



# CERTIFICATE OF QUALITY

## EcoSure® Type GP Cement

NZS3122:2009 (Bulk & Bag Despatch)



Issued to: National Sales Manager

Test Report No: 23#108

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) |         |
|----------------------------|----------------------|-----------------------|--------------------|-------------|-----------|-----------|----------------------|----------|----------|----------|--------|--------|-----------|--------------------------|------------------------|---------|
|                            |                      |                       |                    |             |           |           | ISOCCN               |          |          | Concrete |        |        |           |                          |                        |         |
|                            |                      |                       |                    |             |           |           | 3 days               | 7 days   | 28 days  | Slump    | 3 days | 7 days |           |                          |                        | 28 days |
| Mean                       |                      | 348                   | 29.6               | 138         | 3:36      | 1         | 34.9                 | 47.8     | 65.2     | 89       | 26.1   | 37.3   | 49.0      | 1.6                      | 0.55                   | 2.36    |
| Standard Deviation         |                      | 11                    | 0.3                | 11          | 0:11      | 0.5       | 0.9                  | 1.0      | 0.7      | 9        | 2.3    | 2.6    | 3.3       | 0.2                      | 0.01                   | 0.03    |
| Min                        |                      | 330                   | 29.1               | 120         | 3:15      | 0         | 32.7                 | 46.2     | 64.1     | 70       | 21.0   | 33.5   | 43.0      | 1.4                      | 0.53                   | 2.30    |
| Max                        |                      | 365                   | 30.0               | 150         | 4:00      | 2         | 36.8                 | 50.2     | 66.5     | 100      | 29.0   | 41.5   | 55.0      | 1.9                      | 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       | %                        | %                      | %       |
| 230927-762-GP              | 27/09/23             | 350                   | 29.8               | 150         | 3:30      | 2         | 34.5                 |          |          |          |        |        |           | 1.6                      | 0.53                   | 2.36    |
| 230924-755-GP              | 24/09/23             | 340                   | 29.8               | 120         | 3:30      | 0         | 34.6                 |          |          | 90       | 21.0   |        |           | 1.6                      | 0.53                   | 2.34    |
| 230919-450-GP              | 19/09/23             | 340                   | 29.6               | 150         | 3:30      | 1         | 33.8                 | 47.8     |          | 90       | 27.5   | 38.0   |           | 1.5                      | 0.54                   | 2.35    |
| 230915-073-GP              | 15/09/23             | 330                   | 30.0               | 120         | 3:45      | 2         | 34.7                 | 49.0     |          |          |        |        |           | 1.4                      | 0.54                   | 2.30    |
| 230910-071-GP              | 10/09/23             | 335                   | 29.5               | 135         | 3:45      | 1         | 35.5                 | 49.3     |          | 80       | 28.0   | 40.5   |           | 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     | 65.9     | 90       | 28.0   | 39.0   | 55.0      | 1.6                      | 0.54                   | 2.35    |
| 230824-052-GP              | 24/08/23             | 360                   | 29.9               | 135         | 3:45      | 1         | 35.5                 | 47.9     | 65.1     | 100      | 26.0   | 34.0   | 43.0      | 1.4                      | 0.54                   | 2.35    |
| 230822-050-GP              | 22/08/23             | 365                   | 29.9               | 135         | 3:45      | 1         | 35.2                 | 47.2     | 64.7     |          |        |        |           | 1.5                      | 0.55                   | 2.33    |
| 230818-641-GP              | 18/08/23             | 340                   | 29.2               | 135         | 3:30      | 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    |

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

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Vincent Lane  
Works Chemist



