



CERTIFICATE OF QUALITY

EcoSure® Type GP Cement

NZS3122:2009 (Bulk & Bag Despatch)



Issued to: National Sales Manager

Test Report No: 23#103

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 | | | Slump | Concrete | | | | | |
| | | | | | | | 3 days | 7 days | 28 days | | 3 days | 7 days | | | | 28 days |
| Mean | | 348 | 29.5 | 139 | 3:37 | 1 | 34.9 | 47.8 | 65.6 | 88 | 26.5 | 36.8 | 48.5 | 1.6 | 0.54 | 2.35 |
| Standard Deviation | | 11 | 0.3 | 10 | 0:11 | 0.5 | 0.9 | 1.0 | 1.4 | 10 | 1.9 | 2.5 | 2.3 | 0.2 | 0.01 | 0.03 |
| Min | | 330 | 29.1 | 120 | 3:15 | 0 | 32.7 | 46.2 | 64.0 | 70 | 21.5 | 33.5 | 45.0 | 1.4 | 0.52 | 2.30 |
| Max | | 365 | 30.0 | 150 | 4:00 | 2 | 36.8 | 50.2 | 69.5 | 100 | 29.0 | 41.5 | 51.0 | 2.0 | 0.57 | 2.41 |
| 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 | % | % | % |
| 230915-073-GP | 15/09/23 | 330 | 30.0 | 120 | 3:45 | 2 | 34.7 | | | | | | | 1.4 | 0.54 | 2.30 |
| 230910-071-GP | 10/09/23 | 335 | 29.5 | 135 | 3:45 | 1 | 35.5 | | | 80 | 28.0 | | | 1.6 | 0.56 | 2.37 |
| 230907-634-GP | 07/09/23 | 355 | 29.9 | 135 | 3:45 | 2 | 34.9 | 48.8 | | | | | | 1.8 | 0.55 | 2.37 |
| 230902-629-GP | 02/09/23 | 355 | 29.9 | 135 | 4:00 | 0 | 35.0 | 47.8 | | 100 | 26.5 | 36.5 | | 1.7 | 0.54 | 2.31 |
| 230829-392-GP | 29/08/23 | 355 | 29.9 | 135 | 3:30 | 1 | 35.2 | 47.1 | | 90 | 28.0 | 39.0 | | 1.6 | 0.54 | 2.35 |
| 230824-052-GP | 24/08/23 | 360 | 29.9 | 135 | 3:45 | 1 | 35.5 | 47.9 | | 100 | 26.0 | 34.0 | | 1.4 | 0.54 | 2.35 |
| 230822-050-GP | 22/08/23 | 365 | 29.9 | 135 | 3:45 | 1 | 35.2 | 47.2 | | | | | | 1.5 | 0.55 | 2.33 |
| 230818-641-GP | 18/08/23 | 340 | 29.2 | 135 | 3:40 | 1 | 34.6 | 46.3 | 64.5 | 90 | 27.5 | 41.5 | 50.5 | 1.4 | 0.53 | 2.35 |
| 230814-639-GP | 14/08/23 | 350 | 29.1 | 150 | 3:45 | 1 | 34.0 | 46.2 | 65.2 | | | | | 1.5 | 0.55 | 2.35 |
| 230809-298-GP | 09/08/23 | 365 | 29.1 | 135 | 3:30 | 1 | 36.8 | 48.6 | 66.0 | 70 | 29.0 | 40.5 | 50.5 | 1.6 | 0.55 | 2.37 |
| 230807-296-GP | 07/08/23 | 345 | 29.1 | 120 | 3:15 | 1 | 36.2 | 49.0 | 66.3 | | | | | 1.8 | 0.55 | 2.38 |
| 230803-092-GP | 03/08/23 | 350 | 29.4 | 150 | 3:45 | 1 | 35.6 | 47.9 | 65.2 | | | | | 1.8 | 0.55 | 2.34 |
| 230731-086-GP | 31/07/23 | 350 | 29.2 | 135 | 3:15 | 1 | 34.6 | 46.9 | 65.3 | 90 | 25.5 | 34.5 | 47.0 | 1.9 | 0.55 | 2.36 |
| 230728-782-GP | 28/07/23 | 355 | 29.6 | 120 | 3:30 | 1 | 33.7 | 46.6 | 64.8 | | | | | 1.9 | 0.55 | 2.35 |
| 230723-746-GP | 23/07/23 | 365 | 29.6 | 135 | 3:30 | 2 | 36.0 | 50.2 | 66.5 | 100 | 27.5 | 38.0 | 51.0 | 1.6 | 0.55 | 2.38 |
| 230719-382-GP | 19/07/23 | 335 | 29.5 | 135 | 3:15 | 2 | 35.6 | 48.3 | 66.1 | 100 | 25.0 | 35.5 | 46.0 | 1.9 | 0.54 | 2.33 |
| 230714-028-GP | 14/07/23 | 335 | 29.6 | 150 | 3:45 | 1 | 35.4 | 47.7 | 64.7 | | | | | 1.5 | 0.57 | 2.36 |
| 230712-026-GP | 12/07/23 | 340 | 29.5 | 150 | 3:45 | 0 | 35.7 | 47.9 | 64.9 | 80 | 25.5 | 36.5 | 50.0 | 1.5 | 0.56 | 2.31 |
| 230704-724-GP | 04/07/23 | 350 | 29.5 | 135 | 3:30 | 1 | 34.5 | 47.3 | 64.1 | 90 | 21.5 | 33.5 | 47.0 | 1.7 | 0.56 | 2.39 |
| 230702-726-GP | 02/07/23 | 355 | 29.5 | 150 | 3:45 | 1 | 34.1 | 47.3 | 64.7 | | | | | 1.6 | 0.57 | 2.39 |
| 230630-339-GP | 30/06/23 | 340 | 29.6 | 150 | 3:45 | 1 | 32.7 | 46.6 | 65.8 | 80 | 27.0 | 36.5 | 49.5 | 1.4 | 0.54 | 2.38 |
| 230627-337-GP | 27/06/23 | 330 | 29.4 | 150 | 3:45 | 2 | 34.4 | 48.2 | 64.8 | | | | | 1.4 | 0.55 | 2.41 |
| 230622-004-GP | 22/06/23 | 340 | 29.2 | 150 | 3:30 | 1 | 33.0 | 47.1 | 64.0 | | | | | 1.5 | 0.54 | 2.35 |
| 230617-002-GP | 17/06/23 | 340 | 29.2 | 150 | 3:30 | 1 | 34.9 | 48.9 | 68.4 | 80 | 27.5 | 36.0 | 45.0 | 2.0 | 0.52 | 2.30 |
| 230615-860-GP | 15/06/23 | 350 | 29.1 | 135 | 3:45 | 1 | 34.7 | 49.4 | 69.5 | | | | | 1.8 | 0.53 | 2.32 |

