

Well protected under the hood

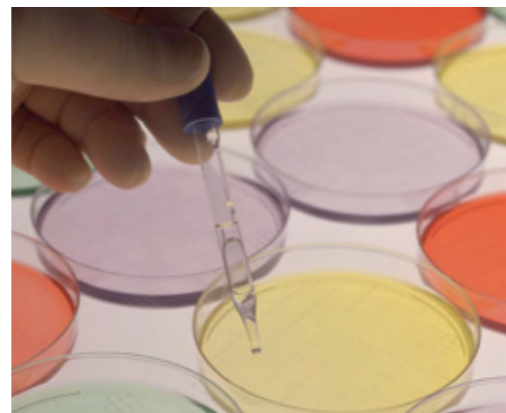
Christian Rieser, Product Application Engineer

When exacting demands on design and functionality need to be met, materials with an attractive appearance, excellent physical properties and a wide spectrum of shapeability are especially called for. This was certainly the case for a heat-resistant functional hood designed for an automatic culture media preparer manufactured by Biotektron AG. A successful solution in every sense using PMMA acrylic glass was found in close cooperation between this maker of microbiological laboratory equipment and the specialists at Angst+Pfister.

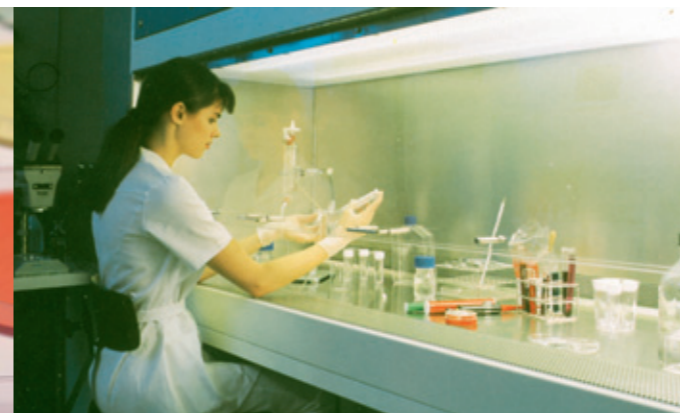
Biotektron is a typical small enterprise headquartered in Amriswil, Switzerland. The company's highly motivated employees, with their will to innovate, develop hardware, software and mechanics technology and manufacture high-grade microbiological laboratory equipment ranging from automatic culture media preparers to complex, fully automated Petri dish filling stations. Its sales partner company Biotool AG distributes the high-value products in more than 30 countries worldwide through a professional reseller network.

Function and aesthetics

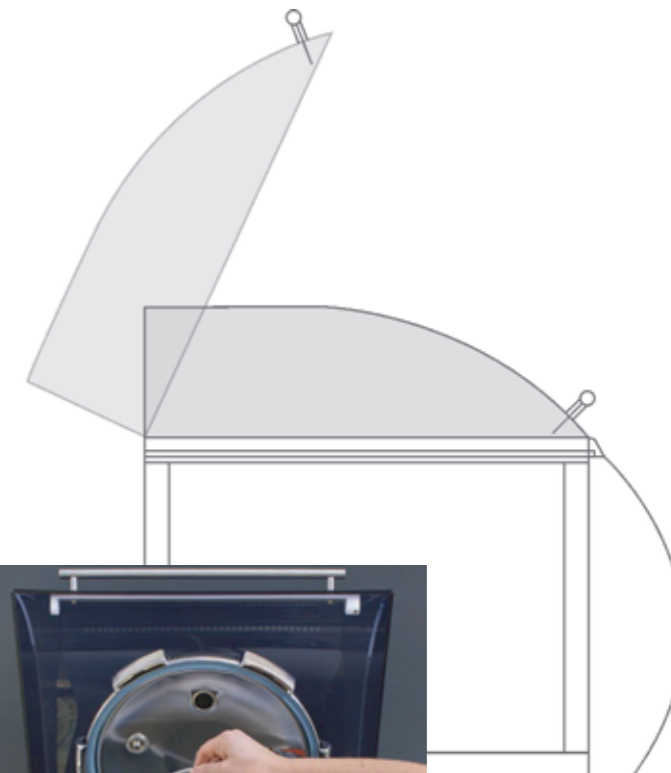
When undesirable germs and bacteria need to be detected in the production and processing of food, medicines and pharmaceutical products, samples can be examined using specific culture media.



Various culture media



Preparation of sample cultures



ProfiClave PC10 culture media preparer

Culture media – i.e. substances that allow the germs that need to be detected to proliferate especially well – are prepared based on recipes according to their use designation.

The ProfiClave PC10 automatic culture media preparer was developed for this purpose. It serves to prepare 0.5 to 9 liters of ready-to-fill culture medium quickly and carefully. Fast and even heat input using a coupling medium (water jacket) and rapid recooling minimize the thermal strain on the sensitive media. The ProfiClave enables very short process times and allows the ready-to-fill medium to be prepared right in the laboratory. Depending on the program used, the process container of the appliance reaches a temperature of more than +100 °C. The device was fitted with a functional hood made of PMMA to prevent the operating personnel from getting hurt by the hot kettle lid. This hood was expressly designed to fit harmonically into the ProfiClave's and the other Biotektron appliances' design concept.

Successful product development collaboration

Development of the ProfiClave PC10 was still in an early phase when the Biotektron engineers turned to the specialists at Angst+Pfister. This early collaboration enabled an optimal solution to be found that matched the developers' design ideas while taking into account material properties, process engineering conditions, intended functionality and cost. This successful cooperation resulted in a complexly shaped hood made of colored transparent PMMA acrylic glass components that were reshaped under heat, machined and bonded together.

Attractive material

PMMA (polymethylmethacrylate) acrylic glass is a thermoplastic material with an amorphous internal structure. Due to its crystal clear appearance, its high surface hardness and its excellent optical properties, acrylic glass is a very popular plastic material for the manufacture of optically demanding glass coverings or high-grade transparent constructions.

The material is offered in two basic types:

- PMMA-GS, cast: with excellent optical properties;
- PMMA-XT, extruded: with good optical properties, specifically suited for hot forming and deep drawing.

Main characteristics of PMMA:

- High hardness and rigidity
- Good mechanical stability
- High scratch resistance and good polishability
- Good to excellent optical properties
- Good resistance to weather
- Good resistance to temperature changes
- Good dielectric properties
- Very good adhesive bondability

Numerous application possibilities

The enormous variety of transparent semifinished plates, rods, round bars and tubes enables many engineering tasks to be solved using standard semifinished products.

Thanks to the excellent suitability of PMMA for hot forming and deep drawing, virtually any shape imaginable can be manufactured. This creates vast scope for designing products – for example in shaping hoods and enclosures for machines, lighting fixtures, inspection glasses, display cabinets or transparent bonded constructions.

The following special types round out the range of possibilities:

- plates in various colors, colored translucent, opaque, metalized (mirror effect);
- plates with antistatic coating (surface resistance 10^6 to $10^7 \Omega$);
- plates with scratchproof coating.

We would be pleased to help you with your design and construction projects. Do not hesitate to contact our specialists.

Your contact:
Christian Rieser
Angst+Pfister AG, 8052 Zurich, Switzerland
Telephone: +41 44 306 63 62
E-mail: c.rieser@angst-pfister.com