

# Cement Circular

Issue No. : 1/2026

Date : 09-MAR-2026

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\* The names of brands/ manufacturers are based on the information provided by the suppliers.

# Also named as "China Resources Cement 華潤水泥" in Cement Circular Issue No. 4/2015 and before.

For cementitious materials not included in the Cement Circular, ER may request PWCL to carry out test.

The above test results were uploaded to CEDD's web-site of <https://www.cedd.gov.hk/eng/public-services-forms/geotechnical/laboratory-testing/public-works-laboratories/index.html>

Should you have any questions regarding this Circular, please contact PTO/Lab2, Mr. H.L.Li, at telephone number 2305 1275, or submit your questions in writing to the Public Works Central Laboratory Building, 2B Cheung Yip Street, Kowloon Bay, Kowloon, Hong Kong (Attn: PTO/Lab2).

| Laboratory Reference                                  | 25B0001, 25B0002         | 2500003, 2500004 | 2500034, 2500035 | 2500067, 2500068 | 2500103, 2500104 | 2500153, 2500154 | 2600001, 2600002 | BS EN 197-1:2011<br>Strength Class 52.5N<br><br>Specification |
|---|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|
| Date of Sample Received                               | 02/01/2025               | 03/03/2025       | 06/05/2025       | 09/07/2025       | 05/09/2025       | 03/11/2025       | 05/01/2026       |   |
| Country of Origin Stated By Client                    | Japan                    | Japan            | Japan            | Japan            | Japan            | Japan            | Japan            |   |
| <b>Physical Properties</b>                            |                          |                  |                  |                  |                  |                  |                  |   |
| Density (kg/m <sup>3</sup> )                          | 3130                     | 3150             | 3110             | 3140             | 3120             | 3120             | 3140             | Not specified   |
| Fineness : Specific surface (cm <sup>2</sup> /g)      | 3370                     | 3370             | 3360             | 3760             | 3740             | 3740             | 3830             | Not specified   |
| Consistence : Standard consistence (%)                | 27.5                     | 28.0             | 28.0             | 28.5             | 29.0             | 28.5             | 28.5             | Not specified   |
| Setting Time : Initial setting time (min)             | 170                      | 185              | 165              | 165              | 185              | 195              | 185              | Min.45 min  |
|   | Final setting time (min) | 225              | 255              | 225              | 225              | 240              | 255              | 240   |
| Soundness (Le Chatelier) : Expansion (mm)             | 0.0                      | 1.0              | 0.5              | 1.0              | 1.0              | 1.0              | 1.0              | Max.10 mm   |
| <b>Compressive Strength ( broken mortar prism ) :</b> |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 26.1                     | 22.2             | 24.3             | 22.3             | 31.9             | 28.6             | 28.7             | Min. 20 MPa   |
| Average 28 days strength (MPa)                        | 64.6                     | 63.5             | 69.3             | 57.1             | 56.3             | 62.6             | 64.6             | Min. 52.5 MPa   |
| <b>Flexural Strength ( mortar prism ) :</b>           |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 4.7                      | 5.1              | 4.6              | 5.7              | 6.7              | 6.4              | 6.4              | Not specified   |
| Average 28 days strength (MPa)                        | 8.8                      | 11.3             | 9.0              | 10.0             | 9.3              | 9.9              | 10.3             | Not specified   |
| <b>Chemical Composition</b>                           |                          |                  |                  |                  |                  |                  |                  |   |
| Observed Mass Loss-on-ignition (%)                    | 2.0                      | 2.1              | 2.1              | 2.4              | 2.7              | 2.1              | 2.4              | Max. 5.0%   |
| Insoluble Residue (%)                                 | <0.5                     | <0.5             | <0.5             | <0.5             | 1.0              | <0.5             | 0.7              | Max. 5.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%)    | 2.1                      | 2.0              | 2.1              | 2.0              | 1.9              | 1.9              | 1.9              | Max. 4.0%   |
| Chloride Content (%)                                  | 0.02                     | <0.01            | <0.01            | 0.02             | 0.02             | 0.01             | 0.03             | Max. 0.10%  |
| K <sub>2</sub> O (%)                                  | 0.35                     | 0.34             | 0.42             | 0.38             | 0.36             | 0.32             | 0.39             | ---   |
| Na <sub>2</sub> O (%)                                 | 0.31                     | 0.25             | 0.21             | 0.23             | 0.21             | 0.16             | 0.24             | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)             | 0.53                     | 0.47             | 0.49             | 0.48             | 0.45             | 0.37             | 0.50             | ---   |

**2 Champion (一品牌水泥) / 台泥(英德)水泥有限公司**  
**(Portland Cement, Strength Class 52.5N)**

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| Laboratory Reference                               | 25B0003, 25B0004 | 2500005, 2500006 | 2500036, 2500037 | 2500069, 2500070 | 2500105, 2500106 | 2500155, 2500156 | 2600003, 2600004 | BS EN 197-1:2011<br>Strength Class 52.5N<br><br>Specification |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|
| Date of Sample Received                            | 02/01/2025       | 03/03/2025       | 06/05/2025       | 09/07/2025       | 05/09/2025       | 03/11/2025       | 05/01/2026       |   |
| Country of Origin Stated By Client                 | China            |   |
| <b>Physical Properties</b>                         |                  |                  |                  |                  |                  |                  |                  |   |
| Density (kg/m <sup>3</sup> )                       | 3120             | 3100             | 3120             | 3100             | 3090             | 3100             | 3110             | Not specified   |
| Fineness : Specific surface (cm <sup>2</sup> /g)   | 3410             | 3700             | 3690             | 4060             | 4110             | 3910             | 3910             | Not specified   |
| Consistence : Standard consistence (%)             | 27.0             | 27.5             | 27.5             | 28.5             | 29.0             | 28.5             | 28.5             | Not specified   |
| Setting Time : Initial setting time (min)          | 170              | 190              | 150              | 165              | 185              | 215              | 205              | Min.45 min  |
| Final setting time (min)                           | 225              | 225              | 210              | 225              | 255              | 285              | 270              | Not specified   |
| Soundness (Le Chatelier) : Expansion (mm)          | 0.0              | 0.0              | 0.5              | 2.0              | 2.0              | 1.0              | 1.0              | Max.10 mm   |
| Compressive Strength ( broken mortar prism ) :     |                  |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                      | 27.3             | 33.1             | 31.0             | 30.5             | 33.2             | 30.5             | 27.3             | Min. 20 MPa   |
| Average 28 days strength (MPa)                     | 63.3             | 63.6             | 63.0             | 57.4             | 53.8             | 56.4             | 61.7             | Min. 52.5 MPa   |
| Flexural Strength ( mortar prism ) :               |                  |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                      | 4.8              | 5.9              | 5.6              | 7.0              | 6.9              | 6.2              | 6.4              | Not specified   |
| Average 28 days strength (MPa)                     | 8.2              | 8.4              | 9.2              | 9.6              | 9.8              | 9.8              | 9.5              | Not specified   |
| <b>Chemical Composition</b>                        |                  |                  |                  |                  |                  |                  |                  |   |
| Observed Mass Loss-on-ignition (%)                 | 2.7              | 3.1              | 2.8              | 3.0              | 3.1              | 3.0              | 3.1              | Max. 5.0%   |
| Insoluble Residue (%)                              | 0.9              | 0.6              | 0.8              | 0.7              | 0.9              | 0.7              | 1.1              | Max. 5.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | 2.6              | 2.8              | 2.7              | 3.0              | 2.5              | 2.5              | 2.6              | Max. 4.0%   |
| Chloride Content (%)                               | 0.03             | 0.05             | 0.03             | 0.04             | 0.04             | 0.03             | 0.03             | Max. 0.10%  |
| K <sub>2</sub> O (%)                               | 0.54             | 0.80             | 0.74             | 0.78             | 0.70             | 0.57             | 0.60             | ---   |
| Na <sub>2</sub> O (%)                              | 0.11             | 0.12             | 0.14             | 0.12             | 0.14             | 0.14             | 0.13             | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | 0.46             | 0.65             | 0.63             | 0.63             | 0.60             | 0.52             | 0.53             | ---   |

