

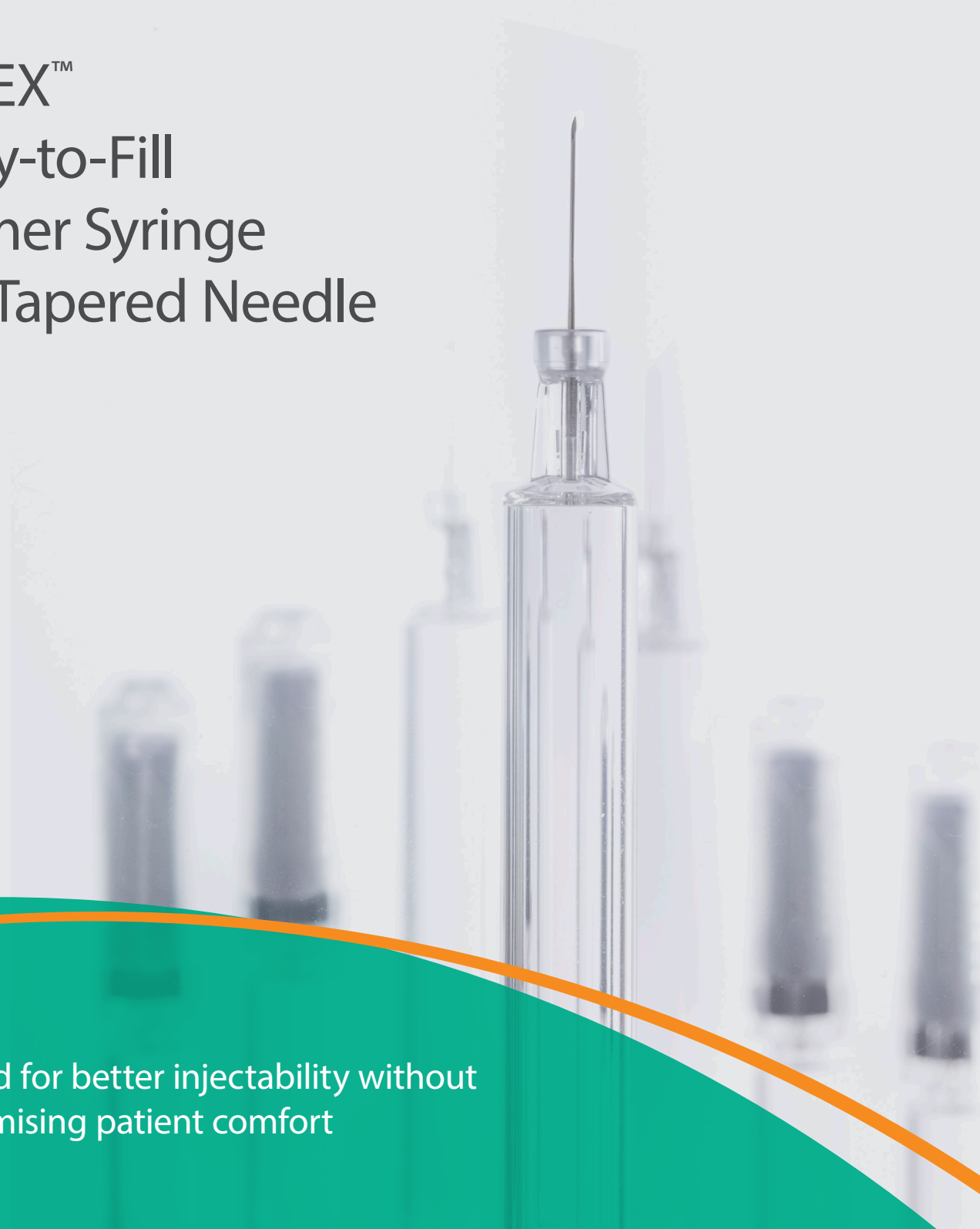
Quality time for better care



PHARMACEUTICAL

PLAJEX™ Ready-to-Fill Polymer Syringe with Tapered Needle

Designed for better injectability without
compromising patient comfort



Lower injection forces for highly viscous drugs

The PLAJEX™ with Tapered Needle is designed for better injectability without compromising patient comfort.

