DIN EN 196-12:2025-03 (E)

Methods of testing cement - Part 12: Reactivity of cement constituents - Heat of hydration and bound water content methods

Contents

Page

European foreword ... 3
1 Scope ... 4
2 Normative references ... 4
3 Terms and definitions ... 4
4 General requirements for testing ... 5
4.1 Number of tests ... 5
4.2 Repeatability and reproducibility ... 5
4.2.1 Repeatability ... 5
4.2.2 Reproducibility ... 5
4.3 Expression of masses, volumes, factors and results ... 5
5 Principle of test methods (A and B) ... 6
6 Reagents ... 6
6.1 General ... 6
6.2 Calcium hydroxide ($Ca(OH)_2$) ... 6
6.3 Potassium hydroxide (KOH) ... 6
6.4 Potassium sulfate (K_2SO_4) ... 7
6.5 Calcium carbonate ($CaCO_3$) dried to constant mass at (200 ± 10) °C ... 7
6.6 Potassium solution ... 7
7 Apparatus ... 7
8 Procedures ... 7
8.1 Preparation of a test cement constituent specimen ... 7
8.2 Testing paste ... 8
8.3 Method A, heat of hydration ... 8
8.3.1 Preparation of the apparatus ... 8
8.3.2 Paste specimen preparation ... 9
8.3.3 Measurement of heat release ... 9
8.3.4 Calculations ... 9
8.4 Method B, bound water content ... 9
8.4.1 Paste specimen casting ... 9
8.4.2 Paste specimen curing ... 9
8.4.3 Cured specimen preparation ... 10
8.4.4 Bound water content measurement ... 10
8.4.5 Calculations ... 10
8.4.6 Correction for natural pozzolana (P) containing bound water ... 11
9 Report ... 11
10 Precision ... 12
10.1 Method A, heat of hydration - repeatability and reproducibility ... 12
10.2 Method B, bound water content - repeatability and reproducibility ... 12
Bibliography ... 13