**3 Feng Jiang (峰江牌水泥) / 佛山市高明高力發水泥有限公司**  
**(Portland Cement, Strength Class 52.5N)**

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| Laboratory Reference                                  | 25B0005, 25B0006         | 2500007, 2500008 | 2500038, 2500039 | 2500071, 2500072 | 2500107, 2500108 | 2500157, 2500158 | 2600005, 2600006 | BS EN 197-1:2011<br>Strength Class 52.5N<br><br>Specification |
|---|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|
| Date of Sample Received                               | 02/01/2025               | 03/03/2025       | 06/05/2025       | 09/07/2025       | 05/09/2025       | 03/11/2025       | 05/01/2026       |   |
| Country of Origin Stated By Client                    | China                    | China            | China            | China            | China            | China            | China            |   |
| <b>Physical Properties</b>                            |                          |                  |                  |                  |                  |                  |                  |   |
| Density (kg/m <sup>3</sup> )                          | 3150                     | 3160             | 3150             | 3130             | 3120             | 3110             | 3170             | Not specified   |
| Fineness : Specific surface (cm <sup>2</sup> /g)      | 3580                     | 3480             | 3930             | 3920             | 3860             | 3870             | 3760             | Not specified   |
| Consistence : Standard consistence (%)                | 27.0                     | 28.0             | 28.0             | 28.5             | 29.0             | 29.5             | 28.5             | Not specified   |
| Setting Time : Initial setting time (min)             | 150                      | 125              | 125              | 205              | 200              | 225              | 165              | Min.45 min  |
|   | Final setting time (min) | 180              | 165              | 180              | 270              | 270              | 285              | 225   |
| Soundness (Le Chatelier) : Expansion (mm)             | 1.0                      | 2.0              | 1.0              | 1.0              | 2.0              | 1.0              | 1.0              | Max.10 mm   |
| <b>Compressive Strength ( broken mortar prism ) :</b> |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 25.2                     | 22.6             | 22.2             | 21.7             | 29.2             | 22.9             | 26.3             | Min. 20 MPa   |
| Average 28 days strength (MPa)                        | 61.6                     | 58.9             | 58.3             | 54.2             | 61.8             | 55.9             | 62.3             | Min. 52.5 MPa   |
| <b>Flexural Strength ( mortar prism ) :</b>           |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 4.7                      | 5.4              | 5.4              | 5.7              | 5.6              | 5.7              | 6.6              | Not specified   |
| Average 28 days strength (MPa)                        | 7.3                      | 9.9              | 8.4              | 8.8              | 9.1              | 9.2              | 8.8              | Not specified   |
| <b>Chemical Composition</b>                           |                          |                  |                  |                  |                  |                  |                  |   |
| Observed Mass Loss-on-ignition (%)                    | 1.1                      | 1.5              | 1.0              | 1.4              | 1.2              | 1.7              | 1.0              | Max. 5.0%   |
| Insoluble Residue (%)                                 | <0.5                     | <0.5             | <0.5             | 0.6              | 0.9              | 0.6              | 1.2              | Max. 5.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%)    | 1.8                      | 1.7              | 1.8              | 2.0              | 1.6              | 1.5              | 1.5              | Max. 4.0%   |
| Chloride Content (%)                                  | 0.04                     | 0.03             | 0.02             | 0.04             | 0.03             | 0.04             | 0.04             | Max. 0.10%  |
| K <sub>2</sub> O (%)                                  | 0.55                     | 0.50             | 0.56             | 0.63             | 0.63             | 0.60             | 0.64             | ---   |
| Na <sub>2</sub> O (%)                                 | 0.13                     | 0.13             | 0.15             | 0.12             | 0.13             | 0.14             | 0.13             | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)             | 0.49                     | 0.46             | 0.51             | 0.54             | 0.54             | 0.54             | 0.55             | ---   |

| Laboratory Reference                                  | 25B0007, 25B0008     | 2500001, 2500002     | 2500040, 2500041     | 2500073, 2500074     | 2500109, 2500110     | 2500159, 2500160     | 2600007, 2600008     | BS EN 197-1:2011<br>Strength Class 52.5N<br><br>Specification |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|
| Date of Sample Received                               | 02/01/2025           | 03/03/2025           | 7/5/2025             | 09/07/2025           | 05/09/2025           | 03/11/2025           | 05/01/2026           |   |
| Country of Origin Stated By Client                    | Hong Kong SAR, China |   |
| <b>Physical Properties</b>                            |                      |                      |                      |                      |                      |                      |                      |   |
| Density (kg/m <sup>3</sup> )                          | 3070                 | 3100                 | 3100                 | 3100                 | 3050                 | 3130                 | 3110                 | Not specified   |
| Fineness : Specific surface (cm <sup>2</sup> /g)      | 3580                 | 3500                 | 3710                 | 3740                 | 3940                 | 3650                 | 3730                 | Not specified   |
| Consistence : Standard consistence (%)                | 27.5                 | 27.5                 | 28.0                 | 28.0                 | 29.0                 | 28.5                 | 28.5                 | Not specified   |
| Setting Time : Initial setting time (min)             | 115                  | 115                  | 110                  | 150                  | 140                  | 165                  | 140                  | Min.45 min  |
| Final setting time (min)                              | 165                  | 150                  | 165                  | 210                  | 195                  | 225                  | 195                  | Not specified   |
| Soundness (Le Chatelier) : Expansion (mm)             | 0.5                  | 0.0                  | 0.0                  | 1.0                  | 1.0                  | 1.0                  | 1.0                  | Max.10 mm   |
| <b>Compressive Strength ( broken mortar prism ) :</b> |                      |                      |                      |                      |                      |                      |                      |   |
| Average 2 days strength (MPa)                         | 23.6                 | 24.4                 | 24.2                 | 20.7                 | 23.9                 | 22.3                 | 24.3                 | Min. 20 MPa   |
| Average 28 days strength (MPa)                        | 63.9                 | 63.8                 | 68.9                 | 56.1                 | 60.4                 | 57.8                 | 63.6                 | Min. 52.5 MPa   |
| <b>Flexural Strength ( mortar prism ) :</b>           |                      |                      |                      |                      |                      |                      |                      |   |
| Average 2 days strength (MPa)                         | 4.7                  | 4.6                  | 4.7                  | 5.3                  | 5.6                  | 5.2                  | 5.7                  | Not specified   |
| Average 28 days strength (MPa)                        | 8.4                  | 8.1                  | 9.0                  | 10.1                 | 9.3                  | 9.1                  | 10.5                 | Not specified   |
| <b>Chemical Composition</b>                           |                      |                      |                      |                      |                      |                      |                      |   |
| Observed Mass Loss-on-ignition (%)                    | 2.8                  | 1.6                  | 2.8                  | 3.0                  | 2.0                  | 1.5                  | 2.5                  | Max. 5.0%   |
| Insoluble Residue (%)                                 | 0.9                  | 3.2                  | 1.3                  | 0.8                  | 3.5                  | 1.2                  | 2.0                  | Max. 5.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%)    | 2.3                  | 2.4                  | 2.4                  | 2.4                  | 2.2                  | 2.4                  | 2.4                  | Max. 4.0%   |
| Chloride Content (%)                                  | 0.01                 | <0.01                | <0.01                | <0.01                | <0.01                | <0.01                | <0.01                | Max. 0.10%  |
| K <sub>2</sub> O (%)                                  | 0.63                 | 0.59                 | 0.59                 | 0.64                 | 0.77                 | 0.41                 | 0.64                 | ---   |
| Na <sub>2</sub> O (%)                                 | 0.12                 | 0.15                 | 0.17                 | 0.14                 | 0.12                 | 0.22                 | 0.13                 | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)             | 0.53                 | 0.54                 | 0.55                 | 0.56                 | 0.62                 | 0.49                 | 0.55                 | ---   |

