

INTERNATIONAL STANDARD

ISO 4174

Second edition
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Cereals, oilseeds and pulses — Measurement of unit pressure loss in one-dimensional air flow through bulk grain

*Céréales, graines oléagineuses et légumineuses — Mesurage des pertes
de charge unitaires dans un écoulement d'air unidimensionnel à travers une
charge de grains*



Reference number
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Foreword

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International Standard ISO 4174 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 4, *Cereals and pulses*.

This second edition cancels and replaces the first edition (ISO 4174:1980), which has been technically revised.

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International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@isocs.iso.ch
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

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Introduction

Application of the law proposed by Kozeny-Carman for flows within a porous medium has been considered for grain (in particular for cereals and pulses), and such application appears to be sufficiently well verified.

The value of the unit pressure loss depends on the dimensions, porosity, moisture content and apparent density of the grain at a specific point, as well as the temperature, relative humidity, density and entering velocity of the air.

Experiments carried out by dimension categories allow two parameters to be eliminated: the moisture content and the shape (granulometry). The parameters that remain enable the characteristic coefficients of the medium to be determined: porosity and specific area. The results obtained may be used to predict the pressure losses for various densities at a specific point.