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		Heidelberg Materials 556013-5864 Mikael Westerholm	

Qualification of CEM II/B-M (P-LL) 42,5 R (Bascement Plus) for use according to SS 137003:2021+T1:2024

Comission

On commission from Heidelberg Materials Sweden AB (HM) RISE *Infrastructure and concrete technology* has reviewed some parts of qualification testing according to SS 137003:2021+T1:2024 Annex T carried out by HM and carried out some parts of the qualification testing. The tested cement is CEM II/B-M (P-LL) 42,5R (Bascement Plus), with certificate number 0402-CPR-C500441, manufactured in Slite by HM. RISE has also evaluated the tests regarding use of this cement in exposure classes XC1 – XC4, XS1 – XS3, XD1- XD3 and XF1 – XF4.

RISE Research Institutes of Sweden AB is a notified body (number 0402) for product certification of cements according to SS-EN 197-1.

Basis

Fabrication of samples, testing and evaluation for the qualification testing are reported in:

- RISE report O100634-1234146 & O100634-1274868 ”Kvalifikationsprovningar av CEM II/B-M (P-LL) 42,5R, Slite enligt S137003:2021+T1:2024. Utvärdering för exponeringsklasserna XC, XD, XS och XF”, dated 2024-10-30
- ”Bascement Plus VPI – Underlag för fastställande av användningskriterier enligt bilaga T i SS 137003:2021+T1:2024” dated 2024-08-27” prepared by HM.

The latter is incorporated in the report from RISE as an annex.

Fabrication of samples has been carried out by HM, except for the samples related to XC2 – XC4 which have been fabricated by RISE. Testing of carbonation and chloride resistance have been carried out by RISE, while testing of frost resistance have been carried out by HM. RISE is accredited for the chloride test method and HM is accredited for the frost test method.

The evaluation is carried out by Ph D Elisabeth Helsing, senior researcher at RISE.

Assessment

Test results from the qualification testing and the assessment shows that CEM II/B-M (P-LL) 42,5R (Bascement Plus) certificate number 0402-CPR-C500441, can be used in accordance with SS 137003:2021+T1:2024 in the exposure classes given below with the criteria for the use which are given for the respective exposure classes.

XCI: The use criterion is that the maximum equivalent w/c ratio shall be 0,90.

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XC2: The use criterion is that the maximum equivalent w/c ratio shall be 0,57.

XC3 and XC4: The use criterion is that the maximum equivalent w/c ratio shall be 0,52.

XD1, XD2, XS1 and XS2: The use criterion is that the maximum equivalent w/c ratio shall be 0,45.

XD3 and XS3: The use criterion is that the maximum equivalent w/c ratio shall be 0,40.

XF1: The use criterion is that the maximum equivalent w/c ratio shall be 0,60. Entrained air is not required.

XF2: The use criteria are that the maximum equivalent w/c ratio shall be 0,45, and the air content shall fulfil the requirements in Table 11 of SS 137003:2021+T1:2024 if the concrete is not subjected to frost testing.

XF3: The use criteria are that the maximum equivalent w/c ratio shall be 0,55, and the air content shall fulfil the requirements in Table 11 of SS 137003:2021+T1:2024 if the concrete is not subjected to frost testing.

XF4: The use criterion is that the maximum equivalent w/c ratio shall be 0,43.

For combination of CEM II/B-M (P-LL) 42,5R (Bascement Plus) with additions Type II when the *k*-value concept is applied, the same rules as for a CEM II/B that is accepted according to Tables 7 – 10 in SS 137003:2021+T1.2024 are valid, with the limitations regarding maximum equivalent w/c ratio for the respective exposure classes given above.

RISE Research Institutes of Sweden AB
Infrastructure and Concrete technology - Material Lab

Performed by



Lovise Sjöqvist

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