| Laboratory Reference                                  | 25B0009, 25B0010         | 2500009, 2500010 | 2500042, 2500043 | 2500075, 2500076 | 2500111, 2500112 | 2500161, 2500162 | 2600009, 2600010 | BS EN 197-1:2011<br>Strength Class 52.5N<br>Specification |
|---|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|
| Date of Sample Received                               | 02/01/2025               | 03/03/2025       | 7/5/2025         | 09/07/2025       | 05/09/2025       | 03/11/2025       | 05/01/2026       |   |
| Country of Origin Stated By Client                    | Japan                    | Japan            | Japan            | Japan            | Japan            | Japan            | Japan            |   |
| <b>Physical Properties</b>                            |                          |                  |                  |                  |                  |                  |                  |   |
| Density (kg/m <sup>3</sup> )                          | 3110                     | 3120             | 3120             | 3150             | 3110             | 3130             | 3120             | Not specified   |
| Fineness : Specific surface (cm <sup>2</sup> /g)      | 3350                     | 3490             | 3380             | 3740             | 3750             | 3800             | 3790             | Not specified   |
| Consistence : Standard consistence (%)                | 27.0                     | 27.0             | 26.5             | 28.0             | 29.0             | 28.5             | 28.5             | Not specified   |
| Setting Time : Initial setting time (min)             | 150                      | 155              | 175              | 185              | 185              | 210              | 200              | Min.45 min  |
|   | Final setting time (min) | 210              | 210              | 225              | 255              | 255              | 270              | 255   |
| Soundness (Le Chatelier) : Expansion (mm)             | 0.0                      | 0.0              | 0.0              | 1.0              | 1.0              | 1.0              | 1.0              | Max.10 mm   |
| <b>Compressive Strength ( broken mortar prism ) :</b> |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 25.4                     | 26.8             | 26.7             | 27.0             | 30.8             | 28.4             | 30.8             | Min. 20 MPa   |
| Average 28 days strength (MPa)                        | 64.7                     | 63.7             | 67.0             | 56.9             | 60.3             | 59.8             | 62.6             | Min. 52.5 MPa   |
| <b>Flexural Strength ( mortar prism ) :</b>           |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 5.0                      | 5.2              | 5.1              | 6.3              | 6.7              | 5.7              | 6.0              | Not specified   |
| Average 28 days strength (MPa)                        | 8.7                      | 8.8              | 9.9              | 8.9              | 10.4             | 9.5              | 9.8              | Not specified   |
| <b>Chemical Composition</b>                           |                          |                  |                  |                  |                  |                  |                  |   |
| Observed Mass Loss-on-ignition (%)                    | 2.7                      | 2.7              | 2.7              | 2.6              | 2.4              | 2.5              | 2.7              | Max. 5.0%   |
| Insoluble Residue (%)                                 | <0.5                     | <0.5             | <0.5             | 0.9              | 1.0              | 0.9              | 1.3              | Max. 5.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%)    | 2.2                      | 2.0              | 1.9              | 2.2              | 2.0              | 1.7              | 2.4              | Max. 4.0%   |
| Chloride Content (%)                                  | 0.03                     | 0.03             | 0.02             | 0.04             | 0.04             | 0.03             | 0.03             | Max. 0.10%  |
| K <sub>2</sub> O (%)                                  | 0.42                     | 0.41             | 0.46             | 0.59             | 0.55             | 0.52             | 0.66             | ---   |
| Na <sub>2</sub> O (%)                                 | 0.25                     | 0.27             | 0.21             | <0.1             | 0.15             | 0.11             | 0.15             | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)             | 0.53                     | 0.54             | 0.51             | 0.48             | 0.51             | 0.46             | 0.58             | ---   |

**6 Yue Xiu (粤秀牌水泥) / Guanzhou Zhujiang Cement Co., Ltd.**  
**(Portland Cement, Strength Class 52.5N)**

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| Laboratory Reference                                  | 25B0011, 25B0012         | 2500011, 2500012 | 2500044, 2500045 | 2500077, 2500078 | 2500113, 2500114 | 2500163, 2500164 | 2600011, 2600012 | BS EN 197-1:2011<br>Strength Class 52.5N<br><br>Specification |
|---|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|
| Date of Sample Received                               | 02/01/2025               | 03/03/2025       | 7/5/2025         | 09/07/2025       | 05/09/2025       | 03/11/2025       | 05/01/2026       |   |
| Country of Origin Stated By Client                    | China                    | China            | China            | China            | China            | China            | China            |   |
| <b>Physical Properties</b>                            |                          |                  |                  |                  |                  |                  |                  |   |
| Density (kg/m <sup>3</sup> )                          | 3120                     | 3140             | 3130             | 3130             | 3090             | 3120             | 3130             | Not specified   |
| Fineness : Specific surface (cm <sup>2</sup> /g)      | 3850                     | 3790             | 4110             | 4310             | 4310             | 3980             | 3780             | Not specified   |
| Consistence : Standard consistence (%)                | 26.0                     | 26.5             | 28.0             | 28.0             | 29.0             | 27.5             | 28.5             | Not specified   |
| Setting Time : Initial setting time (min)             | 130                      | 150              | 175              | 165              | 180              | 180              | 210              | Min.45 min  |
|   | Final setting time (min) | 195              | 195              | 225              | 225              | 255              | 240              | 270   |
| Soundness (Le Chatelier) : Expansion (mm)             | 0.0                      | 0.0              | 1.0              | 1.0              | 1.0              | 1.0              | 1.0              | Max.10 mm   |
| <b>Compressive Strength ( broken mortar prism ) :</b> |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 31.4                     | 32.8             | 24.6             | 38.1             | 30.1             | 26.7             | 32.2             | Min. 20 MPa   |
| Average 28 days strength (MPa)                        | 62.8                     | 62.2             | 63.8             | 55.3             | 65.3             | 56.9             | 68.5             | Min. 52.5 MPa   |
| <b>Flexural Strength ( mortar prism ) :</b>           |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 5.5                      | 6.1              | 5.5              | 7.4              | 6.7              | 6.2              | 7.2              | Not specified   |
| Average 28 days strength (MPa)                        | 8.4                      | 8.7              | 9.4              | 9.0              | 10.5             | 9.8              | 10.6             | Not specified   |
| <b>Chemical Composition</b>                           |                          |                  |                  |                  |                  |                  |                  |   |
| Observed Mass Loss-on-ignition (%)                    | 1.6                      | 1.8              | 2.8              | 2.0              | 2.8              | 2.8              | 2.4              | Max. 5.0%   |
| Insoluble Residue (%)                                 | 0.6                      | 0.5              | <0.5             | <0.5             | 1.5              | 0.9              | 0.6              | Max. 5.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%)    | 3.1                      | 2.9              | 2.8              | 2.9              | 2.7              | 2.6              | 2.8              | Max. 4.0%   |
| Chloride Content (%)                                  | 0.02                     | 0.02             | 0.01             | 0.02             | 0.02             | 0.02             | 0.04             | Max. 0.10%  |
| K <sub>2</sub> O (%)                                  | 0.61                     | 0.64             | 0.58             | 0.63             | 0.61             | 0.52             | 0.62             | ---   |
| Na <sub>2</sub> O (%)                                 | <0.1                     | <0.1             | <0.1             | <0.1             | <0.1             | <0.1             | 0.10             | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)             | 0.47                     | 0.50             | 0.45             | 0.48             | 0.47             | 0.40             | 0.51             | ---   |