Considerable efforts have been made in the pharmaceutical industry to minimize pain experienced by patients when injecting medication. In the field of pre-fillable syringes, one of the options is to reduce the diameter of the needle. However, this may raise injectability challenges, especially in the case of very concentrated drug formulations with greater viscosity. Resistance to flow can be reduced by using a conically-shaped needle with a small diameter at the tip and a larger diameter at the bottom. Our recently developed Tapered Needle combines these approaches to further reduce injection forces for viscous drug products without compromising patient comfort.



1. Tapered Needle
2. Silicone oil-free
3. Tungsten-free
4. Adhesive-free

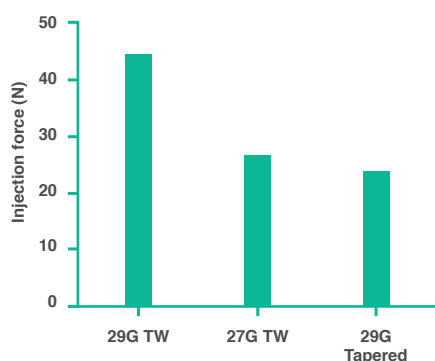
5. Ready-to-fill format
6. Higher resistance to breakage
7. Autoclave advantage

The right technologies for your drug, device and design

The PLAJEX™ with Tapered Needle ready-to-fill syringe consists of a 1 ml long Cyclo Olefin Polymer (COP) barrel with the proprietary conically-shaped Tapered Needle. It provides lower interaction with proteins, lower subvisible particles, excellent strength and clarity. Injectability is improved while keeping a needle size of only 29G at the point of patient contact.

Tapered Needle

The PLAJEX™ with Tapered Needle allows a proven reduction in the necessary injection force, especially for highly viscous non-Newtonian fluids such as some monoclonal antibodies. During testing, the injection forces in a syringe system with a 29G Tapered Needle were shown to be lower than those in either a system with a 29G Thin Wall straight needle or a system with a 27G Thin Wall straight needle.¹



(monoclonal antibody solution, test speed: 190mm/min)

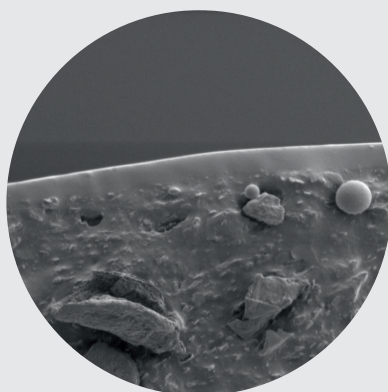
PLAJEX™ Tapered Needle
Inside & outside tapered



Conventional Needle
Inside & outside straight



Images for illustration purposes only.



i-coating™

- i-coating™ is Terumo's proprietary coating which is applied to the surface of the stopper and bonded to the substrate. It is not a laminate and it remains flexible with the substrate.
- i-coating™ provides a silicone oil-free container for drug products requiring lower reactive surfaces.
- This thin surface coating provides a consistent and predictable gliding force for the syringe and stopper container closure.²



Why polymer?

More and more pharmaceutical companies consider polymer syringes as a way of bypassing quality issues associated with glass.³ The added benefits provided by polymer mean that quality can be integrated in the device design. PLAJEX™ polymer syringes are silicone oil-free, adhesive-free, and allow tight dimensional tolerances for safer, more reliable drug delivery.

