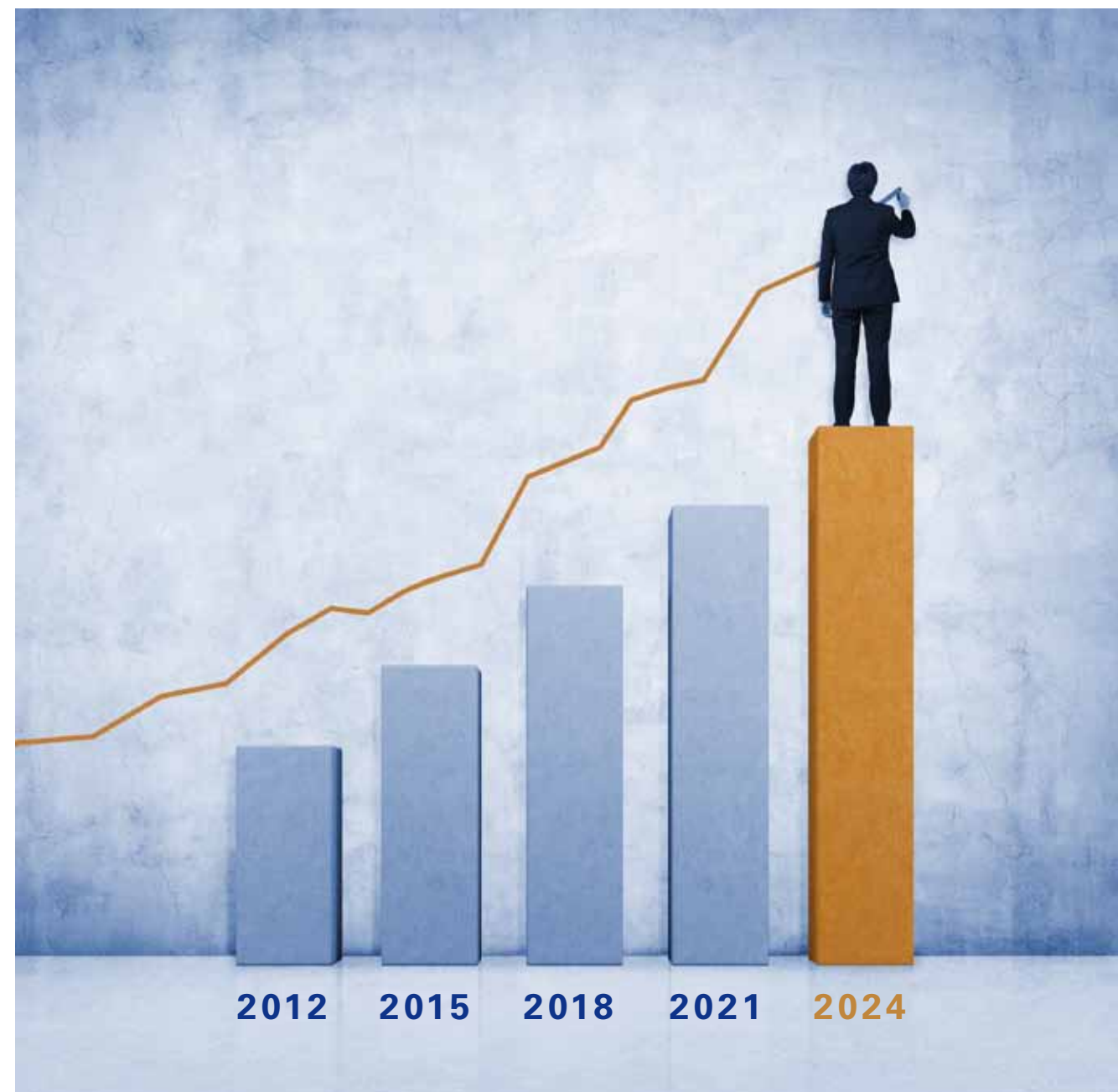


# Vetter-Ject® – The prefilled option for silicone-sensitive compounds

## Market trends

Recent market reports have demonstrated that the global market for prefilled syringe systems is expected to show continued positive growth. A key reason for this development is the rapid growth in biologic drug development. Also affecting growth is a challenging worldwide regulatory environment, combined with a demand for greater patient- and caregiver-friendly administration systems in both the clinical and market stages.

