
Prefilled syringes —

Part 7:

**Packaging systems for sterilized
subassembled syringes ready for filling**

Seringues préremplies —

*Partie 7: Systèmes d'emballage pour les seringues stérilisées prêtes à
l'emploi préremplissables*



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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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#).

The committee responsible for this document is ISO/TC 76, *Transfusion, infusion and injection, and blood processing equipment for medical and pharmaceutical use*.

ISO 11040 consists of the following parts, under the general title *Prefilled syringes*:

- *Part 1: Glass cylinders for dental local anaesthetic cartridges*
- *Part 2: Plunger stoppers for dental local anaesthetic cartridges*
- *Part 3: Seals for dental local anaesthetic cartridges*
- *Part 4: Glass barrels for injectables and sterilized subassembled syringes ready for filling*
- *Part 5: Plunger stoppers for injectables*
- *Part 6: Plastics barrels for injectables*
- *Part 7: Packaging systems for sterilized subassembled syringes ready for filling*

The following part is under preparation:

- *Part 8: Requirements and test methods for finished prefilled syringes*

Introduction

At the start of prefilled syringe processing by the pharmaceutical industry, syringes made of tubing glass were delivered to the pharmaceutical companies in the form of a so called non-sterile “bulkware” only. The process steps like washing, drying, inner lubrication, sealing the syringe with a closure system, sterilization, as well as filling, and closing were then performed in the pharmaceutical companies. Processing of “bulkware” is still performed like this nowadays. Sterilized subassembled syringes have partially replaced the non-sterile “bulkware”.

In the case of sterilized subassembled syringes ready for filling, responsibility for the aforementioned process steps relevant to the injectable product lies within the manufacturer of the primary packaging material. Following the assembly of the needle shield on syringes with a staked needle or tip caps for the luer cone version, the subassembled syringes are placed into so called nests. The nests, in turn, are placed into a plastic tub. The syringes in the nest are protected by means of an insert liner and the tub itself is sealed by a sealing lid (which is currently, and so far, primarily achieved using a porous material). Thus, the tub properly sealed with the sealing lid represents the “sterile barrier system”. The sealed tub is then wrapped into a sealable bag and, thus, ready for sterilization which is currently, and so far, primarily performed using ethylene oxide.

In this form, the sterilized subassembled syringes ready for filling are delivered to the pharmaceutical companies in a sterile condition where they are processed on suitable machines.

The packaging design and material have to ensure sterility and should be compatible with the process of the customer. The packaging characteristics, material, thickness, shape, and resistance to deformations among others are such that they maintain, up to the point of use, the integrity of the product and a validated barrier against particulate and bacterial contamination. The packaging materials have to fulfil regional and national regulatory requirements.

Prefilled syringes —

Part 7:

Packaging systems for sterilized subassembled syringes ready for filling

1 Scope

This part of ISO 11040 specifies the packaging system that is used to deliver sterilized subassembled syringes ready for filling in tubs and nests.

Downstream processes (processes after filling such as in house/outside transport, reprocessing) can result in specific requirements on the packaging system used to deliver sterilized subassembled syringes ready for filling. However, these requirements are not within the scope of this part of ISO 11040.

NOTE 1 Glass barrels and sterilized subassembled syringes ready for filling, plungers, and plastic barrels for injectables are specified in ISO 11040-4, ISO 11040-5, and ISO 11040-6.

NOTE 2 ISO 11607-2 addresses validation requirements of sealing and packaging processes for medical devices.

2 Normative references

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

ISO 11607-1, *Packaging for terminally sterilized medical devices — Part 1: Requirements for materials, sterile barrier systems and packaging systems*

3 Terms and definitions

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

3.1

customer

business entity which purchases syringe barrels or sterilized subassembled syringes ready for filling and conducts further processing or filling as appropriate

3.2

insert liner

foil to cover the filled nest

3.3

manufacturer

business entity which performs or is otherwise responsible for the manufacturing of the syringe barrels (bulkware) or for the sterilized subassembled syringes ready for filling by the customer

3.4

nest

plastic plate with a defined hole pattern for the suspension of the syringe bodies