



National Standards Authority of Ireland

STANDARD RECOMMENDATION

S.R. 18:2006

ICS 91.100.15

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GUIDANCE ON THE USE OF I.S. EN

13139:2002 - AGGREGATES FOR MORTAR

*This Standard
Recommendation was
published under the
authority of the National
Standards Authority of
Ireland and comes into
effect on:
August 10, 2006*

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Foreword

This Standard Recommendation (S.R. 18:2006) for I.S. EN 13139:2002 has been prepared under the direction of the Aggregates Panel of the NSAI Concrete Consultative Committee. I.S. EN 13139:2002 specifies requirements for aggregates for mortar, and was prepared by Technical Committee CEN/TC 154. I.S. EN 13139:2002 supersedes BS 1199 & 1200 which was withdrawn in May 2002

Attention is drawn to the fact that I.S. EN 13139:2002 fully takes into account the requirements of the European Commission mandate, M125, Aggregates, given under the EU Construction Products Directive (89/106/EEC).

Attention is also drawn to the fact that I.S. EN 13139 uses the term "fine aggregate" instead of the term "sand" which has traditionally been used in Ireland. I.S. EN 13139: 2002, 3.7 specifically defines fine aggregate as having an upper sieve size of $D \leq 4mm$.

Guidance on the other European Standards for aggregates is given in the following:

S.R. 16: Guidance on the use of I.S. EN 12620:2002 – Aggregates for concrete;

S.R. 17: Guidance on the use of I.S. EN 13043:2002 - Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas;

S.R. 21: Guidance on the use of I.S. EN 13242:2002 - Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction.

There is also a Standard Recommendation, S.R. 24 covering guidance on use of European test method standards.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application. This Standard Recommendation is not to be regarded as an Irish Standard.

S.R. 18: 2006

Introduction

This Standards Recommendation provides advice on the use of I.S. EN 13139 in Ireland. I.S. EN 13139 supersedes the corresponding standard for mortar aggregates BS 1199 and 1200. However, whilst I.S. EN 13139 describes aggregates for mortar in a different manner to established Irish practice, and in some cases uses different test methods to evaluate their properties, there is no change to the essential character of the aggregates in actual use in Ireland.

Guidance on the description and grading of fine aggregates that make suitable mortar products is given in Annex **A**. This includes a full list of previously established descriptions alongside their equivalent European designations. Further advice and recommendations on masonry mortar is given in Annex **B**.

I.S. EN 13139 specifies a range of categories for properties to enable specifiers and users to select appropriate limiting values for the wide range of aggregates to be used in mortars within Europe. In most instances, provision is also made for producers to identify a declared value for properties when the value is outside indicated categories.

This document recommends limiting values for aggregate properties within the ranges permitted in I.S. EN 13139. Where possible, these recommended values are equivalent to those specified in BS 1199 and 1200.

An example specification listing recommended I.S. EN 13139 aggregate designations for particular properties is provided in Annex **C**. It can be applied to most general uses of aggregates in mortar.

I.S. EN 13139 also includes recycled aggregates within its scope and indicates that their suitability should be assessed in accordance with the regulatory requirements in the place of use. However, there is little experience in the use of recycled aggregates in mortar in Ireland and no recommendations are included in this guidance.

Fine aggregate sizes in I.S. EN 13139 are described in a different manner to those described in BS 1199 and 1200. The fine aggregate fraction described in I.S. EN 13139 is linked to a 4 mm size or less; although with a greater oversize tolerance there will generally be little actual change in gradings in practice. For particular uses, a fine aggregate with an upper 8 mm nominal size is also included. The gradings of fine aggregates in accordance with I.S. EN 13139 are also based on different principles and place an emphasis on consistency. Namely that the supplier declares the typical grading for the fine aggregate and the tolerances within which it may vary. These tolerances are restricted by I.S. EN 13139 to given values.

I.S. EN 13139 also gives requirements for special bedding materials and repair mortars.

Guidance on the use of I.S. EN 13139: 2002 – Aggregates for mortar

1 Scope

S.R. 18 gives guidance on the use of I.S. EN 13139 which specifies the properties of aggregates and filler aggregates obtained by processing natural, manufactured or recycled materials and mixtures of these aggregates for use in mortar. This includes masonry mortar, floor/screed mortar, plastering mortar, rendering mortar, special bedding materials, repair mortar and grouts.

NOTE Lightweight aggregates for mortar are covered by I.S. EN 13055-1.

Guidance is also given on the additional requirements in I.S. EN 13139 for manufactured aggregates.

2 Overview of I.S. EN 13139

2.1 General requirements

BS 1199 and 1200 specifies requirements for the grading of building sands and the quality of fine aggregates.

Details for the provision of data on other sand properties requested by the specifier, e.g. group classification, shape, surface texture, relative (particle) density, water absorption and bulk density, are also included.

I.S. EN 13139 changes and extends these properties and data requirements to include the following when required by the aggregate user:

- a) fines content;
- b) particle shape and shell content for aggregate fractions coarser than 4mm;
- c) resistance to freezing and thawing;
- d) water-soluble chloride ion content;
- e) acid-soluble sulfate content;
- f) total sulfur content;
- g) constituents which alter the rate of setting and hardening;
- h) limits for the water-soluble matter and loss of ignition of manufactured aggregates.

2.2 Evaluation of conformity

I.S. EN 13139:2002, Clause 8 requires that producers undertake and on request declare the results from:

- a) initial type tests used:
 - i) to characterize properties for new sources of aggregates;
 - ii) when there is a major change in the raw materials or processing which can affect the properties of the aggregates;

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