Biologics and prefilled syringe forecasts go hand in hand



— Prefilled syringe market revenue forecast  
— Biologics market revenue forecast

### Additional factors driving prefilled syringe market growth

- Regulatory Trends:**
  - Needlestick safety legislation will drive demand for safety syringes
  - More focus on human factors engineering for new devices
- Drug Development Trends**
  - Greater injectable biological development
  - The rise of biosimilars
  - Focus on chronic diseases
  - Oral drugs to challenge injectable therapies
- Health Care Trends**
  - Global vaccination programs
  - Self-administration in more therapeutic areas
  - Needle phobia and risks to drive demand for alternative technologies

## Advantages of prefilled syringes

### Short-term clinical trial benefits

- User-friendly system improves trial appeal
- 4-step administration process versus 12 steps when using a vial
- Less risk of dosing error and injury for health care professionals
- Single-unit dosing reduces waste of valuable API\*

### Long-term market advantages

- Patient compliance and persistence
- Meets precise dosing requirements of today's more complex compounds
- Less waste of valuable API with overfilling
- Adds value or creates a competitive barrier at launch

**Avoid possible misuse of the leftover drug product in vials, with the potential of medication errors and microbial contamination\*\***

\* Source: Clinical Oncology® News, Prefilled Syringes Cut Waste – and Bottom Line on Drugs, October 17, 2011.  
\*\* Source: FDA Draft Guidance for Industry Allowable Excess Volume and Labeled Vial Fill Size in Injectable Drug and Biological Products: Draft Guidance for Industry. <http://www.fda.gov/downloads/drugs/guidancecomplianceregulatoryinformation/guidances/ucm389069.pdf>

### Advantages – Prefilled Syringes with Baked-in siliconization

- Vetter internal tests verify that the baked-in silicone process has the lowest silicone oil amount compared with pre-sterilized systems
- Endotoxin-free glass barrels by using baked-in siliconization
- The amount of silicone in the syringe and the related particle load can be reduced by up to 80%
- Fewer particles and homogenous distribution for consistent gliding force during shelf life

## What is Vetter-Ject®?

Vetter-Ject® is a patented, ready-to-use syringe closure system offering high flexibility, high product integrity and tamper-evident technology for improved product safety.