7 Runfeng (潤豐牌水泥)# / Dongguan China Resources Cement Manufactory Co., Ltd.  
(Portland Cement, Strength Class 52.5N)

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| Laboratory Reference                                  | 25B0013, 25B0014         | 2500013, 2500014 | 2500046, 2500047 | 2500079, 2500080 | 2500115, 2500116 | 2500165, 2500166 | 2600013, 2600014 | BS EN 197-1:2011<br>Strength Class 52.5N<br><br>Specification |
|---|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|
| Date of Sample Received                               | 02/01/2025               | 03/03/2025       | 7/5/2025         | 09/07/2025       | 05/09/2025       | 03/11/2025       | 05/01/2026       |   |
| Country of Origin Stated By Client                    | China                    | China            | China            | China            | China            | China            | China            |   |
| <b>Physical Properties</b>                            |                          |                  |                  |                  |                  |                  |                  |   |
| Density (kg/m <sup>3</sup> )                          | 3120                     | 3110             | 3140             | 3130             | 3120             | 3140             | 3140             | Not specified   |
| Fineness : Specific surface (cm <sup>2</sup> /g)      | 4010                     | 3990             | 4060             | 4260             | 4460             | 4400             | 4270             | Not specified   |
| Consistence : Standard consistence (%)                | 27.5                     | 27.0             | 28.5             | 28.0             | 29.0             | 28.5             | 28.5             | Not specified   |
| Setting Time : Initial setting time (min)             | 155                      | 160              | 200              | 195              | 165              | 180              | 200              | Min.45 min  |
|   | Final setting time (min) | 180              | 225              | 240              | 270              | 225              | 240              | 285   |
| Soundness (Le Chatelier) : Expansion (mm)             | 0.0                      | 0.0              | 1.0              | 1.0              | 1.0              | 2.0              | 2.0              | Max.10 mm   |
| <b>Compressive Strength ( broken mortar prism ) :</b> |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 27.4                     | 27.1             | 22.4             | 31.5             | 28.6             | 28.3             | 24.0             | Min. 20 MPa   |
| Average 28 days strength (MPa)                        | 66.4                     | 68.4             | 55.4             | 58.3             | 60.9             | 61.2             | 54.1             | Min. 52.5 MPa   |
| <b>Flexural Strength ( mortar prism ) :</b>           |                          |                  |                  |                  |                  |                  |                  |   |
| Average 2 days strength (MPa)                         | 5.0                      | 4.6              | 5.0              | 6.3              | 5.8              | 6.0              | 6.5              | Not specified   |
| Average 28 days strength (MPa)                        | 7.8                      | 8.5              | 9.3              | 9.0              | 9.6              | 9.3              | 8.3              | Not specified   |
| <b>Chemical Composition</b>                           |                          |                  |                  |                  |                  |                  |                  |   |
| Observed Mass Loss-on-ignition (%)                    | 2.1                      | 2.0              | 2.4              | 2.2              | 2.4              | 2.6              | 2.8              | Max. 5.0%   |
| Insoluble Residue (%)                                 | <0.5                     | <0.5             | <0.5             | 0.7              | 1.3              | 0.7              | 0.5              | Max. 5.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%)    | 2.4                      | 2.3              | 2.6              | 2.6              | 1.9              | 2.3              | 2.3              | Max. 4.0%   |
| Chloride Content (%)                                  | 0.05                     | 0.03             | 0.03             | 0.04             | 0.03             | 0.05             | 0.04             | Max. 0.10%  |
| K <sub>2</sub> O (%)                                  | 0.40                     | 0.45             | 0.42             | 0.42             | 0.47             | 0.40             | 0.49             | ---   |
| Na <sub>2</sub> O (%)                                 | 0.1                      | <0.1             | <0.1             | <0.1             | <0.1             | <0.1             | <0.1             | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)             | 0.37                     | 0.39             | 0.34             | 0.37             | 0.39             | 0.34             | 0.39             | ---   |

| Laboratory Reference                               | 25B0015, 25B0029     | 2500015, 2500016     | 2500048, 2500049     | 2500081, 2500082                  | 2500117, 2500118                  | 2500167, 2500168                  | 2600015, 2600016                  | BS3892:Part 1: 1997  |
|--|----------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--|
| Date of Sample Received                            | 02/01/2025           | 03/03/2025           | 7/5/2025             | 09/07/2025                        | 05/09/2025                        | 03/11/2025                        | 05/01/2026                        |  |
| Country of Origin Stated By Client                 | Hong Kong SAR, China              | Hong Kong SAR, China              | Hong Kong SAR, China              | Hong Kong SAR, China              | Specification  |
| <b>Physical Properties</b>                         |                      |                      |                      |                                   |                                   |                                   |                                   |  |
| Fineness (%)                                       | 6.9                  | 7.8                  | 9.1                  | 8.1                               | 5.9                               | 7.1                               | 10.1                              | Not more than 12%  |
| Particle Density (kg/m <sup>3</sup> )              | 2550                 | 2570                 | 2450                 | 2620                              | 2620                              | 2600                              | 2440                              | Not less than 2000 kg/m <sup>3</sup>                               |
| Water Requirement (%)                              | 89                   | 89                   | 90                   | 90                                | 91                                | 89                                | 90                                | ^Note (1)  |
| Strength Factor ---                                | 0.90                 | 0.90                 | 0.94                 | 0.99                              | 0.99                              | 0.96                              | 0.92                              | ^Note (1)  |
| Standard Consistence (%)                           | 25.0                 | 24.5                 | 25.5                 | 26.0                              | 27.0                              | 26.5                              | 27.0                              | ---  |
| Initial Setting Time (min)                         | 245                  | 250                  | 190                  | 225                               | 230                               | 200                               | 270                               | Not less than the initial setting time of the Portland cement used |
| Soundness (mm)                                     | 0.0                  | 0.0                  | 0.5                  | 1.0                               | 2.0                               | 2.0                               | 2.0                               | Not more than 10 mm  |
| <b>Portland Cement used</b>                        |                      |                      |                      |                                   |                                   |                                   |                                   |  |
| Brand  | Champion             | Champion             | Champion             | Champion                          | Champion                          | Champion                          | Champion                          | ---  |
| Lab. Reference No.                                 | 2400151, 2400152     | 2400151, 2400152     | 2500005, 2500006     | 243218CE253762, 243218CE253762(1) | 243218CE254051, 243218CE254051(1) | 243218CE254247, 243218CE254247(1) | 243218CE263037, 243218CE263037(1) | ---  |
| Initial Setting Time (min)                         | 190                  | 190                  | 190                  | 170                               | 155                               | 185                               | 210                               | ---  |
| <b>Chemical Composition</b>                        |                      |                      |                      |                                   |                                   |                                   |                                   |  |
| Moisture Content (%)                               | <0.1                 | 0.1                  | 0.3                  | 0.2                               | <0.1                              | 0.2                               | 0.1                               | Not more than 0.5%   |
| Loss-on-ignition (%)                               | 0.7                  | 0.6                  | 0.7                  | 0.8                               | 0.7                               | 0.8                               | 0.7                               | Not more than 7%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | 1.2                  | 1.3                  | 1.8                  | 1.7                               | 1.5                               | 1.4                               | 1.1                               | Not more than 2.0%   |
| Chloride Content (%)                               | <0.05                | <0.05                | <0.05                | <0.05                             | <0.05                             | <0.05                             | <0.05                             | Not more than 0.1%   |
| Calcium Oxide Content (%)                          | 9.6                  | 12.1                 | 7.5                  | 15.2                              | 15.0                              | 15.2                              | 11.4                              | Not more than 10.0%  |
| K <sub>2</sub> O (%)                               | 1.7                  | 1.5                  | 0.9                  | 1.3                               | 1.4                               | 1.1                               | 1.1                               | ---  |
| Na <sub>2</sub> O (%)                              | 1.6                  | 1.5                  | 2.2                  | 1.5                               | 1.7                               | 1.4                               | 1.9                               | ---  |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | 2.7                  | 2.5                  | 2.8                  | 2.4                               | 2.6                               | 2.2                               | 2.6                               | ---  |

^Note: (1) In accordance with GS16.07(b), the criteria for water requirement and strength factor at 28 days shall not apply, but the values of water requirement and strength factor at 28 days shall be reported.

