SCHOTT TopPac®
Polymer Prefillable Syringes for highly viscous drugs
**Our solution:**
**SCHOTT TopPac® polymer syringes**

With over 15 years of experience, SCHOTT offers a solution to address the challenges in the use of Hyaluronic Acid in pre-filled syringes. The following properties ensure that our syringes meet the container requirements:

1. **Integrated Luer Lock**
   - Minimization of leakage, luer lock rotation, needle ejection and disconnection of luer lock adapter during injection.

2. **Design flexibility**
   - Smaller inner diameter reduces the injection force to be applied in order to achieve a certain pressure. Cut flange is optimized for easy handling and external finger grips.

3. **Consistent gliding force**
   - Crosslinked silicone for constant breakaway and gliding force and less interaction with silicone sensitive products.

4. **High break resistance**
   - Luer cone breakage can be avoided due to high break resistance of the COC polymer material.

**Syringe system requirements**

Traditionally, glass syringes have mainly been used for hyaluronic acid applications. The emergence of polymer syringes has helped to improve patient well-being and injection comfort for healthcare professionals, as they fulfill the following requirements:

- **Optimized injection force**
  - Constant and stable injection force for injection accuracy.
  - Low injection force despite high viscosity of the drug.

- **Robust and tight needle connection**
  - No leakage at needle hub.
  - No needle ejection.
  - No LLA rotation or LLA pop-off during needle connection.

- **Suitable for terminal sterilization**
  - No tip cap pop-off during autoclave process.
  - No haziness.

- **Ultra thin needles**
  - 30 or 31 G
  - Almost painless injection
  - Accurate product delivery and placement.

- **Ergonomic design**
  - Easy to handle.
  - Cut flange suitable for external finger grips.

**Case Study: Hyaluronic Acid**

Hyaluronic acid is a naturally occurring, biodegradable, highly viscous substance that can be used for either treating certain medical disorders or in cosmetic surgery. The injectable form of hyaluronic acid is primarily used in pre-filled syringes mainly for three medical applications:

1. **Dermal fillers**
   - Hyaluronic Acid is injected into the skin to reduce wrinkles, fine lines and scars.

2. **Ophtalmic application**
   - Hyaluronic Acid is used in cataract surgery for anterior chamber expansion.

3. **Viscosupplementation**
   - In case of osteoarthritis, Hyaluronic Acid is injected into the knee joint as a treatment.

**SCHOTT TopPac® – An ideal solution for highly viscous drugs**

Highly viscous drugs require optimized injection force as well as a robust syringe system. SCHOTT TopPac® pre-filled syringes reduce the risk of needle ejection, disconnection of the Luer Lock Adapter or syringe barrel breakage.