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# INTERNATIONAL STANDARD



# 1622

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Plastics — Polystyrene moulding and extrusion materials — Designation

*Matières plastiques — Polystyrènes pour moulage et extrusion — Désignation*

First edition — 1975-06-15

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**Descriptors :** plastics, thermoplastic resins, polystyrene, moulding materials, casting, extrusions, designation.

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**FOREWORD**

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 61 has reviewed ISO Recommendation R 1622 and found it technically suitable for transformation. International Standard ISO 1622 therefore replaces ISO Recommendation R 1622-1970 to which it is technically identical.

ISO Recommendation R 1622 was approved by the Member Bodies of the following countries :

|                     |                |                       |
|---------------------|----------------|-----------------------|
| Austria             | Iran           | South Africa, Rep. of |
| Belgium             | Israel         | Spain                 |
| Brazil              | Italy          | Sweden                |
| Czechoslovakia      | Japan          | Switzerland           |
| Egypt, Arab Rep. of | Korea, Rep. of | Turkey                |
| France              | Netherlands    | United Kingdom        |
| Germany             | Poland         | U.S.A.                |
| Hungary             | Portugal       | U.S.S.R.              |
| India               | Romania        |                       |

No Member Body expressed disapproval of the Recommendation.

The Member Body of the following country disapproved the transformation of ISO/R 1622 into an International Standard :

Canada

# Plastics — Polystyrene moulding and extrusion materials — Designation

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard provides a method of designation and the general requirements for polystyrene moulding and extrusion materials.

Major types of polystyrene moulding and extrusion materials are differentiated from one another by appropriate levels of selected specific properties. Polystyrene itself is described by selected general characteristics for reference purposes.

These types are amorphous homopolymers of styrene, coloured or uncoloured. Excluded are styrene copolymers, homopolymers of substituted styrenes, and those modified with other polymers, such as elastomers. Specific tests for special purpose materials, such as light-stabilized or anti-static grades, are not included. High pigment contents may affect properties.

Other properties may be necessary to specify materials for particular purposes.

## 2 REFERENCES

ISO/R 179, *Plastics — Determination of the Charpy impact resistance of rigid plastics (Charpy impact flexural test).*

ISO/R 180, *Plastics — Determination of the Izod impact resistance of rigid plastics (Izod impact flexural tests).*

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

ISO/R 292, *Plastics — Determination of the melt flow index of polyethylene and polyethylene compounds.*

ISO 293, *Plastics — Compression moulding test specimens of thermoplastic materials.*

ISO/R 294, *Plastics — Injection moulding test specimens of thermoplastic materials.*

ISO 306, *Plastics — Determination of the Vicat softening temperature of thermoplastics.*

ISO/R 489, *Plastics — Determination of the refractive index of transparent plastics.*

ISO/R 527, *Plastics — Determination of tensile properties.*

ISO/R 1183, *Plastics — Methods for determining the density and relative density (specific gravity) of plastics excluding cellular plastics.*

ISO 2557, *Plastics — Amorphous thermoplastic moulding materials — Preparation of test specimens with a defined level of shrinkage.*<sup>1)</sup>

IEC Publication 250, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths.*

## 3 DESIGNATION

Types of polystyrene materials are identified by two-digit numerical designations. The first digit refers to Vicat softening temperature, specifically to whichever one of the four ranges in table 2 includes the average value for the pertinent polystyrene. The second digit similarly refers to melt flow index. The mechanical properties such as impact strength and flexural modulus, which are necessary to designate other styrene-containing plastics, need not be considered here.

Thus, for example, type "14" describes polystyrene within the lowest Vicat softening temperature range and the greatest melt flow index range. Type "41" describes polystyrene within the highest softening temperature range and the lowest melt flow index range. Tensile strength increases directly with softening temperature.

Not all possible combinations of softening temperature and melt flow index are provided by available polystyrenes. The designated types given in table 1 are presently available.

TABLE 1 — Available types

| Vicat softening temperature | Melt flow index | Polystyrene type |
|-----------------------------|-----------------|------------------|
| 1                           | 2, 3, 4         | 12, 13, 14       |
| 2                           | 2, 3            | 22, 23           |
| 3                           | 1, 2            | 31, 32           |
| 4                           | 1, 2            | 41, 42           |

1) At present at the stage of draft.