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**Cover photo:** As a competent partner of the pharmaceutical industry, Schott Polymer GmbH in the Swiss city of St. Gallen produces more than 20 million prefillable syringes per year from a unique high-tech plastic material. Marketed under the name "Schott TopPac," these products are suitable for application in emergency medicine, for anticoagulant agents, vaccines, solutions, liquids with extreme pH values and proteins.

Photograph: Simon Puschmann

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# A Healthy Shot of Innovation

Schott has expanded its product range for the pharmaceutical industry. Syringes made of "Topas" special plastic are produced at Schott Polymer GmbH in St. Gallen.



► It is the nightmare of every physician who has to treat the victims of serious accidents: a severely injured person is first rescued from a wreck and then suffers heart failure. The patient must be treated immediately. The doctor prepares to administer the medicine and reaches for the syringe. One false move in a hectic moment and the syringe lies broken on the floor. Precious time is lost – time that could save a patient's life. Walter Schiess knows all too well that such incidents are not rare. "Glass is a very well tried and tested material for syringes," says the Sales Manager at Schott Polymer GmbH in the Swiss city of St. Gallen. "But there are some applications in which glass has proven to be less advantageous because of its fragility. Emergency medicine is one such field."

### Highly innovative plastic

To counteract this problem, Schott has recently introduced an alternative to conventional glass syringes: prefillable syringes made of "Topas," an innovative special plastic. The company invested five to six years

into the development of this product, which incorporates Schott's concentrated know-how. Sold under the name "Schott TopPac," these syringes have been available on the market since mid-2002. They are produced by Schott Polymer GmbH in St. Gallen, which was founded specifically for this purpose with a start-up capacity of 20 million pieces per year. Located in Eastern Switzerland, this

Schott affiliate is the only company in the world that manufactures syringes from this high-tech material.

### Fantastic features

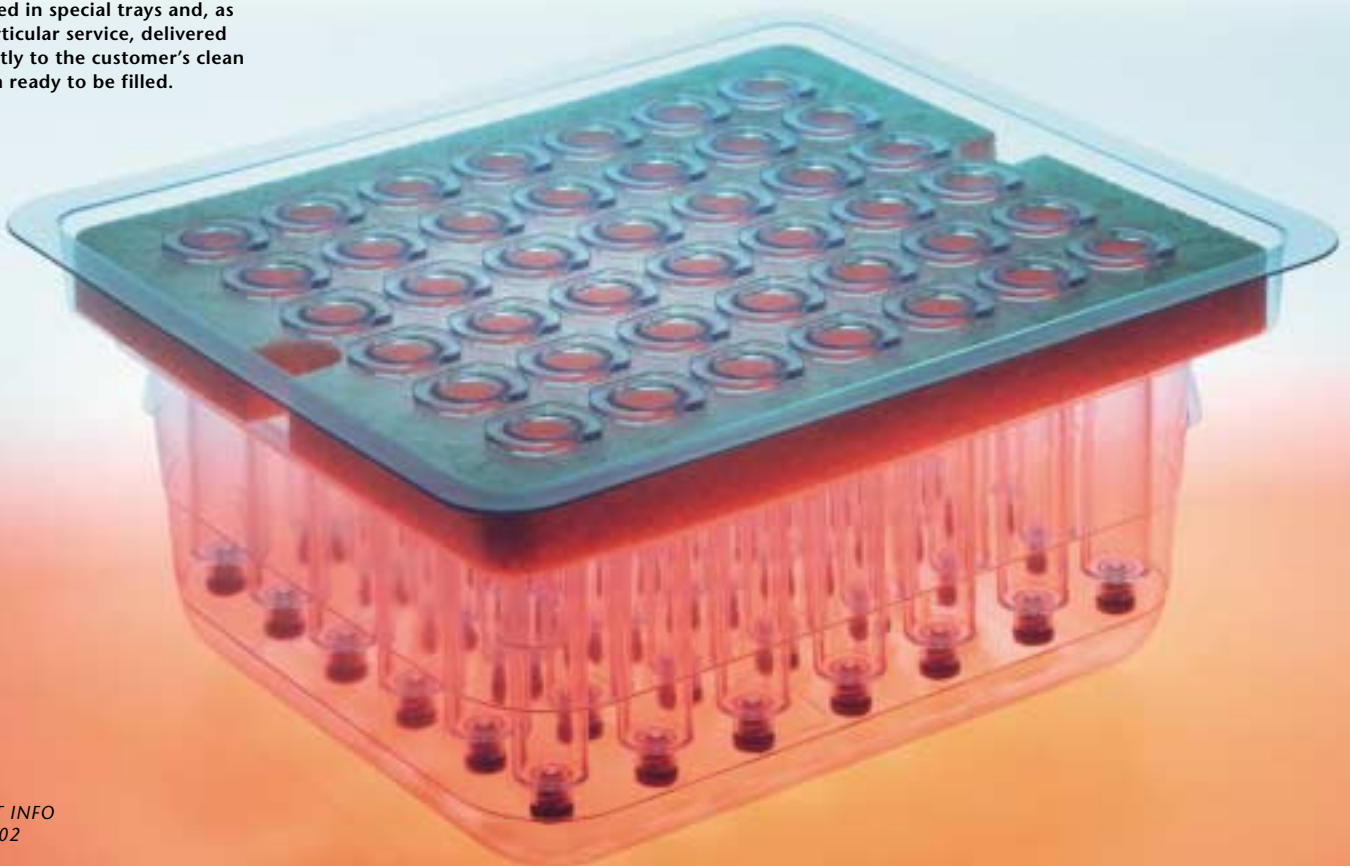
Excellent transparency and resistance to breakage, its light weight and flexibility with regard to sterilization processes – these are just a few of the many features that make this novel material so promising. "The demands on prefillable syringes are high," explains Dr. Ralf Holschumacher, Managing Director of Schott Polymer. They have to protect the contents against harmful environmental influences and must not react with the medicine – a challenge for "Schott TopPac" syringes that was convincingly



