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NSAI Standards

Standard Recommendation
S.R. 21:2014

Guidance on the use of I.S. EN 13242:2002 +A1:2007 – Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction

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S.R. 21:2014

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Foreword

The Standard I.S. EN 13242:2002+A1:2007 is the Irish adoption of EN 13242:2002+A1:2007 “Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction”. I.S. EN 13242 is one of a package of harmonised European product standards (hENs) dealing with aggregates, prepared by Technical Committee TC/154 of the European standards body (CEN).

CEN TC/154 published the following standards in 2013 which NSAI adopted as Irish Standards, however these standards were subsequently withdrawn:

— I.S. EN 13242:2013,

— I.S. EN 12620:2013,

— I.S. EN 13043:2013,

— I.S. EN 13139:2013,

— I.S. EN 13383-1:2013,

— I.S. EN 13450:2013,

— I.S. EN 16236:2013.

The following previous editions of the standards have been reactivated and are, at the time of publication of this S.R. the current standards:

— I.S. EN 13242:2002+A1:2007,

— I.S. EN 12620:2002+A1:2008,

— I.S. EN 13043:2002/AC:2004,

— I.S. EN 13139:2002/AC:2004,

— I.S. EN 13383-1:2002/AC:2004,

— I.S. EN 13450:2002/AC:2004.

This Standard Recommendation (S.R.) revises S.R. 21:2004+A1:2007 which will be withdrawn on publication of S.R. 21:2014.

S.R. 21 is one of a series published by the NSAI to provide National Guidance on the use of I.S. EN 13242:2002+A1:2007 and the other aggregate standards. NSAI intend to review this S.R. on publication from CEN TC/154 of a planned revision of EN 13242:2002+A1:2007.

The recommendations are expressed mostly in tabular form, and the user can select the relevant categories dependent on the end use requirement of the aggregates.

This S.R. has been prepared by the Aggregates Panel of the Roads Standards Committee, NSAI.

Guidance on the other harmonised European product Standards in the series is given in the following Standard Documents:

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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. 18: Guidance on the use of I.S. EN 13139:2002, *Aggregates for mortar*

Evaluation of conformity comprises initial type testing (ITT) and factory production control (FPC).

The Construction Products Regulation (EU) No. 305/2011 (CPR) was adopted in 2011 but applies in full from 1st July 2013. The CPR repeals the Construction Products Directive (EU) No. 89/106/EEC (CPD). The CPR introduces stricter and more transparent procedures (than the CPD) for the marketing of construction products. In brief, it requires manufacturers, when placing construction products on the market which are covered by harmonised European product standards (hENs) to make a Declaration of Performance (DoP) for the product, and affix the CE mark.

This S.R. is published to provide guidance only and does not purport to include all the necessary provisions of a contract. Users are responsible for the correct application of the requirements of I.S. EN 13242:2002+A1:2007.

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Introduction

I.S. EN 13242:2002+A1:2007 specifies the properties of aggregates for use in unbound and hydraulically bound materials. This S.R. is a complete revision of S.R. 21:2004+A1:2007 and provides advice on the use of I.S. EN 13242:2002+A1:2007 in Ireland where guidance is deemed necessary.

I.S. EN 13242:2002+A1:2007 only covers aggregates and does not refer to other constituents of unbound and hydraulically bound materials, e.g. selected cohesive materials or pulverised fly ash used for fill.

Specifiers should select I.S. EN 13242:2002+A1:2007 categories for properties that are relevant to the particular end use of an aggregate. I.S. EN 13242:2002+A1:2007 specifies a range of categories for properties to enable users to select appropriate limiting values for the wide range of aggregates used in unbound and hydraulically bound materials produced in Europe. In most instances, provision is also made for producers to identify a “declared value” for properties when the value is outside indicated categories.

Annexes A, B, C, D and F of this S.R. provide guidance for the specification of aggregate properties for various end uses, within the ranges permitted in I.S. EN 13242:2002+A1:2007 and equivalent to those currently specified in Ireland, by reference to the relevant National Roads Authority (NRA) Specification for Road Works.

Annex E has been revised in line with the recommendations of the Report of the Pyrite Panel 2012 and the knowledge and experience gained, since 2007, on pyrite. Annex E gives recommendations for specifying material properties and recommendations for procedures for production of unbound granular fill (commonly known as hardcore) for use under concrete floors and footpaths.

NOTE Clause numbers, table numbers, and annexes refer to S.R. 21:2014 however, where references are relevant to other documents including I.S. EN 13242:2002+A1:2007, the relevant document for reference is specified, for clarity.

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GUIDANCE ON THE USE OF I.S. EN 13242:2002+A1:2007– AGGREGATES FOR UNBOUND AND HYDRAULICALLY BOUND MATERIALS FOR USE IN CIVIL ENGINEERING WORK AND ROAD CONSTRUCTION

1 Scope

This Standard Recommendation revises S.R. 21:2004+A1:2007, and gives advice on the use of I.S. EN 13242:2002+A1:2007 in Ireland. I.S. EN 13242:2002+A1:2007 specifies the properties of aggregates obtained by processing natural, manufactured or recycled materials for hydraulically bound and unbound materials for civil engineering work and road construction.

Guidance on manufactured aggregates is not covered under the scope of this Standard Recommendation.

2 Terms and definitions

Reference I.S. EN 13242:2002+A1:2007, Clause 3, for relevant terms and definitions.

For the purpose of this document, the following terms and definitions also apply:

framboidal pyrite
form of pyrite that typically occurs as loosely packed clusters of very small sized crystals of constituent pyrite microcrystallites <1 micron in diameter

mudrock
lithified argillaceous sediments comprised significantly of clay mineral particles

professional geologist
competent person, named on a register of Professional Members maintained by the Institute of Geologists of Ireland, or an equivalent qualified competent person

reactive pyrite
pyrite in a form that is readily oxidised

X-ray Diffraction (XRD)
non-destructive analysis technique that uses the diffraction pattern of X-rays projected at a powdered sample to obtain information on the mineralogical composition.

3 Requirements of I.S. EN 13242:2002+A1:2007

3.1 General

Clauses 4, 5, 6 and 7 of I.S. EN 13242:2002+A1:2007 start with a general subclause which draws attention to the necessity to specify only those properties relevant to the particular aggregate and end use of the aggregate. Where this is the case the wording “when required” is used.

In I.S. EN 13242:2002+A1:2007, tables of specified requirements allow the user to choose an appropriate “category” for each property. The style of category designation is intended to be self-explanatory and related to the specified limiting value. For example, category FI_{35} means that aggregate with a maximum flakiness index value of 35 is required. The style becomes more complex in the case of grading and careful understanding of I.S. EN 13242:2002+A1:2007, Tables 2, 3 and 4 is necessary. For example, category G_c85/15 is the grading designation for a coarse aggregate with a minimum 85 % passing the *D* size sieve and a maximum of 15 % passing the *d* size sieve.

An option to use a “no requirement” category is also provided. For example, a fines content category of f_{NR} is included in I.S. EN 13242:2002+A1:2007 and it means that there is no specified requirement for fines content. A category f_3, on the other hand would require a limiting value of 3 % by mass passing a 0,063 mm sieve.

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