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**(Pulverised-fuel Ash)**

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| Laboratory Reference                               | 25B0017, 25B0018 | 2500017, 2500018     | 2500050, 2500051 | 2500083, 2500084                     | 2500119, 2500120                     | 2500169, 2500170                     | 2600017, 2600018                     | BS3892:Part 1: 1997<br><br>Specification  |
|--|------------------|----------------------|------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---|
| Date of Sample Received                            | 02/01/2025       | 03/03/2025           | 7/5/2025         | 09/07/2025                           | 05/09/2025                           | 03/11/2025                           | 05/01/2026                           |   |
| Country of Origin Stated By Client                 | China            | China                | China            | China                                | China                                | China                                | China                                |   |
| <b>Physical Properties</b>                         |                  |                      |                  |                                      |                                      |                                      |                                      |   |
| Fineness (%)                                       | 10.8             | 11.1                 | 7.4              | 9.4                                  | 11.0                                 | 11.2                                 | 6.9                                  | Not more than 12%<br>Not less than 2000 kg/m <sup>3</sup><br>^Note (1)<br>^Note (1)<br>---<br>Not less than the initial setting time of the Portland cement used<br>Not more than 10 mm |
| Particle Density (kg/m <sup>3</sup> )              | 2450             | 2500                 | 2460             | 2370                                 | 2330                                 | 2330                                 | 2290                                 |   |
| Water Requirement (%)                              | 99               | 90                   | 95               | 94                                   | 95                                   | 92                                   | 93                                   |   |
| Strength Factor ---                                | 0.87             | 1.00                 | 0.87             | 0.88                                 | 0.90                                 | 0.88                                 | 0.86                                 |   |
| Standard Consistence (%)                           | 29.0             | 26.5                 | 27.0             | 28.5                                 | 31.0                                 | 28.5                                 | 29.5                                 |   |
| Initial Setting Time (min)                         | 215              | 195                  | 200              | 245                                  | 215                                  | 240                                  | 290                                  |   |
| Soundness (mm)                                     | 0.0              | 2.0                  | 0.5              | 1.5                                  | 1.5                                  | 1.5                                  | 1.0                                  |   |
| <b>Portland Cement used</b>                        |                  |                      |                  |                                      |                                      |                                      |                                      |   |
| Brand  | Champion         | Special Green Island | Champion         | Champion                             | Champion                             | Champion                             | Champion                             | ---   |
| Lab. Reference No.                                 | 2400151, 2400152 | 931327CE243641A      | 2500005, 2500006 | 243218CE253762,<br>243218CE253762(1) | 243218CE254051,<br>243218CE254051(1) | 243218CE254247,<br>243218CE254247(1) | 243218CE263037,<br>243218CE263037(1) | ---   |
| Initial Setting Time (min)                         | 190              | 135                  | 190              | 170                                  | 155                                  | 185                                  | 210                                  | ---   |
| <b>Chemical Composition</b>                        |                  |                      |                  |                                      |                                      |                                      |                                      |   |
| Moisture Content (%)                               | <0.1             | <0.1                 | 0.1              | 0.3                                  | <0.1                                 | 0.2                                  | <0.1                                 | Not more than 0.5%  |
| Loss-on-ignition (%)                               | <0.5             | <0.5                 | <0.5             | 0.9                                  | 0.6                                  | 0.9                                  | 0.7                                  | Not more than 7%  |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | 0.5              | 1.0                  | 1.0              | 1.0                                  | 0.7                                  | 0.6                                  | 0.7                                  | Not more than 2.0%  |
| Chloride Content (%)                               | <0.05            | <0.05                | <0.05            | <0.05                                | <0.05                                | <0.05                                | <0.05                                | Not more than 0.1%  |
| Calcium Oxide Content (%)                          | 14.6             | 12.4                 | 10.8             | 8.9                                  | 8.7                                  | 6.9                                  | 4.7                                  | Not more than 10.0%   |
| K <sub>2</sub> O (%)                               | 0.8              | 1.2                  | 1.0              | 1.1                                  | 1.1                                  | 1.2                                  | 1.0                                  | ---   |
| Na <sub>2</sub> O (%)                              | 0.5              | 1.0                  | 0.7              | 0.9                                  | 2.0                                  | 1.0                                  | 0.8                                  | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | 1.0              | 1.8                  | 1.3              | 1.6                                  | 2.7                                  | 1.8                                  | 1.5                                  | ---   |

^Note: (1) In accordance with GS16.07(b), the criteria for water requirement and strength factor at 28 days shall not apply, but the values of water requirement and strength factor at 28 days shall be reported.

| Laboratory Reference                               | 25B0019, 25B0030     | 2500019, 2500020     | 2500052, 2500053     | 2500085, 2500086                     | 2500121, 2500122                     | 2500171, 2500172                     | 2600019, 2600020                     | BS3892:Part 1: 1997   |
|--|----------------------|----------------------|----------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---|
| Date of Sample Received                            | 02/01/2025           | 03/03/2025           | 7/5/2025             | 09/07/2025                           | 05/09/2025                           | 03/11/2025                           | 05/01/2026                           |   |
| Country of Origin Stated By Client                 | Hong Kong SAR, China                 | Hong Kong SAR, China                 | Hong Kong SAR, China                 | Hong Kong SAR, China                 | Specification   |
| <b>Physical Properties</b>                         |                      |                      |                      |                                      |                                      |                                      |                                      |   |
| Fineness (%)                                       | 10.3                 | 11.3                 | 9.6                  | 8.1                                  | 11.9                                 | 4.8                                  | 10.1                                 | Not more than 12%<br>Not less than 2000 kg/m <sup>3</sup><br>^Note (1)<br>^Note (1)<br>---<br>Not less than the initial setting time of the Portland cement used<br>Not more than 10 mm |
| Particle Density (kg/m <sup>3</sup> )              | 2420                 | 2310                 | 2270                 | 2450                                 | 2270                                 | 2620                                 | 2400                                 |   |
| Water Requirement (%)                              | 96                   | 96                   | 96                   | 94                                   | 95                                   | 89                                   | 92                                   |   |
| Strength Factor ---                                | 0.83                 | 0.79                 | 0.83                 | 0.85                                 | 0.85                                 | 0.96                                 | 0.87                                 |   |
| Standard Consistence (%)                           | 28.0                 | 28.0                 | 29.0                 | 29.0                                 | 30.0                                 | 26.5                                 | 28.0                                 |   |
| Initial Setting Time (min)                         | 250                  | 220                  | 200                  | 260                                  | 230                                  | 230                                  | 270                                  |   |
| Soundness (mm)                                     | 0.5                  | 0.0                  | 0.5                  | 1.0                                  | 1.0                                  | 2.0                                  | 1.0                                  |   |
| <b>Portland Cement used</b>                        |                      |                      |                      |                                      |                                      |                                      |                                      |   |
| Brand  | Champion             | Champion             | Champion             | Champion                             | Champion                             | Champion                             | Champion                             | ---   |
| Lab. Reference No.                                 | 2400151, 2400152     | 2400151, 2400152     | 2500005, 2500006     | 243218CE253762,<br>243218CE253762(1) | 243218CE254051,<br>243218CE254051(1) | 243218CE254247,<br>243218CE254247(1) | 243218CE263037,<br>243218CE263037(1) | ---   |
| Initial Setting Time (min)                         | 190                  | 190                  | 190                  | 170                                  | 155                                  | 185                                  | 210                                  | ---   |
| <b>Chemical Composition</b>                        |                      |                      |                      |                                      |                                      |                                      |                                      |   |
| Moisture Content (%)                               | <0.1                 | <0.1                 | 0.2                  | 0.1                                  | 0.1                                  | 0.1                                  | <0.1                                 | Not more than 0.5%  |
| Loss-on-ignition (%)                               | 1.4                  | 1.7                  | 2.3                  | 1.3                                  | 3.2                                  | 0.8                                  | 1.1                                  | Not more than 7%  |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | 0.60                 | <0.5                 | <0.5                 | 0.80                                 | <0.5                                 | 1.1                                  | 0.5                                  | Not more than 2.0%  |
| Chloride Content (%)                               | <0.05                | <0.05                | <0.05                | <0.05                                | <0.05                                | <0.05                                | <0.05                                | Not more than 0.1%  |
| Calcium Oxide Content (%)                          | 7.0                  | 2.8                  | 2.3                  | 8.8                                  | 3.1                                  | 12.8                                 | 7.2                                  | Not more than 10.0%   |
| K <sub>2</sub> O (%)                               | 1.0                  | 0.9                  | 0.9                  | 1.1                                  | 0.8                                  | 1.4                                  | 1.3                                  | ---   |
| Na <sub>2</sub> O (%)                              | 1.5                  | 0.6                  | 0.8                  | 1.1                                  | 1.2                                  | 1.0                                  | 1.1                                  | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | 2.2                  | 1.2                  | 1.3                  | 1.9                                  | 1.8                                  | 2.0                                  | 2.0                                  | ---   |

^Note: (1) In accordance with GS16.07(b), the criteria for water requirement and strength factor at 28 days shall not apply, but the values of water requirement and strength factor at 28 days shall be reported.

