INTERNATIONAL STANDARD

ISO 4112

Second edition
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Cereals and pulses — Guidance on measurement of the temperature of grain stored in bulk

Céréales et légumineuses — Directives générales pour le mesurage de la température des grains entreposés en vrac dans les installations de stockage

Reference number
ISO 4112:1990(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 4112 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

This second edition cancels and replaces the first edition (ISO 4112:1979), of which the scope has been expanded to include all bulk stores.

Annex A of this International Standard is for information only.

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Introduction

The physiological processes which occur within a mass of stored grain are accompanied by the emission of heat. As a result, the temperature of the grain may reach a level at which serious permanent deterioration in the commercial, technological and food properties of the grain will take place. It is therefore necessary to detect and measure any overheating during storage and to take immediate remedial measures, such as ventilation and cooling, since late remedial measures will in most cases have no effect.

In bulk stores such damage is often in the initial stages localized and affects only a small proportion of the grain stored. However, such damage, although localized in the initial stages, may spread to other regions of the stored grain if not checked in time. The consequences of any overheating, even if it is localized, are always serious since a batch of the grain may have to be marketed at reduced prices or may even become unsaleable because of the presence of damaged grain. Because of the ever-increasing demand for grain of good quality and the prolonged periods of bulk storage, it is important to check the temperature of the grain frequently. The use of thermometric equipment, based on a large number of measuring points, is an appropriate technique to meet this objective.

The thermometric equipment is also necessary to enable correct cooling by ventilation to be carried out. Such cooling, using successive steps of 5 °C to 7 °C, can be economically employed in cold climates. At 0 °C the physiological activity of grain is insignificant even when its moisture content is close to the maximum recognized internationally.

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