



- Multilayer concept (COP – PA – COP)
- ISO design
- High transparency

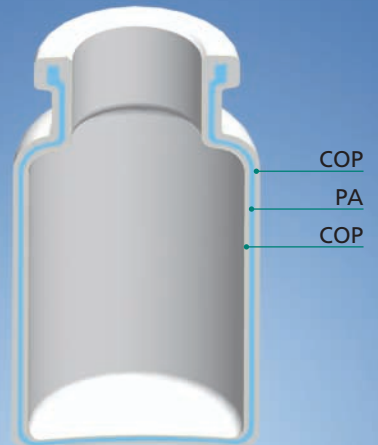
Enhanced Barrier COP Vials



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Main application areas:

- Biotech derived drugs
- Cytotoxics
- Cell-based therapies



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Enhanced Barrier COP Vials

Multilayer vials based on COP: Improved barrier properties for sensitive products

They are characterized by glass-like transparency, high break-resistance and outstanding barrier properties: our new multilayer vials are based on COP (Cyclic Olefin Polymer). With this innovation we offer you a previously unattained quality of plastic vials for sensitive parenteral medications.

The structure combines two COP outer layers with a middle layer of polyamide. This combination improves the container's oxygen barrier properties many times compared with COP monolayer vials. The specific advantages of COP compared with any other relevant plastic type are retained: for example, the absence of heavy metal ions and an inert surface which minimizes the risk of protein adsorption.

The design of the new multilayer vial is in accordance with the ISO standard. This means that the usability of standardized rubber closures and seals is guaranteed. In addition, the materials fulfill the most stringent requirements for biocompatibility and naturally all the pharmacopeia requirements for pharmaceutical packaging made of plastic. We are working on continuous expansion of our unique concept: in the very near future we will also be able to supply these multilayer vials 'ready to fill'.

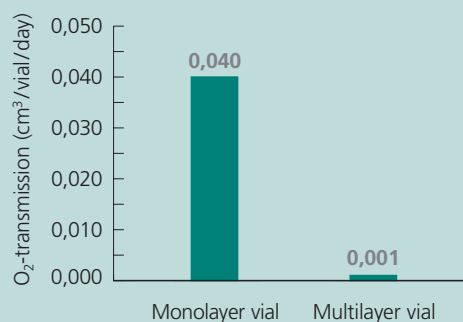
Gerresheimer. It's a matter of synergies.

Main characteristics

- **Permeation significantly reduced**
- **Reduced protein adsorption to container surface**
- **Ready to fill**
- **Wide pH range**
- **Excellent drainability**
- **Breakage resistance**
- **No heavy metal ion release**
- **Available in 10 ml and 15 ml (further sizes to follow)**



Oxygen barrier



- **Barrier properties about 30 to 40 times better compared to monolayers**
- **Measured on 10 ml vial**

Oxygen barrier at 23°C and 85% RH