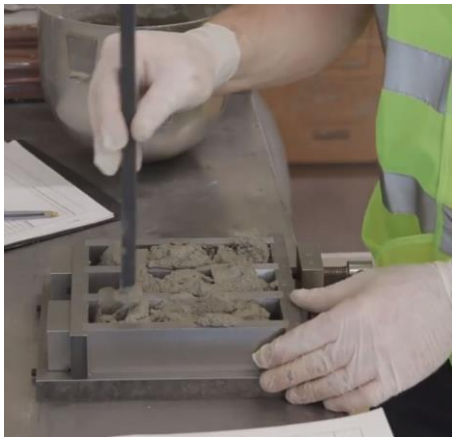
Kilsaran KPRO MASONRY | GUIDANCE **DOCUMENT**

MASONRY MORTAR – Site Sampling & Testing



Background

Kilsaran KPRO masonry mortars are designed masonry mortars, manufactured in accordance with I.S. EN 998-2:2016 Specification for Mortars for Masonry – Part 2: Masonry Mortars. Our masonry mortar products hold third party factory production control system 2+ certification and should be used in accordance with EN 1996 *Eurocode 6 - Design of masonry structures* and SR 325 *Recommendations for the design of masonry structures in Ireland to Eurocode 6.*

The current documented procedures for testing mortars is I.S. EN 1015 *Method of Test for Mortar for Masonry* and consists of 21 parts. Whilst a number of these test methods are undertaken by the mortar producer, a limited number are practicable on the construction site. For day to day routine testing, construction sites and associated personnel typically monitor the flexural and compressive strength of the mortar.

It is important to note that the products fresh and hardened characteristics declared by the manufacturer are based on laboratory conditions and cannot always be directly compared with the characteristics obtained under site conditions (Ref: section 5.1 I.S. EN 998-2:2016).

When determining the flexural and compressive strength of mortars there are 3 factors that can directly affect the test outcome. These are sampling, making of test specimens and storage of test specimens.

- Sampling – I.S. EN 1015 Part 2
- Determination of Consistence by Flow – I.S. EN 1015 Part 3
- Making of test specimens – I.S. EN 1015 Part 11
- Storage of test specimens – I.S. EN 1015-11

Sampling

Sample the mortar at the silo discharge point by passing the receptacle/scoop through the stream of mortar taking not less than 3 increments and obtaining a total sample mass of not less than 10kg. Once the sample has been obtained, mix the increments together and place the entire sample in a clean dry container and secure the lid.

Determination of Consistence by Flow

As per the requirements set out in Table 2 of I.S. EN 1015-2 (*Sampling*) the consistency of the mortar for testing must have a flow value of 175mm ± 10mm. Test method EN 1015-3 sets out the procedure and is as follows,

Step 1:

- Place the conical cone centrally on the plate of the flow table.
- Fill the cone in approximately 2 equal layers compacting each layer 10 times.

Apparatus Required

Metal or rigid plastic receptacle/scoop with a capacity ≥ 1 litre

Metal trowel

Clean, dry non-absorbent container with close fitting lid

Flow table, conical mould and tamper in accordance with EN 1015-3 specifications

Metal 3 gang prism mould for making 160 x 40 x 40 test specimens

Non-absorbent tamper with square cross section of 12mm ± 1mm, with a mass of 50g ± 1g.

Sealable polythene bags capable of holding filled prism moulds

Get in touch

ROI T: +353 (0)1 802 6300 E: technicaladmin@kilsaran.ie kilsaran.ie

UK T: +44 (0)161 872 8899 E: info@kilsaraninternational.co.uk kilsaraninternational.co.uk

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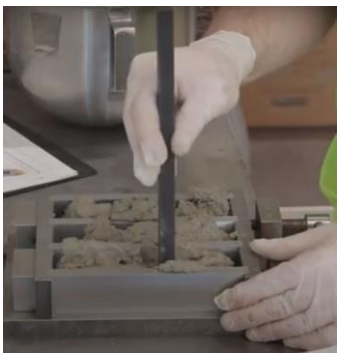
Step 2:

- Once the cone is filled strike off the excess and after approximately 15 seconds lift the cone.
- Jolt the table 15 times and measure the flow/spread of the mortar in two directions to the nearest mm. Record your result.
- If the material is outside the 175mm ± 10mm discard the sample, adjust the silo water settings and take a new sample.

Making of Test Prisms

The test specimens shall be 160mm x 40mm x 40mm prisms. 3 specimens should be provided. The 3 specimens shall be tested for flexural strength which involves breaking them in half. The compressive strength test is carried out using the 6 half prisms. Test method I.S. EN 1015-11 sets out the procedure as follows,

Step 1:



- Assemble the clean and lightly oiled 3 gang prism mould ensuring it is secure and ready for the test.
- Half fill each mould and compact with 25 strokes of the 12mm square tamper.
- Prepare 3 test prisms for testing at 28 days

Step 2:

- Fill the remainder of each mould (total of 2 layers) and compact with 25 strokes of the 12mm square tamper.
- Strike of the excess with a clean trowel to leave a smooth level surface.
- Record all relevant test data such as date and time of sampling, sample source, sample flow value etc. on the specimen test record.

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Storage of Test Prisms

Once the test specimens have been prepared their storage is of critical importance. I.S. EN 1015-11 sets out the storage conditions required per mortar type. The below table reaffirms these conditions.

Temperature 20°C ± 2°C		
Relative Humidity 95% ± 5% (or in polythene bag)		Relative Humidity 65% ± 5% (humidity chamber)
In the mould	Removed from mould	Removed from mould
2	5	21

Step 1:

- Place the prisms (in the mould) into a sealed polythene bag to create an atmosphere of 95% ± 5% relative humidity.
- Store the specimens at 20°C ± 2°C
- Store in this manner for 2 days

Step 2:

- After 2 days demould the prisms
- Place the prisms (out of mould) into a sealed polythene bag to create an atmosphere of 95% ± 5% relative humidity.
- Store the specimens at 20°C ± 2°C
- Store in this manner for a further 5 days

Step 3:

- 7 days after casting, remove the prisms from the polythene bag and store in a humidity chamber (or controlled environment) at 65% ± 5% relative humidity and at a temperature of 20°C ± 2°C.
- Store prisms in this manner for the remaining 21 days until carrying out the flexural and compressive strength tests.
- Please note prisms not stored correctly can show misleading test data values.

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