

CERTIFICATE OF QUALITY

EcoFast® Type HE Cement

NZS 3122:2009



Issued to: National Sales Manager

Test Report No: 25#16

info@goldenbay.co.nz

| Code | Week Ending | Specific Surface Area | Normal Consistency | Initial Set | Final Set | Soundness | Compressive Strength | | | | | | | | Free Lime | Sodium Equivalent (NaEq) | Sulphur Trioxide (SO ₃) | |
|----------------------------|-------------|-----------------------|--------------------|-------------|-----------|-----------|----------------------|----------|----------|---------|-------|----------|--------|--------|-----------|--------------------------|-------------------------------------|---------|
| | | | | | | | ISO-CEN | | | | Slump | Concrete | | | | | | |
| | | | | | | | 1 day | 3 days | 7 days | 28 days | | 1 day | 3 days | 7 days | | | | 28 days |
| Mean | | 521 | 33.0 | 131 | 3:16 | 1 | 23.8 | 41.3 | 51.7 | 66.0 | 86.0 | 14.7 | 35.1 | 43.4 | 53.2 | 1.5 | 0.56 | 2.37 |
| Standard Deviation | | 15 | 0.5 | 15 | 0:16 | 0.4 | 1.4 | 2.3 | 2.3 | 1.6 | 9.6 | 1.6 | 2.9 | 2.1 | 2.8 | 0.2 | 0.02 | 0.07 |
| Min | | 500 | 31.6 | 105 | 2:45 | 0 | 19.8 | 36.1 | 48.0 | 64.0 | 70.0 | 11.0 | 29.5 | 38.0 | 48.0 | 1.1 | 0.53 | 2.15 |
| Max | | 565 | 34.0 | 165 | 3:45 | 2 | 27.4 | 44.3 | 56.3 | 70.3 | 100.0 | 18.5 | 42.5 | 47.0 | 61.0 | 1.9 | 0.60 | 2.48 |
| NZS 3122:2009 Requirements | | | | 45 min | 6:00 max | 5 max | | 25.0 min | 40.0 min | | | | | | | | 0.6 max | 3.5 max |
| Units | | m ² /kg | % | minutes | hrs:mins | mm | Mpa | MPa | MPa | MPa | mm | Mpa | MPa | MPa | MPa | % | % | % |
| 241220-145-HE | 20/12/24 | 525 | 32.5 | 165 | 3:45 | 1 | 25.5 | 43.6 | 54.6 | 68.0 | 80 | 11.0 | 32.0 | 42.0 | 54.0 | 1.2 | 0.54 | 2.36 |
| 241118-955-HE | 18/11/24 | 515 | 32.6 | 135 | 3:15 | 1 | 19.8 | 36.1 | 48.1 | 64.4 | 80 | 13.5 | 34.5 | 43.5 | 54.0 | 1.2 | 0.54 | 2.15 |
| 241016-523-HE | 16/10/24 | 525 | 32.7 | 150 | 3:15 | 2 | 21.8 | 38.3 | 49.3 | 64.7 | 80 | 13.5 | 33.5 | 44.0 | 52.5 | 1.6 | 0.57 | 2.33 |
| 240925-558-HE | 25/09/24 | 500 | 32.9 | 135 | 3:30 | 0 | 25.3 | 38.8 | 52.7 | 66.2 | 80 | 14.5 | 32.5 | 41.5 | 51.0 | 1.3 | 0.57 | 2.42 |
| 240909-114-HE | 09/09/24 | 535 | 32.7 | 135 | 3:15 | 1 | 22.8 | 38.9 | 49.4 | 64.7 | 90 | 11.5 | 32.5 | 42.5 | 55.0 | 1.7 | 0.55 | 2.36 |
| 240825-361-HE | 25/08/24 | 525 | 32.9 | 135 | 3:15 | 0 | 23.6 | 40.7 | 50.5 | 65.2 | 90 | 15.5 | 35.0 | 42.0 | 52.5 | 1.5 | 0.55 | 2.41 |
| 240814-686-HE | 14/08/24 | 510 | 32.8 | 150 | 3:30 | 1 | 23.4 | 41.1 | 49.0 | 64.9 | 100 | 12.5 | 33.0 | 42.0 | 49.5 | 1.6 | 0.53 | 2.29 |
