.7 | 2.3 | 0.53 | 2.2 |
| 221025-726-GP | 25/10/22 | 335 | 28.8 | 135 | 3:15 | 1 | 29.6 | 43.5 | 65.6 | | | | | 2.1 | 0.55 | 2.2 |

The above samples were tested as received in accordance with the current terms of accreditation and methods stated in NZS 3122:2009 with the exception of:

Chemical composition to ASTM C114-18

- Concrete Compressive Strength test results outside the scope of accreditation

Sample Retested

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Raki Harding
Quality Manager



Portland Works, Portland, Whangarei 0178

Date issued: 8/02/2023

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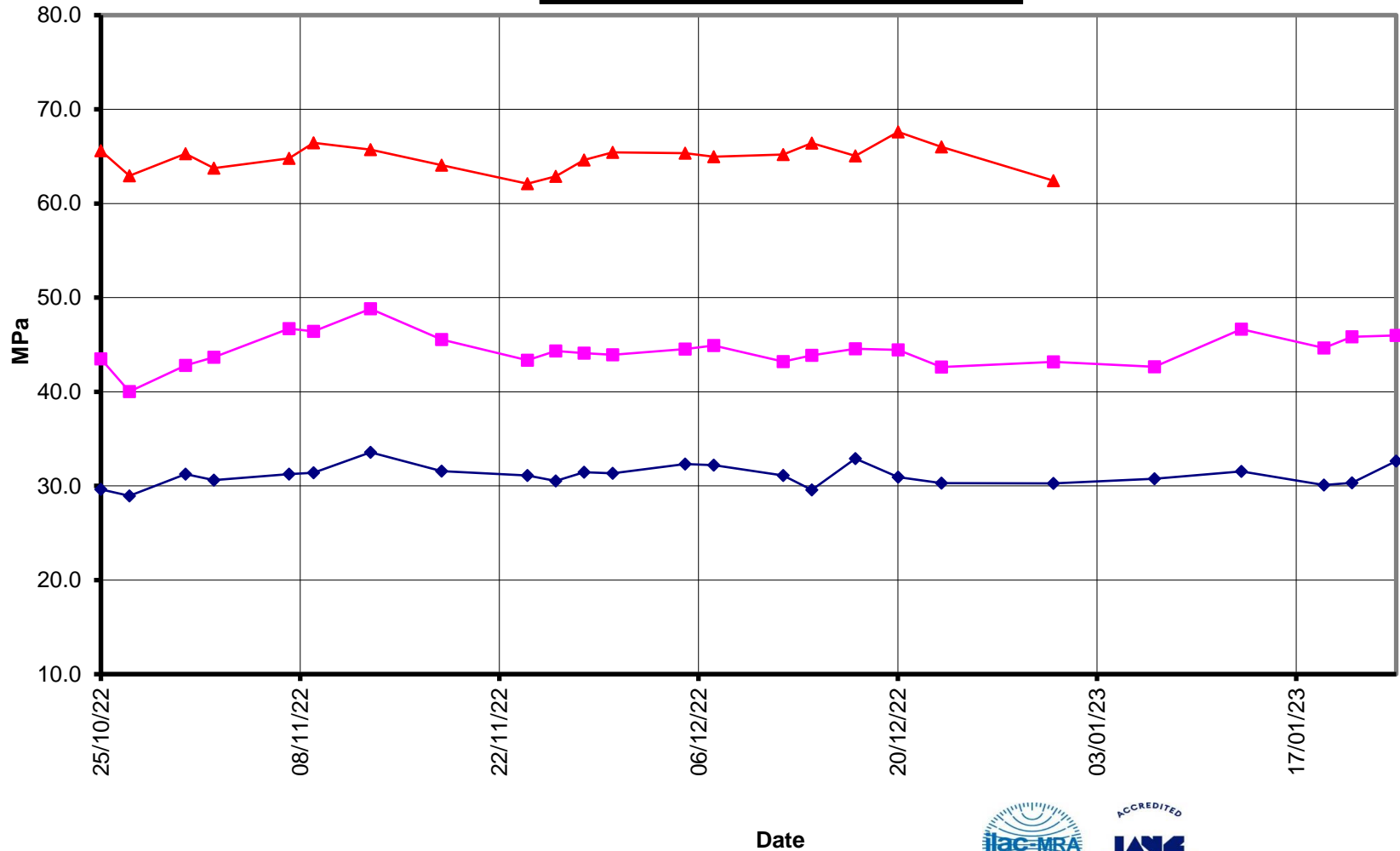


EcoSure® Type GP Cement

Compressive Strength ISO-CEN Mortar (Bulk Dispatch)



28 Days 7 Days 3 Days





EcoSure® Type GP Cement

Compressive Strength Concrete (Bulk Dispatch)



—x— 28 Days —■— 7 Days —◆— 3 Days —x— Slump