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(Pulverised-fuel Ash)**

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| Laboratory Reference                               | 25B0021, 25B0031 | 2500021, 2500022 | 2500054, 2500055 | 2500087, 2500088                     | 2500123, 2500124                     | 2500173, 2500174                     | 2600021, 2600022                     | BS3892:Part 1: 1997<br><br>Specification  |
|--|------------------|------------------|------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---|
| Date of Sample Received                            | 02/01/2025       | 03/03/2025       | 7/5/2025         | 09/07/2025                           | 05/09/2025                           | 03/11/2025                           | 05/01/2026                           |   |
| Country of Origin Stated By Client                 | China            | China            | China            | China                                | China                                | China                                | China                                |   |
| <b>Physical Properties</b>                         |                  |                  |                  |                                      |                                      |                                      |                                      |   |
| Fineness (%)                                       | 9.1              | 10.5             | 5.6              | 7.3                                  | 7.3                                  | 4.9                                  | 4.9                                  | Not more than 12%<br>Not less than 2000 kg/m <sup>3</sup><br>^Note (1)<br>^Note (1)<br>---<br>Not less than the initial setting time of the Portland cement used<br>Not more than 10 mm |
| Particle Density (kg/m <sup>3</sup> )              | 2380             | 2490             | 2560             | 2470                                 | 2440                                 | 2370                                 | 2410                                 |   |
| Water Requirement (%)                              | 96               | 92               | 90               | 90                                   | 90                                   | 92                                   | 92                                   |   |
| Strength Factor ---                                | 0.80             | 1.01             | 0.96             | 0.97                                 | 0.97                                 | 0.86                                 | 0.85                                 |   |
| Standard Consistence (%)                           | 28.0             | 27.5             | 25.0             | 26.0                                 | 27.0                                 | 27.5                                 | 27.5                                 |   |
| Initial Setting Time (min)                         | 245              | 230              | 190              | 230                                  | 240                                  | 275                                  | 285                                  |   |
| Soundness (mm)                                     | 0.5              | 0.5              | 1.0              | 1.0                                  | 1.0                                  | 2.0                                  | 2.0                                  |   |
| <b>Portland Cement used</b>                        |                  |                  |                  |                                      |                                      |                                      |                                      |   |
| Brand  | Champion         | Champion         | Champion         | Champion                             | Champion                             | Champion                             | Champion                             | ---   |
| Lab. Reference No.                                 | 2400151, 2400152 | 2400151, 2400152 | 2500005, 2500006 | 243218CE253762,<br>243218CE253762(1) | 243218CE254051,<br>243218CE254051(1) | 243218CE254247,<br>243218CE254247(1) | 243218CE263037,<br>243218CE263037(1) | ---   |
| Initial Setting Time (min)                         | 190              | 190              | 190              | 170                                  | 155                                  | 185                                  | 210                                  | ---   |
| <b>Chemical Composition</b>                        |                  |                  |                  |                                      |                                      |                                      |                                      |   |
| Moisture Content (%)                               | <0.1             | 0.1              | <0.1             | 0.1                                  | <0.1                                 | 0.2                                  | <0.1                                 | Not more than 0.5%<br>Not more than 7%<br>Not more than 2.0%<br>Not more than 0.1%<br>Not more than 10.0%<br>---<br>---<br>---  |
| Loss-on-ignition (%)                               | 1.2              | <0.5             | 0.8              | 0.9                                  | 0.7                                  | 1.3                                  | 1.2                                  |   |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | 0.7              | 1.0              | 1.4              | 1.0                                  | 0.7                                  | 0.8                                  | 0.8                                  |   |
| Chloride Content (%)                               | <0.05            | <0.05            | <0.05            | <0.05                                | <0.05                                | <0.05                                | <0.05                                |   |
| Calcium Oxide Content (%)                          | 4.0              | 12.4             | 18.3             | 11.2                                 | 8.9                                  | 6.4                                  | 7.0                                  |   |
| K <sub>2</sub> O (%)                               | 2.2              | 1.1              | 1.1              | 1.2                                  | 1.6                                  | 1.2                                  | 1.4                                  |   |
| Na <sub>2</sub> O (%)                              | 1.2              | 0.9              | 1.5              | 1.6                                  | 2.5                                  | 1.1                                  | 1.3                                  |   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | 2.7              | 1.7              | 2.2              | 2.4                                  | 3.6                                  | 1.9                                  | 2.2                                  |   |

^Note: (1) In accordance with GS16.07(b), the criteria for water requirement and strength factor at 28 days shall not apply, but the values of water requirement and strength factor at 28 days shall be reported.

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**(Ground granulated blast furnace slag)**

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| Laboratory Reference                               | 2400011, 2400012     | 2400013, 2400014     | 25B0001, 25B0002     | 2500001, 2500002     | 2500003, 2500004     | 2500019, 2500020     | 2600001, 2600002                     | BS EN 15167-1:2006  |                          |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------------------------|---|--------------------------|
| Date of Sample Received                            | 02/01/2025           | 03/03/2025           | 7/5/2025             | 9/7/2025             | 5/9/2025             | 03/11/2025           | 05/01/2026                           |   |                          |
| Country of Origin Stated By Client                 | Hong Kong SAR, China                 | Specification   |                          |
| <b>Physical Properties</b>                         |                      |                      |                      |                      |                      |                      |                                      |   |                          |
| Standard Consistence (%)                           | 30.5                 | 30.0                 | 30.0                 | 30.0                 | 30.5                 | 30.5                 | 30.0                                 | Not specified<br>≤ twice of initial setting time for Portland cement used |                          |
| Initial Setting Time (min)                         | 150                  | 185                  | 165                  | 185                  | 170                  | 200                  | 180                                  |   |                          |
| Density (kg/m <sup>3</sup> )                       | 2870                 | 2860                 | 2890                 | 2870                 | 2850                 | 2880                 | 2880                                 |   | Not specified            |
| Fineness : Specific surface (m <sup>2</sup> /kg)   | 504                  | 506                  | 466                  | 546                  | 497                  | 487                  | 510                                  |   | ≥ 275 m <sup>2</sup> /kg |
| Activity Index :                                   |                      |                      |                      |                      |                      |                      |                                      |   |                          |
| 7 days (%)   | 59                   | 78                   | 59                   | 74                   | 67                   | 66                   | 54                                   | ≥ 45 %  |                          |
| 28 days (%)  | 94                   | 94                   | 90                   | 90                   | 94                   | 91                   | 84                                   | ≥ 70 %  |                          |
| <b>Portland Cement used</b>                        |                      |                      |                      |                      |                      |                      |                                      |   |                          |
| Brand  | Special Green Island                 | ---   |                          |
| Lab. Reference No.                                 | 2400155, 2400156     | 2400155, 2400156     | 2500001, 2500002     | 243218CE253766       | 243218CE254055       | 243218CE254251       | 243218CE263041,<br>243218CE263041(1) | ---   |                          |
| Initial Setting Time (min)                         | 130                  | 130                  | 115                  | 135                  | 140                  | 170                  | 135                                  | ---   |                          |
| <b>Chemical Composition</b>                        |                      |                      |                      |                      |                      |                      |                                      |   |                          |
| Loss-on-ignition (%)                               | 1.0                  | 1.1                  | 0.7                  | 1.1                  | 0.9                  | 1.1                  | 0.8                                  | ≤ 3.0%  |                          |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | <0.5                 | <0.5                 | <0.5                 | <0.5                 | <0.5                 | <0.5                 | <0.5                                 | ≤ 2.5%  |                          |
| Chloride Content (%)                               | <0.05                | <0.05                | <0.05                | <0.05                | <0.05                | <0.05                | <0.05                                | ≤ 0.10%   |                          |
| Magnesium Oxide Content (%)                        | 5.7                  | 5.1                  | 5.1                  | 6.5                  | 6.1                  | 8.2                  | 6.4                                  | ≤ 18%   |                          |
| Moisture Content (%)                               | <0.2                 | 0.2                  | <0.2                 | 0.2                  | 0.2                  | <0.2                 | <0.2                                 | ≤ 1.0%  |                          |
| Sulphide Content (%)                               | 1.0                  | 0.7                  | 0.9                  | 1.0                  | 1.0                  | 0.8                  | 0.7                                  | ≤ 2.0%  |                          |
| K <sub>2</sub> O (%)                               | ---                  | ---                  | ---                  | ---                  | ---                  | 0.33                 | 0.36                                 | ---   |                          |
| Na <sub>2</sub> O (%)                              | ---                  | ---                  | ---                  | ---                  | ---                  | 0.20                 | 0.20                                 | ---   |                          |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | ---                  | ---                  | ---                  | ---                  | ---                  | 0.41                 | 0.44                                 | ---   |                          |