### Staked needle + baked-in silicone

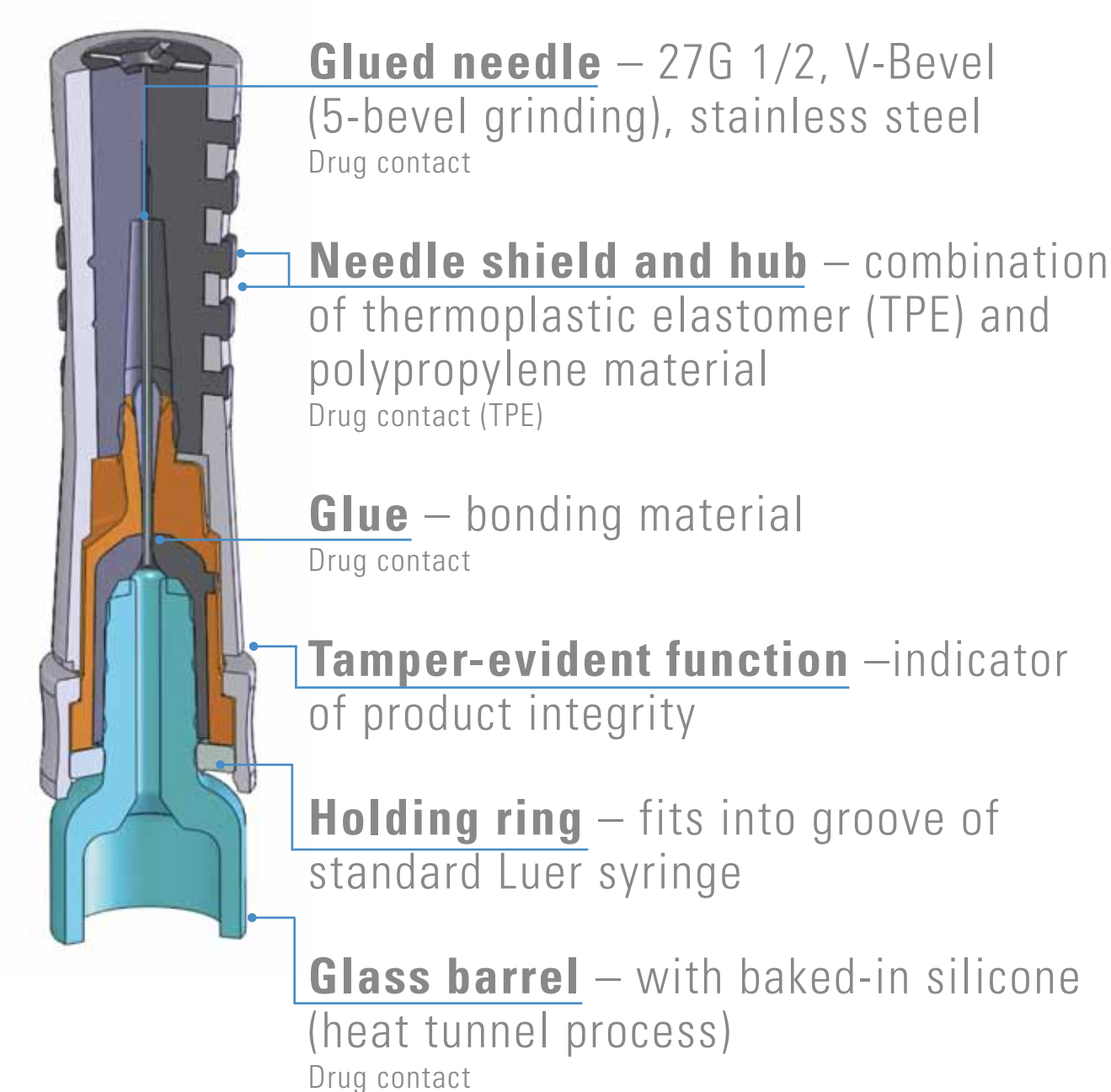
- Combination of integrated staked needle with baked-in siliconization of the glass barrel and heat tunnel sterilization for endotoxin-free glass barrels.
- The amount of silicone in the syringe and the related particle load can be reduced by up to 80%.



### Flexible primary packaging material combinations

Syringe format	Plunger rod	Backstop	Stopper	Glass barrel	Vetter-Ject® closure part
1.0 ml long					
1.5 ml					

### Vetter-Ject® – the closure part



### Benefits of Vetter-Ject® – staked needle system for sensitive compounds



#### High flexibility

- Customized siliconization and a broad range of standard syringe components are available
- The amount of silicone in the syringe and the related particle load can be reduced by up to 80%.

#### High product security

- Baked-in silicone process reduces product-silicone interaction and particle contents
- Heat tunnel sterilization for endotoxin-free glass barrels

