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ISO

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ISO RECOMMENDATION

R 1588

BINDERS BASED ON CALCIUM SULPHATE

DEFINITIONS, CLASSIFICATION AND NOMENCLATURE

1st EDITION

November 1971

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BRIEF HISTORY

The ISO Recommendation R 1588, *Binders based on calcium sulphate – Definitions, classification and nomenclature,* was drawn up by Technical Committee ISO/TC 74, *Hydraulic binders,* the Secretariat of which is held by the Institut Belge de Normalisation (IBN).

Work on this question led to the adoption of Draft ISO Recommendation No. 1588, which was circulated to all the ISO Member Bodies for enquiry in June 1968.

The Draft has been approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Iran	Portugal
Austria	Ireland	Romania
Brazil	Israel	South Africa, Rep. of
Czechoslovakia	Italy	Spain
France	Netherlands	Sweden
Greece	Norway	Thailand
Hungary	Peru	Turkey
India	Poland	United Kingdom

The following Member Body opposed the approval of the Draft :

Germany

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 1588 November 1971

BINDERS BASED ON CALCIUM SULPHATE

DEFINITIONS, CLASSIFICATION AND NOMENCLATURE

1. SCOPE

This ISO Recommendation defines, classifies and names binders consisting mainly of calcium sulphate.

It does not apply to :

(*a*) binders consisting of calcium sulphate, mixed at the works with an aggregate;

(*b*) materials based on calcium sulphate which do not act as binders and used :

- as admixture or filler in the manufacture of limes and cements, paints, paper, etc.;
- as improvements of soils submerged by sea-water;
- for any other purpose.

2. GENERAL DEFINITIONS

2.1 *Binders based on calcium sulphate obtained by partial dehydration of gypsum.* Powdered materials, called "plasters", consisting mainly of calcium sulphate and capable of setting, in the presence of an appropriate quantity of water, and subsequently hardening.

2.2 *Binders based on anhydrous calcium sulphate.* Finely ground materials called "anhydrite binders", containing anhydrous calcium sulphate (of natural or chemical origin, or obtained by calcination of gypsum) with the addition of catalyzers and capable of setting, in the presence of an appropriate quantity of water, and subsequently hardening.

2.3 *Gypsum.* * Raw material of natural or chemical origin consisting mainly of calcium sulphate dihydrate.

2.4 *Natural anhydrite and chemical anhydrite.* Other raw materials, the former being natural anhydrite rock and the latter a by-product of the chemical industry, from which anhydrite binders may be obtained.

3. CLASSIFICATION

Binders based on calcium sulphate are classified according to their main use and according to the state of hydration of the calcium sulphate used in their manufacture.

They may be sub-divided according to their special uses, chemical composition, additive content, manufacturing method or physical and mechanical properties.

3.1 According to main use

Two separate groups are given as follows :

Group I – building binders based on calcium sulphate;

Group II – binders for technical use based on calcium sulphate.

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* In French, the term *gypse* refers normally to the natural rock.

3.2 **According to the state of hydration of the calcium sulphate used in manufacture**

Two separate types are given as follows :

Type A – binders based on calcium sulphate hemihydrate;

Type B – binders based on anhydrous calcium sulphate.

4. NOMENCLATURE

4.1 Group I – Building binders based on calcium sulphate

Binders of group I belong to type A or type B.

4.1.1 *Type A – Hemi-hydrate plasters.* These binders are obtained by grinding gypsum and partially dehydrating it. They consist mainly of calcium sulphate hemihydrate. They may contain calcium sulphate dihydrate, soluble or insoluble anhydrite and additives for the purpose of regulating the time of setting.

These binders may be sub-divided into two categories :

TYPE A 1 – hemihydrate plasters used in the form of a pure paste;

TYPE A 2 – hemihydrate plasters intended to be used with sand or other aggregate.

They may be classified according to their time of setting.

4.1.2 *Type B – Anhydrite binders.* These binders are the result of grinding the natural or chemical anhydrite or the insoluble anhydrite obtained by the calcination of gypsum. They contain materials for regulating the setting of anhydrous calcium sulphate and various additives.

They may be sub-divided into two categories :

TYPE B 1 – anhydrite binders used in the form of a pure paste;

TYPE B 2 – anhydrite binders for use with sand or other aggregate.

4.2 Group II – Binders based on calcium sulphate for technical use

Binders based on calcium sulphate for technical use consist of finely ground calcium sulphate hemihydrate, obtained by grinding and partially dehydrating selected gypsum. Their mechanical properties, especially their hardness, are governed by the texture of their particles, which depend upon the process of manufacture. The addition of different materials makes it possible to adapt the properties to special uses (dental use, surgical use, ceramic sanitary ware industries, etc.).

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