
**Plastics — Assessment of the effectiveness
of fungistatic compounds in plastics
formulations**

*Plastiques — Évaluation de l'efficacité des composés fongistatiques dans
les formulations de plastiques*



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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 16869 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 6, *Ageing, chemical and environmental resistance*.

Introduction

It is a well known phenomenon that plasticizers as well as other ingredients in plastics formulations can be attacked by bacteria, yeasts and fungi, the latter being the most important deteriogens. Microbial attack results in a reduction of the quality of the plastic, causing embrittlement as well as discoloration. This deterioration is of economic importance.

The prevention of fungal attack can be achieved by the incorporation of a fungistatic compound into the formulation. The function of this fungistat is to inhibit the growth of any fungi present on the surface of the plastic product.

The method described in this International Standard determines the effectiveness of fungistatic compounds incorporated into the plastic against the fungi used in the test.

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WARNING — Handling and manipulation of microorganisms that are potentially hazardous requires a high degree of technical competence and may be subject to current national legislation and regulations. Only personnel trained in microbiological techniques should carry out such tests. Codes of practice for disinfection, sterilization and personal hygiene must be strictly observed.

It is recommended that workers consult IEC 60068-2-10:1988, appendix A “Danger to personnel”, and ISO 7218:1996, *Microbiology of food and animal feeding stuffs — General rules for microbiological examinations*.

1 Scope

This International Standard specifies a method for determining the effectiveness of fungistatic compounds in protecting susceptible ingredients like plasticizers, stabilizers, etc., in plastics formulations. The method demonstrates whether or not a plastic product is actively protected against fungal attack.

The evaluation is by visual examination.

The test is applicable to any articles made of plastic that are in the form of films or plates no thicker than 10 mm. In addition, porous materials such as plastic foams may be tested provided that they are in the above-mentioned form.

In contrast to ISO 846, the test films are not sprayed with a fungal spore suspension but covered with a layer of test agar containing spores. It has been found that this leads to a better distribution of the spores as well as providing a good supply of water necessary for spore germination on plastic surfaces that are normally hydrophobic.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 291:1997, *Plastics — Standard atmospheres for conditioning and testing*

EN 554:1994, *Sterilization of medical devices — Validation and routine control of sterilization by moist heat*

3 Terms and definitions

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

3.1

plastic susceptible to fungal attack

plastic material that contains in its formulation one or more nutrients that support fungal growth