| 240729-144-HE | 29/07/24 | 505 | 33.1 | 150 | 3:45 | 1 | 24.7 | 42.2 | 50.3 | 65.7 | 80 | 15.5 | 39.0 | 44.5 | 56.0 | 1.6 | 0.59 | 2.48 |
| 240716-575-HE | 16/07/24 | 530 | 31.6 | 150 | 3:45 | 1 | 22.8 | 40.0 | 50.1 | 65.2 | 90 | 15.5 | 35.0 | 42.5 | 49.0 | 1.6 | 0.53 | 2.30 |
| 240621-277-HE | 21/06/24 | 515 | 33.3 | 135 | 3:00 | 1 | 23.2 | 37.2 | 48.0 | 64.0 | 100 | 14.0 | 30.0 | 38.0 | 50.5 | 1.3 | 0.53 | 2.38 |
| 240605-539-HE | 05/06/24 | 510 | 33.4 | 120 | 3:00 | 1 | 24.3 | 41.7 | 50.0 | 64.8 | 80 | 18.5 | 38.5 | 46.0 | 53.0 | 1.6 | 0.54 | 2.39 |
| 240523-038-HE | 23/05/24 | 505 | 33.2 | 105 | 3:45 | 1 | 23.5 | 42.2 | 54.8 | 64.7 | 100 | 15.0 | 35.5 | 43.0 | 53.0 | 1.4 | 0.53 | 2.42 |
| 240429-362-HE | 29/04/24 | 550 | 33.3 | 135 | 3:00 | 1 | 23.2 | 43.0 | 51.1 | 64.2 | 90 | 15.0 | 37.5 | 46.5 | 56.0 | 1.5 | 0.56 | 2.43 |
| 240421-987-HE | 21/04/24 | 520 | 33.7 | 120 | 3:15 | 2 | 22.7 | 43.7 | 50.3 | 67.2 | 100 | 16.0 | 35.5 | 44.5 | 53.5 | 1.5 | 0.57 | 2.42 |
| 240409-388-HE | 09/04/24 | 530 | 33.8 | 135 | 3:15 | 1 | 24.9 | 43.2 | 51.8 | 66.7 | 100 | 15.0 | 29.5 | 40.5 | 48.0 | 1.4 | 0.56 | 2.39 |
| 240318-418-HE | 18/03/24 | 520 | 34.0 | 135 | 3:30 | 1 | 24.1 | 43.1 | 52.6 | 66.4 | 70 | 17.0 | 42.5 | 47.0 | 61.0 | 1.8 | 0.57 | 2.44 |
| 240310-055-HE | 10/03/24 | 505 | 33.1 | 120 | 3:15 | 1 | 24.2 | 44.3 | 53.7 | 70.3 | 90 | 15.0 | 35.0 | 43.5 | 54.0 | 1.1 | 0.58 | 2.37 |
| 240301-396-HE | 01/03/24 | 520 | 32.8 | 120 | 3:00 | 1 | 23.9 | 42.0 | 52.8 | 67.7 | 90 | 14.0 | 34.5 | 45.5 | 55.5 | 1.6 | 0.56 | 2.36 |
| 240214-666-HE | 14/02/24 | 515 | 32.9 | 120 | 3:00 | 2 | 23.5 | 42.3 | 53.2 | 66.0 | 70 | 16.0 | 37.0 | 45.5 | 54.5 | 1.3 | 0.57 | 2.38 |
| 240131-050-HE | 31/01/24 | 565 | 33.0 | 120 | 3:15 | 1 | 23.2 | 44.3 | 50.6 | 65.9 | 90 | 15.0 | 36.5 | 43.5 | 52.5 | 1.7 | 0.56 | 2.40 |
| 240105-173-HE | 05/01/24 | 510 | 33.1 | 120 | 2:45 | 1 | 24.9 | 40.0 | 51.9 | 65.6 | 70 | 15.0 | 38.0 | 44.0 | 50.0 | 1.8 | 0.56 | 2.38 |
| 231221-463-HE | 21/12/23 | 530 | 33.0 | 135 | 3:15 | 1 | 27.4 | 41.4 | 56.3 | 67.9 | 80 | 15.0 | 35.5 | 44.0 | 51.0 | 1.1 | 0.56 | 2.33 |
| 231202-748-HE | 02/12/23 | 520 | 31.9 | 105 | 3:00 | 1 | 24.3 | 42.9 | 53.1 | 65.0 | 80 | 14.0 | 31.5 | 40.0 | 52.0 | 1.9 | 0.60 | 2.32 |
| 231123-052-HE | 23/11/23 | 525 | 32.5 | 135 | 3:15 | 0 | 24.0 | 38.6 | 53.3 | 68.4 | 90 | 15.0 | 36.5 | 42.5 | 54.5 | 1.8 | 0.58 | 2.31 |
| 231109-562-HE | 09/11/23 | 505 | 33.3 | 120 | 3:00 | 1 | 23.8 | 42.7 | 55.7 | 66.8 | 80 | 15.5 | 36.5 | 46.0 | 56.5 | 1.3 | 0.58 | 2.34 |