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| Laboratory Reference                               | 2500007, 2500008     | 2500013, 2500014     | 2500027, 2500028              | 2500035, 2500036     | 2600003, 2600004                     |  |  | BS EN 15167-1:2006<br><br>Specification   |
|--|----------------------|----------------------|-------------------------------|----------------------|--------------------------------------|--|--|---|
| Date of Sample Received                            | 7/5/2025             | 09/07/2025           | 10/09/2025                    | 03/11/2025           | 05/01/2026                           |  |  |   |
| Country of Origin Stated By Client                 | China                | China                | China                         | China                | China                                |  |  |   |
| <b>Physical Properties</b>                         |                      |                      |                               |                      |                                      |  |  |   |
| Standard Consistence (%)                           | 28.5                 | 28.5                 | 29.0                          | 30.5                 | 30.5                                 |  |  | Not specified<br>$\leq$ twice of initial setting time for Portland cement used<br>Not specified<br>$\geq 275 \text{ m}^2/\text{kg}$<br><br>$\geq 45 \%$<br>$\geq 70 \%$ |
| Initial Setting Time (min)                         | 155                  | 160                  | 140                           | 185                  | 180                                  |  |  |   |
| Density (kg/m <sup>3</sup> )                       | 2890                 | 2890                 | 2990                          | 2870                 | 2900                                 |  |  |   |
| Fineness : Specific surface (m <sup>2</sup> /kg)   | 427                  | 413                  | 448                           | 418                  | 454                                  |  |  |   |
| Activity Index :                                   |                      |                      |                               |                      |                                      |  |  |   |
| 7 days (%)   | 64                   | 64                   | 64                            | 67                   | 68                                   |  |  |   |
| 28 days (%)  | 95                   | 97                   | 90                            | 88                   | 94                                   |  |  |   |
| Portland Cement used                               |                      |                      |                               |                      |                                      |  |  |   |
| Brand  | Special Green Island | Special Green Island | Special Green Island          | Special Green Island | Special Green Island                 |  |  |   |
| Lab. Reference No.                                 | 2500001, 2500002     | 2500001, 2500002     | CLCEM2500133,<br>CLGGB2500032 | 243218CE254251       | 243218CE263041,<br>243218CE263041(1) |  |  |   |
| Initial Setting Time (min)                         | 115                  | 115                  | 125                           | 135                  | 135                                  |  |  |   |
| <b>Chemical Composition</b>                        |                      |                      |                               |                      |                                      |  |  |   |
| Loss-on-ignition (%)                               | 1.3                  | 1.0                  | 1.0                           | 1.2                  | <0.5                                 |  |  | $\leq 3.0\%$  |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | <0.5                 | <0.5                 | <0.5                          | <0.5                 | <0.5                                 |  |  | $\leq 2.5\%$  |
| Chloride Content (%)                               | <0.05                | <0.05                | <0.05                         | <0.05                | 0.07                                 |  |  | $\leq 0.10\%$   |
| Magnesium Oxide Content (%)                        | 6.7                  | 7.0                  | 6.8                           | 7.4                  | 8.5                                  |  |  | $\leq 18\%$   |
| Moisture Content (%)                               | 0.3                  | <0.2                 | <0.2                          | 0.2                  | <0.2                                 |  |  | $\leq 1.0\%$  |
| Sulphide Content (%)                               | 0.8                  | 0.8                  | <0.7                          | <0.7                 | 1.0                                  |  |  | $\leq 2.0\%$  |
| K <sub>2</sub> O (%)                               | ---                  | ---                  | ---                           | 0.43                 | 0.41                                 |  |  | ---   |
| Na <sub>2</sub> O (%)                              | ---                  | ---                  | ---                           | 0.34                 | 0.43                                 |  |  | ---   |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | ---                  | ---                  | ---                           | 0.62                 | 0.7                                  |  |  | ---   |

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| Laboratory Reference                               | 2500009, 2500010     | 2500015, 2500016     | 2500029, 2500030              | 2500037, 2500038              | 2600005, 2600006                   |  |  | BS EN 15167-1:2006                                       |
|--|----------------------|----------------------|-------------------------------|-------------------------------|------------------------------------|--|--|--|
| Date of Sample Received                            | 7/5/2025             | 09/07/2025           | 11/09/2025                    | 03/11/2025                    | 05/01/2026                         |  |  |  |
| Country of Origin Stated By Client                 | China                | China                | China                         | China                         | China                              |  |  | Specification  |
| <b>Physical Properties</b>                         |                      |                      |                               |                               |                                    |  |  |  |
| Standard Consistence (%)                           | 30.0                 | 30.0                 | 30.0                          | 30.0                          | 30.5                               |  |  | Not specified  |
| Initial Setting Time (min)                         | 150                  | 175                  | 140                           | 160                           | 185                                |  |  | ≤ twice of initial setting time for Portland cement used |
| Density (kg/m <sup>3</sup> )                       | 2900                 | 2880                 | 3060                          | 2930                          | 2910                               |  |  | Not specified  |
| Fineness : Specific surface (m <sup>2</sup> /kg)   | 471                  | 436                  | 490                           | 484                           | 392                                |  |  | ≥ 275 m <sup>2</sup> /kg                                 |
| Activity Index :                                   |                      |                      |                               |                               |                                    |  |  |  |
| 7 days (%)   | 65                   | 71                   | 74                            | 65                            | 64                                 |  |  | ≥ 45 %   |
| 28 days (%)  | 99                   | 98                   | 100                           | 89                            | 90                                 |  |  | ≥ 70 %   |
| Portland Cement used                               |                      |                      |                               |                               |                                    |  |  |  |
| Brand  | Special Green Island | Special Green Island | Special Green Island          | Special Green Island          | Special Green Island               |  |  | ---  |
| Lab. Reference No.                                 | 2500001, 2500002     | 2500001, 2500002     | CLCEM2500133,<br>CLGGB2500032 | CLCEM2500133,<br>CLGGB2500032 | 243218CE26041<br>243218CE263041(1) |  |  | ---  |
| Initial Setting Time (min)                         | 115                  | 115                  | 125                           | 125                           | 135                                |  |  | ---  |
| <b>Chemical Composition</b>                        |                      |                      |                               |                               |                                    |  |  |  |
| Loss-on-ignition (%)                               | <0.5                 | 0.6                  | <0.5                          | <0.5                          | <0.5                               |  |  | ≤ 3.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | <0.5                 | <0.5                 | <0.5                          | <0.5                          | <0.5                               |  |  | ≤ 2.5%   |
| Chloride Content (%)                               | <0.05                | <0.05                | <0.05                         | <0.05                         | <0.05                              |  |  | ≤ 0.10%  |
| Magnesium Oxide Content (%)                        | 7.3                  | 7.7                  | 8.2                           | 7.2                           | 6.8                                |  |  | ≤ 18%  |
| Moisture Content (%)                               | 0.2                  | <0.2                 | 0.2                           | <0.2                          | <0.2                               |  |  | ≤ 1.0%   |
| Sulphide Content (%)                               | 1.0                  | 1.0                  | 0.9                           | 1.0                           | 1.0                                |  |  | ≤ 2.0%   |
| K <sub>2</sub> O (%)                               | ---                  | ---                  | ---                           | 0.24                          | 0.23                               |  |  | ---  |
| Na <sub>2</sub> O (%)                              | ---                  | ---                  | ---                           | 0.28                          | 0.32                               |  |  | ---  |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | ---                  | ---                  | ---                           | 0.44                          | 0.47                               |  |  | ---  |