Portland Works, Portland, Whangarei 0178

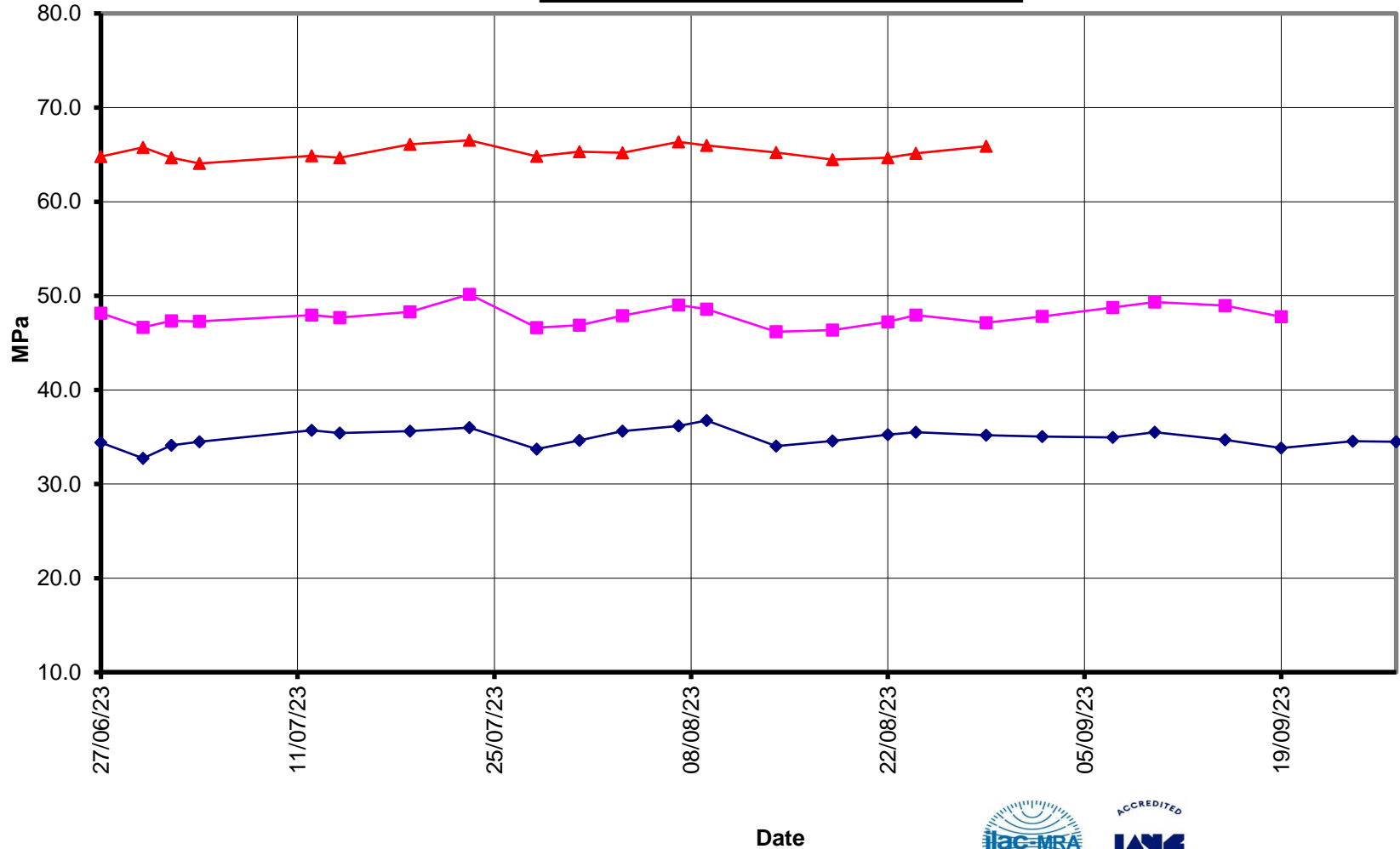
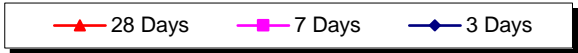
Date issued: 6/10/2023

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# EcoSure® Type GP Cement

## Compressive Strength ISO-CEN Mortar (Bulk Dispatch)





# EcoSure® Type GP Cement

## Compressive Strength Concrete (Bulk Dispatch)



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

