
**Rigid cellular plastics — Spray-applied
polyurethane foam for thermal
insulation —**

**Part 1:
Material specifications**

*Plastiques alvéolaires rigides — Mousse de polyuréthane projetée
pour l'isolation thermique —*

Partie 1: Spécifications des matériaux



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8873-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 10, *Cellular plastics*.

This first edition of ISO 8873-1, together with ISO 8873-2 and ISO 8873-3, cancels and replaces ISO 8873:1987, which has been technically revised.

ISO 8873 consists of the following parts, under the general title *Rigid cellular plastics — Spray-applied polyurethane foam for thermal insulation*:

- *Part 1: Material specifications*
- *Part 2: Application*
- *Part 3: Test methods*

Introduction

ISO 8873 defines the requirements for rigid cellular plastic spray polyurethane foam when used as a thermal insulation in buildings and non-buildings.

This part of ISO 8873 specifies requirements for the physical properties of rigid cellular plastic spray polyurethane foam and lists the test methods to be used.

The designer has the responsibility for confirming that the physical properties provided by material manufactured to this part of ISO 8873 will conform to the requirements for a specific application.

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Rigid cellular plastics — Spray-applied polyurethane foam for thermal insulation —

Part 1: Material specifications

WARNING — Persons using this document should be familiar with normal laboratory practice, if applicable. This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory requirements.

1 Scope

This part of ISO 8873 specifies minimum requirements and test methods for spray-applied polyurethane rigid cellular plastic, used as a thermal insulation for both building, whether applied on a building site or in a prefabrication (manufacturing) facility, and non-building applications. The material is also known as *in-situ* thermal insulation.

The spray-applied polyurethane rigid cellular plastic thermal insulation is not to be used when the continuous service temperature of the substrate is outside the range of $-60\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$.

The test methods used to determine the material properties provide a means of comparing different cellular plastic thermal insulations. They are intended for use in specifications, product evaluations and quality control. They are not intended to predict end-use product performance.

Spray-applied polyurethane rigid cellular plastics are to be applied (installed) in accordance with the manufacturer's instructions and the requirements of ISO 8873-2. Applications, requirements for applications and limitations of use are included in ISO 8873-2.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 844, *Rigid cellular plastics — Determination of compression properties*

ISO 845, *Cellular plastics and rubbers — Determination of apparent density*

ISO 1663, *Rigid cellular plastics — Determination of water vapour transmission properties*

ISO 1926, *Rigid cellular plastics — Determination of tensile properties*

ISO 2796, *Cellular plastics, rigid — Test for dimensional stability*

ISO 2896, *Rigid cellular plastics — Determination of water absorption*

ISO 4590, *Rigid cellular plastics — Determination of the volume percentage of open cells and of closed cells*

ISO 8301, *Thermal insulation — Determination of steady-state thermal resistance and related properties — Heat flow meter apparatus*

ISO 8302, *Thermal insulation — Determination of steady-state thermal resistance and related properties — Guarded hot plate apparatus*

ISO 8873-2:—¹⁾, *Rigid cellular plastics — Spray-applied polyurethane foam for thermal insulation — Part 2: Application*

ISO 8873-3:—²⁾, *Rigid cellular plastics — Spray-applied polyurethane foam for thermal insulation — Part 3: Test methods*

ISO 10456, *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

ISO 11561, *Ageing of thermal insulation materials — Determination of the long-term change in thermal resistance of closed-cell plastics (accelerated laboratory test methods)*

ISO/IEC 17024, *Conformity assessment — General requirements for bodies operating certification of persons*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

authority having jurisdiction

officer or officers having authority, under appropriate regulatory instruments, to exercise enforcement

3.2

certification organization

impartial body possessing the necessary competence and reliability to operate a certification system in accordance with ISO/IEC 17024, in which the interests of all parties concerned with the functioning of the system are represented

3.3

equipment manufacturer

manufacturer of equipment designed for spray-application of rigid polyurethane cellular plastic thermal insulation

3.4

***in-situ* thermal insulation**

thermal insulation product produced or taking its final form at the site of application and which achieves its properties after installation

3.5

spray-applied polyurethane foam

rigid cellular plastic material with substantially closed cell structure based on polyurethanes, which is foamed *in-situ* by the catalysed reaction of polyisocyanates and polyhydroxyl compounds, expanded with blowing agents

3.6

spray polyurethane foam contractor

individual, organization or corporation who is responsible for all requirements and obligations for the installation of the product

1) To be published.

2) To be published.