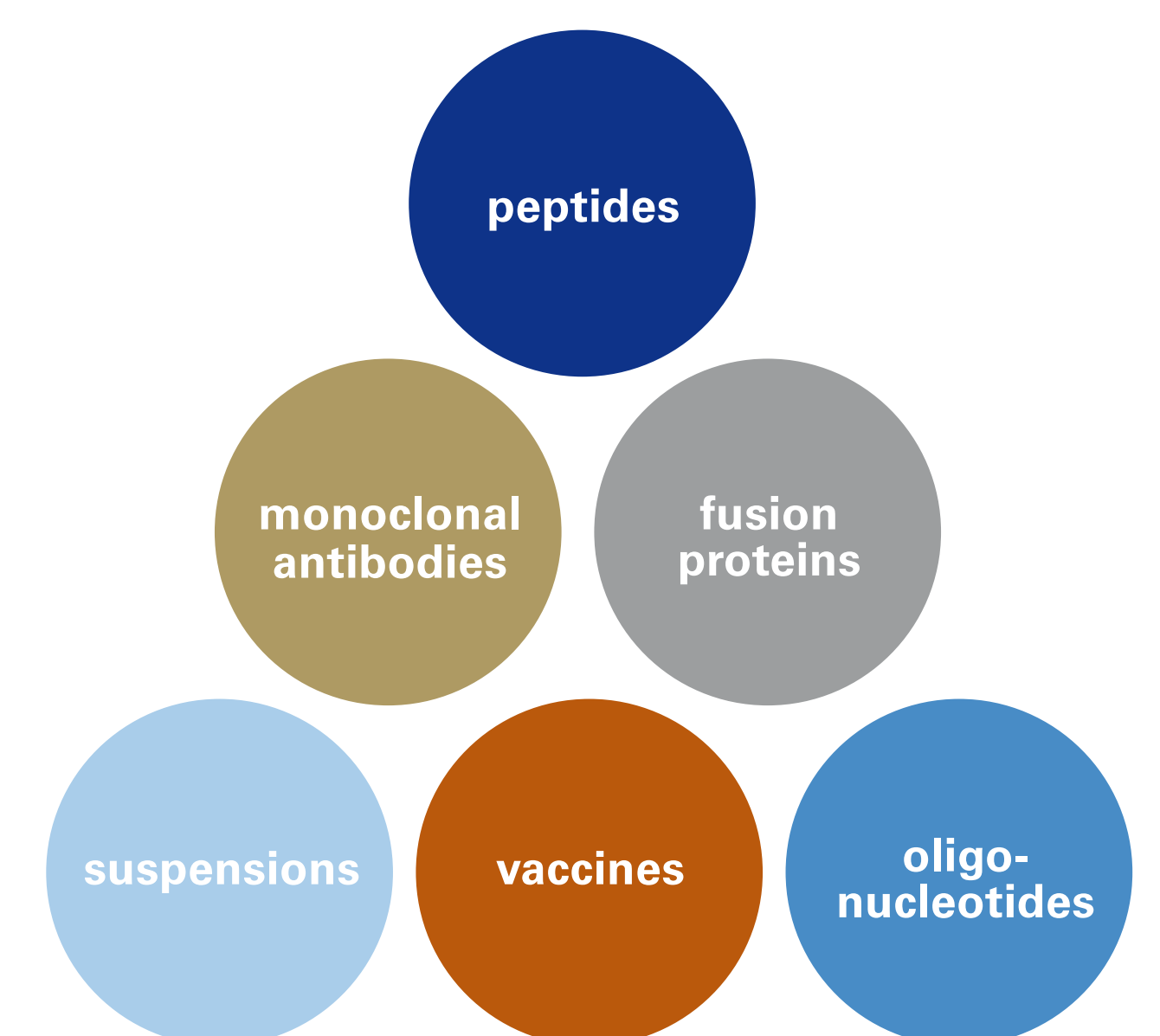
#### Ready-to-use syringe system

- Convenience of a staked needle syringe
- Staked needle offers easy handling and administration

#### Indicator for product integrity

- Tamper-evident seal that supports product integrity

### Target markets for Vetter-Ject® by product type



### Vetter-Ject® – An awarded syringe closure system

#### Red Dot Design Award 2015

The Red Dot Award is an international design competition that is awarded since 1955. The accolade of the Red Dot Design Award, the "Red Dot", is an internationally recognised quality label for excellent design. Vetter-Ject® got the award in the category product design.



reddot award 2015 winner

#### IF Design Award 2015

The iF Design Award for outstanding achievements in product design is given out once a year and attracts more than 2,000 product entries from around 37 nations. Vetter-Ject® picked up the IF Design Award, Discipline Product, in the category Medicine/Healthcare.



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Answers that work