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

All concrete testing conducted in accordance with NZS 3112:1986.

Retest

This Report must not be reproduced except in full

Vincent Lane
Works Chemist



Portland Works, Portland, Whangarei 0178

Date issued: 22/09/2023

Page 1 of 3

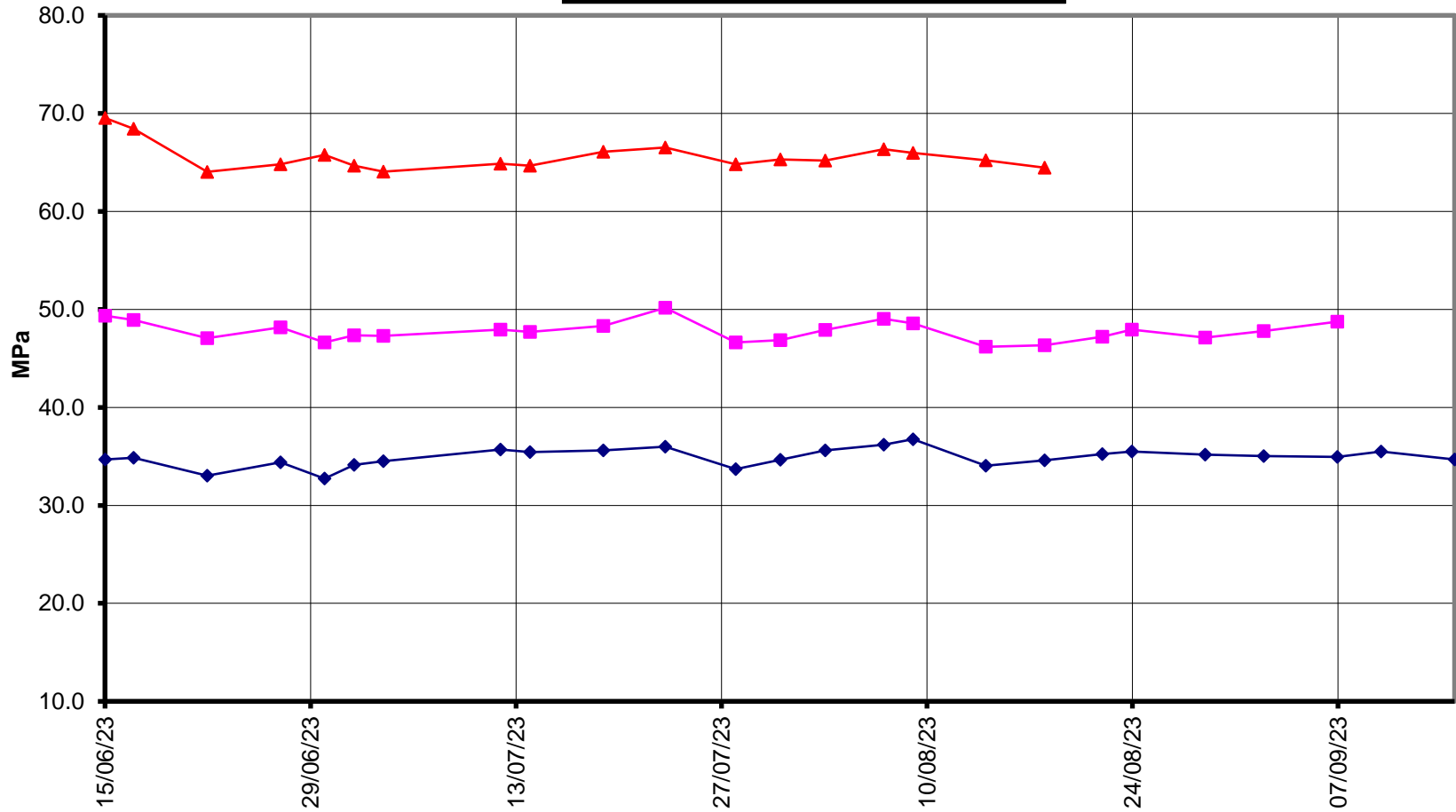


EcoSure® Type GP Cement

Compressive Strength ISO-CEN Mortar (Bulk Dispatch)



28 Days 7 Days 3 Days



Date

Test Report No: 23#103





EcoSure® Type GP Cement

Compressive Strength Concrete (Bulk Dispatch)



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