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 Analysis to ASTM C114-23

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

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Vincent Lane

Vincent Lane
Works Chemist



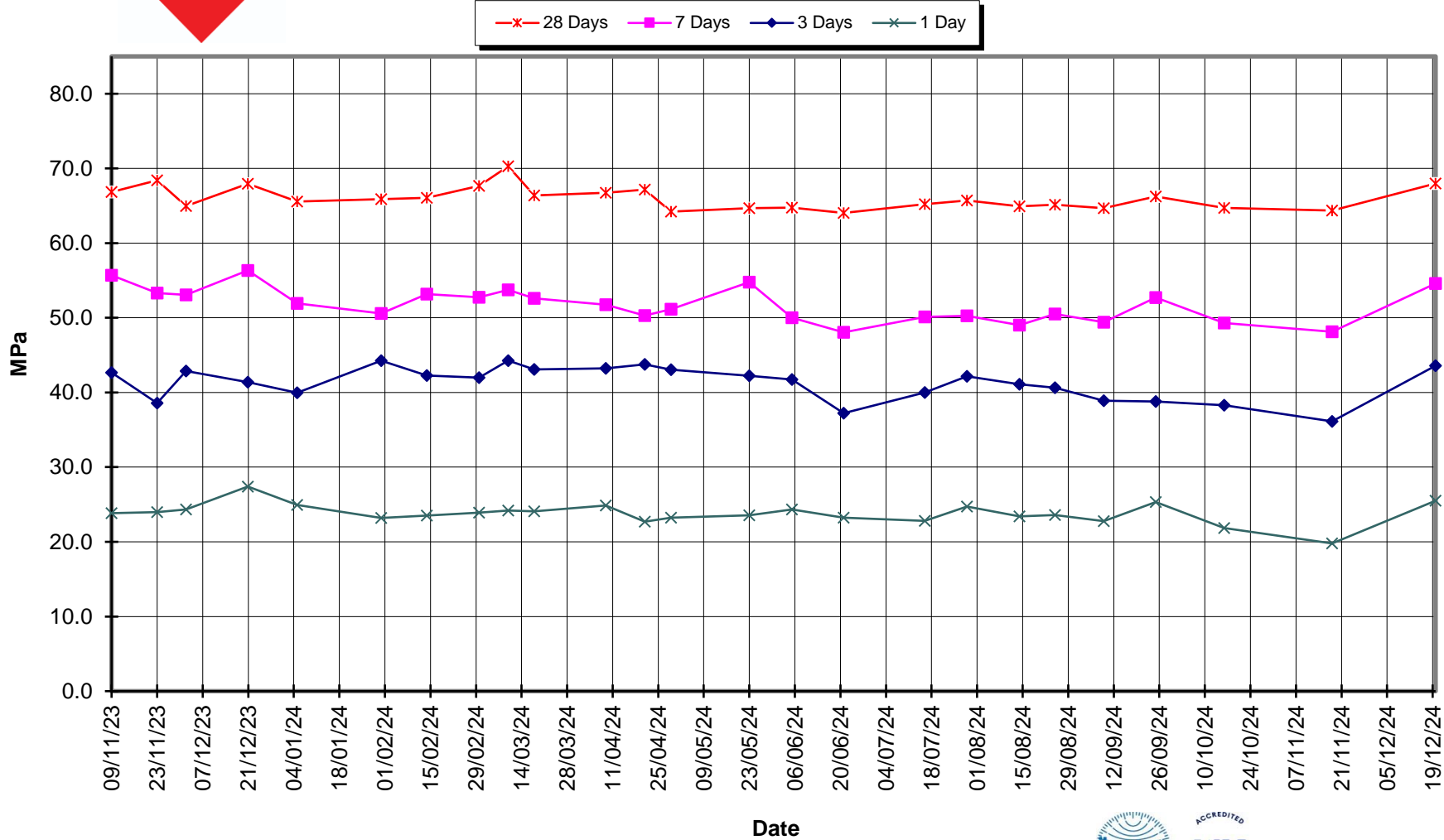
Portland Works, Portland, Whangarei 0178

Date issued: 14/02/25

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**EcoFast®
Type HE Cement
Compressive Strength ISO-CEN Mortar**





EcoFast® Type HE Cement



Compressive Strength Concrete