| Laboratory Reference                               | 2500005, 2500006     | 2500017, 2500018     | 2500031, 2500032              | 2500039, 2500040              | 2600007, 2600008                   |  |  | BS EN 15167-1:2006                                       |
|--|----------------------|----------------------|-------------------------------|-------------------------------|------------------------------------|--|--|--|
| Date of Sample Received                            | 7/5/2025             | 09/07/2025           | 11/09/2025                    | 03/11/2025                    | 05/01/2026                         |  |  |  |
| Country of Origin Stated By Client                 | China                | China                | China                         | China                         | China                              |  |  | Specification  |
| <b>Physical Properties</b>                         |                      |                      |                               |                               |                                    |  |  |  |
| Standard Consistence (%)                           | 29.0                 | 29.0                 | 29.0                          | 29.0                          | 30.0                               |  |  | Not specified  |
| Initial Setting Time (min)                         | 175                  | 175                  | 170                           | 165                           | 180                                |  |  | ≤ twice of initial setting time for Portland cement used |
| Density (kg/m <sup>3</sup> )                       | 2910                 | 2870                 | 3040                          | 2920                          | 2840                               |  |  | Not specified  |
| Fineness : Specific surface (m <sup>2</sup> /kg)   | 410                  | 425                  | 448                           | 408                           | 426                                |  |  | ≥ 275 m <sup>2</sup> /kg                                 |
| Activity Index :                                   |                      |                      |                               |                               |                                    |  |  |  |
| 7 days (%)   | 63                   | 67                   | 67                            | 65                            | 71                                 |  |  | ≥ 45 %   |
| 28 days (%)  | 97                   | 100                  | 100                           | 91                            | 96                                 |  |  | ≥ 70 %   |
| Portland Cement used                               |                      |                      |                               |                               |                                    |  |  |  |
| Brand  | Special Green Island | Special Green Island | Special Green Island          | Special Green Island          | Special Green Island               |  |  | ---  |
| Lab. Reference No.                                 | 2500001, 2500002     | 2500001, 2500002     | CLCEM2500133,<br>CLGGB2500032 | CLCEM2500133,<br>CLGGB2500032 | 243218CE26041<br>243218CE263041(1) |  |  | ---  |
| Initial Setting Time (min)                         | 115                  | 115                  | 125                           | 125                           | 135                                |  |  | ---  |
| <b>Chemical Composition</b>                        |                      |                      |                               |                               |                                    |  |  |  |
| Loss-on-ignition (%)                               | <0.5                 | 0.5                  | <0.5                          | <0.5                          | <0.5                               |  |  | ≤ 3.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | <0.5                 | <0.5                 | 0.5                           | <0.5                          | <0.5                               |  |  | ≤ 2.5%   |
| Chloride Content (%)                               | <0.05                | <0.05                | <0.05                         | <0.05                         | <0.05                              |  |  | ≤ 0.10%  |
| Magnesium Oxide Content (%)                        | 7.2                  | 7.6                  | 8.4                           | 7.5                           | 7.3                                |  |  | ≤ 18%  |
| Moisture Content (%)                               | 0.2                  | <0.2                 | <0.2                          | <0.2                          | <0.2                               |  |  | ≤ 1.0%   |
| Sulphide Content (%)                               | 1.1                  | 0.9                  | 1.0                           | 1.1                           | 0.9                                |  |  | ≤ 2.0%   |
| K <sub>2</sub> O (%)                               | ---                  | ---                  | ---                           | 0.36                          | 0.39                               |  |  | ---  |
| Na <sub>2</sub> O (%)                              | ---                  | ---                  | ---                           | 0.33                          | 0.33                               |  |  | ---  |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | ---                  | ---                  | ---                           | 0.57                          | 0.58                               |  |  | ---  |

|  |                               |                                    |  |  |  |  |  |  |
|--|-------------------------------|------------------------------------|--|--|--|--|--|--|
| Laboratory Reference                               | 2500041, 2500042              | 2600009, 2600010                   |  |  |  |  |  | BS EN 15167-1:2006                                       |
| Date of Sample Received                            | 03/11/2025                    | 05/01/2026                         |  |  |  |  |  |  |
| Country of Origin Stated By Client                 | China                         | China                              |  |  |  |  |  | Specification  |
| Physical Properties                                |                               |                                    |  |  |  |  |  |  |
| Standard Consistence (%)                           | 29.5                          | 30.0                               |  |  |  |  |  | Not specified  |
| Initial Setting Time (min)                         | 170                           | 180                                |  |  |  |  |  | ≤ twice of initial setting time for Portland cement used |
| Density (kg/m <sup>3</sup> )                       | 2940                          | 2880                               |  |  |  |  |  | Not specified  |
| Fineness : Specific surface (m <sup>2</sup> /kg)   | 434                           | 454                                |  |  |  |  |  | ≥ 275 m <sup>2</sup> /kg                                 |
| Activity Index :                                   |                               |                                    |  |  |  |  |  |  |
| 7 days (%)   | 78                            | 78                                 |  |  |  |  |  | ≥ 45 %   |
| 28 days (%)  | 106                           | 97                                 |  |  |  |  |  | ≥ 70 %   |
| Portland Cement used                               |                               |                                    |  |  |  |  |  |  |
| Brand  | Special Green Island          | Special Green Island               |  |  |  |  |  | ---  |
| Lab. Reference No.                                 | CLCEM2500133,<br>CLGGB2500032 | 243218CE26041<br>243218CE263041(1) |  |  |  |  |  | ---  |
| Initial Setting Time (min)                         | 125                           | 135                                |  |  |  |  |  | ---  |
| Chemical Composition                               |                               |                                    |  |  |  |  |  |  |
| Loss-on-ignition (%)                               | <0.5                          | <0.5                               |  |  |  |  |  | ≤ 3.0%   |
| Sulphate Content, expressed as SO <sub>3</sub> (%) | <0.5                          | <0.5                               |  |  |  |  |  | ≤ 2.5%   |
| Chloride Content (%)                               | <0.05                         | <0.05                              |  |  |  |  |  | ≤ 0.10%  |
| Magnesium Oxide Content (%)                        | 11.0                          | 8.1                                |  |  |  |  |  | ≤ 18%  |
| Moisture Content (%)                               | <0.2                          | <0.2                               |  |  |  |  |  | ≤ 1.0%   |
| Sulphide Content (%)                               | 0.9                           | 1.1                                |  |  |  |  |  | ≤ 2.0%   |
| K <sub>2</sub> O (%)                               | 0.25                          | 0.38                               |  |  |  |  |  | ---  |
| Na <sub>2</sub> O (%)                              | 0.27                          | 0.39                               |  |  |  |  |  | ---  |
| Total Alkali ( Na <sub>2</sub> O Eq.) (%)          | 0.44                          | 0.64                               |  |  |  |  |  | ---  |