

## Clinical Experience with Polyacetal for Dental Restorations

We are all familiar with Acetal as a material; we encounter it every day. Whether it is the seatbelt buckles of children's car seats, all the mast bases of all the windsurfing boards no matter what make or model, ski bindings, biocompatible lancets in medical technology - they are all made from this material.

Acetal is a thermoplastic resin material. It is extremely stable (module of e. 3200 N/mm<sup>2</sup>) and completely biocompatible. For processing it is simply liquified at 220° C and injected under pressure. It is thus not a chemoplastic material such as methacrylate acrylic, a material that continues to be very popular in dental restorations. Acetal requires neither catalysts nor chemical additives for processing. Commonly used denture resins contain even sometimes allergenic substances such as benzene peroxide, bisphenol A, and quinol. Dental alloys, too, can often have dangerous effects on allergic patients if they contain indium, gallium, or cadmium ( see the report „Die Metalldatenbank“ by Jürgen Steinert in Zeitschrift für Umweltmedizin 01/1999, p.p. 18-19).

Acetal consists of alternating repeating carbon, hydrogen and oxygen molecule chains, which is the reason why this material is absolutely biocompatible. In his book Polymere Werkstoffe, which was published by the Carl Hanser Verlag, Prof. Ehrenstein additionally describes other advantageous properties which arise from to the material's interlocking long filamentary molecules.

A high degree of fracture resistance paired with high elasticity - these two properties allow us to use this material for creating sophisticated removable dentures, crowns or bridges as well as Inlays (fillings).