¹Data on file

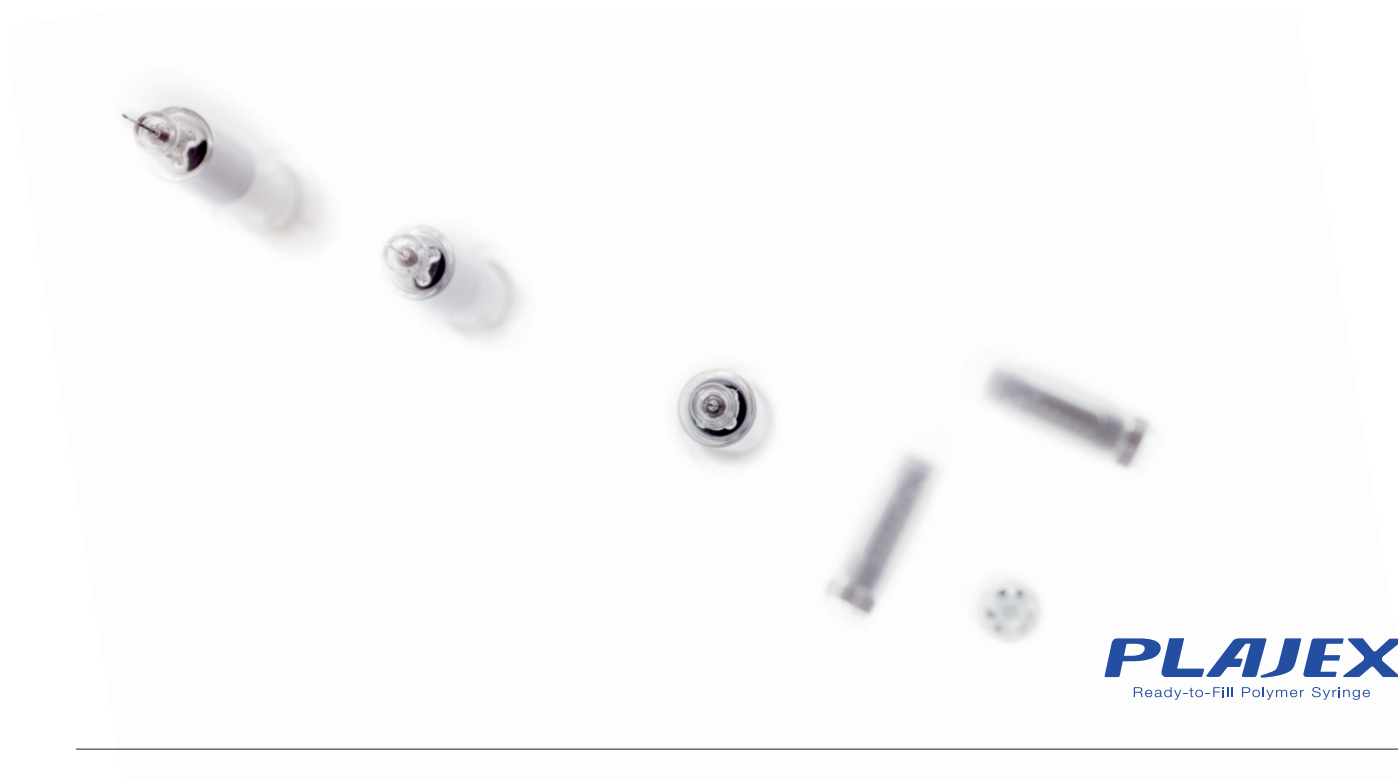
1. Advantages of a tapered needle for use in pre-filled biopharmaceutical products, Terumo internal study (March 2019). 2. Functional evaluation and characterization of a newly developed silicone oil-free pre-fillable syringe system, K. Yoshino et al. (2014), *JpharmSci*, 103, 1520-1528. 3. 2017 PDA glass quality survey, PDA survey report (2018)

General Specifications

Specification	Description
Syringe size	1 ml long, 2.25 ml (reference to ISO 11040-6: 2019) Material: Cyclo Olefin Polymer (COP)
Needle options	29 G 1/2" Tapered needle
Syringe barrel lubrication	None: Silicone oil-free
Needle shield	Rigid needle shield Material: Chlorobutyl-diene blend polymer, Polypropylene
Flange shape	Cut flange (Reference to ISO 11040-6: 2019)
Plunger stopper	i-coating™ stopper (Reference to ISO 11040-5: 2012) Material: Chlorobutyl rubber with silicone resin coating
Packaging	Barrel: 10 x 10 Nest/Tub format (100 syringes per tub) Plunger stopper: Double Tyvek® bag or Rapid Transfer Port bag
Sterilization	Barrel: Autoclave Plunger stopper: Autoclave
Plunger rod	Material: Polypropylene
Optional	Finger grip (Backstop)

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