Second edition
2021-12

Coating powders —

Part 4:
Calculation of lower explosion limit

Poudres pour revêtement —

Partie 4: Calcul de la limite inférieure d'explosivité

Reference number
ISO 8130-4:2021(E)

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Published in Switzerland

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and vanishes,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 139, *Paints and varnishes,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 8130-4:1992) and ISO 8130-4 Technical Corrigendum 1:1993, which have been technically revised.

The main changes are as follows:

— the scope has been modified to differentiate between calculation and an estimation of the lower explosion limit;

— the definition on lower explosion limit (3.1) has been clarified for coating powders and the short term LEL has been introduced;

— the SI unit for the lower explosion limit has been corrected;

— the test report (Clause 8) shall note whether the lower explosion limit was calculated or estimated;

— the bibliography contains two new references;

— the text has been editorially revised and the normative references have been updated;

— some text has been moved from the scope to the introduction.

A list of all parts in the ISO 8130 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Reliable methods for the measurement of the lower explosion limit or the gross calorific value require the use of special apparatus which may not be readily available.

A method for determining the explosion indices of combustible dusts in air is given in ISO 6184-1. This method is, however, very intricate and requires considerable expertise.

The lower explosion limit can also be estimated by summation of the gross calorific value of the individual constituents of the coating powder. It is an estimation since it is not possible to know or obtain the gross calorific value of the constituent.

The calculation method leads to lower explosion limits which have been proved in practice to be satisfactory when applied to coating application plants.

NOTE A comparison with a direct method e.g. EN 14034-3[2] for determining the lower explosion limit is encouraged.