Among the positive features of "Schott TopPac" are its excellent transparency, resistance to breakage, light weight and good barrier properties. The plastic material protects the contents from environmental influences without reacting with the medicine.



The plastic syringes are injection-molded in a clean room, sterilized, packed in special trays and, as a particular service, delivered directly to the customer's clean room ready to be filled.



overcome. "This engineering material has extraordinarily good barrier properties." Water cannot evaporate from the syringes nor can moisture or oxygen penetrate them. This means that the syringes can be stored for years without damaging the contents.

### Economically interesting

There are additional advantages for the pharmaceutical companies that have to fill the syringes with their products. Contrary to standard primary packaging, "Schott TopPac" syringes are clean and sterile when they are delivered: they are fabricated in a clean room using injection molding technology, packed, radiation-sterilized and then delivered ready for filling directly to the customer's clean room. This saves pharmaceutical manufacturers several processing steps – and thus plant, maintenance and personnel costs. "The pharmaceutical company can have a small filling unit and still work cost effectively," stresses Ralf Holschumacher. For instance, vendor inspection and broken syringes in the filling unit or in the clean room are now things of the past.

### A practical addition to the product range

The list of medicines that are suitable for "Schott TopPac" syringes is long. Anticoagulants and vaccines are two examples, as are solutions, products with extreme pH values and proteins. Of course, the new plastic material will not completely replace the well-established "Schott Fiolax" syringes made of glass. But they are definitely a practical addition to the existing product range, emphasizes Ralf Holschumacher. This is also demonstrated by the close proximity of Schott Polymer to the 50-percent Schott affiliate forma vitrum, which produces "forma2<sup>5</sup>/3<sup>s</sup>" glass syringes. Customers can thus obtain glass and plastic syringes from a single supplier. "Our objective is to achieve growth in both product areas." ◀

### Filled and ready to go

Prefillable syringes are tried and tested medical products. Some 1.2 to 1.5 billion pieces are produced every year – most of them are made of glass. About 50 percent of these syringes are filled with heparin, an anticoagulant agent. Other pharmaceutical substances including vaccines and contrast media are also offered in prefillable syringes. One decisive advantage of these syringes is that they are immediately ready for use. The physician does not have to charge any (additional) syringes. This saves time – and material. And the dose of the medicine is particularly exact because the filling operation is automatic.



Prefillable glass and plastic syringes ease the work of physicians and other medical staff. The ready-to-use syringes save time and material by eliminating charging.