



CABINETS: UNLIMITED OPPORTUNITIES WITH POLYURETHANE

CABINETS CAN BE USED FOR, E.G.:

- PROTECTING INSTRUMENTS
- THE HEALTHCARE SECTOR
- ROBOTS
- DESIGN, FOR SOUND,
LAMPS AND MUCH MORE

NEWSLETTER
AUTUMN 2020

TINBY



WELCOME TO THE WORLD OF PUR

In this newsletter, we look forward to providing you with new inspiration as we tell you more about the multi-functional material that is known as polyurethane - or PUR as it is more commonly referred to. Today, modern technology makes it possible to satisfy a number of very different requirements using just one material - and here we've collected together several examples of solutions we have developed with our clients - in what we call the 'cabinet' segment.

Happy reading!
Best wishes,
Tinby A/S



GOOD IDEAS?

Do you and/or your company have a good idea, or perhaps several, that you would like to try out, test or discuss at the development and/or production stage? Then why not contact our sales and project department who'll be happy to share their experience and know-how when it comes to product optimisation, materials and processes (see the back page for contact details).

DYNAUDIO - BAFFLES FOR LOUDSPEAKERS

Dynaudio is a Danish loudspeaker manufacturer specialising in the development and production of hand-crafted speakers for the discerning, impassioned listener. Today, the company is one of the most renowned, leading companies in the field of premium sound systems. Dynaudio is particularly known for its advanced unit technology, which is designed, assembled and developed in-house on an ongoing basis, as well as for its groundbreaking R&D technology and unparalleled craftsmanship.



Tinby manufactures a number of different baffles for Dynaudio's Confidence range. The Confidence 50 (illustrated), features a PUR baffle that is manufactured by Tinby, and has attracted a great deal of attention and critical acclaim, particularly since it scooped the international German Design Award, where it won the gold medal for design in the 'Entertainment' category.



PROTECTING PRODUCTS FOR INDUSTRIES SUCH AS THE HEALTHCARE SECTOR

Solid PUR can be used for a wide range of items that are designed to provide protection such as cabinets for electronic and mechanical devices, basins and lids for machinery, cladding for robots, or in design solutions such as lamps and loudspeaker elements - and much, much more.

Polyurethane is everywhere you look in products we use every day and is ideal for protecting things such as electronic equipment in the healthcare sector, and other types of devices. At Tinby, we manufacture complex items weighing anything between 50 g and 25 kg. As solid PUR is such a hard, shockproof material, it provides 'fragile' products with optimum protection.

Solid PUR thus allows you to realise very advanced designs which other plastic types can seldom match. You can give free rein to your ideas using a material that can be moulded meaning there is no need for compromise on design, function or aesthetics.

We work freely with shape and colour, round and curved lines and can emboss logos or text in the material itself - the kinds of demand that other types of plastic struggle to live up to. Wrinkled surfaces that are lacquered with embedded elements can be created with precision in one process. Furthermore, we can embed bushings, reinforcements, handles and many other things, which means no further assembly work will be required later.

Large items can be moulded at competitive prices in small series. This also means you can introduce new models or changes in design along the way, as the cost of tools used with PUR is relatively low.



COMPONENTS FOR LOUIS POULSEN LAMPS

Louis Poulsen is an internationally recognised Danish lighting brand familiar to most. The company is famous for manufacturing high quality lamps and is renowned for being one of the world's leading suppliers of comprehensive lighting design solutions.

Tinby moulded the top reflector and outer shade in solid PUR for Louis Poulsen's 'LP Grand'. This item is a good example of how it is also possible to mould very large parts in polyurethane - in a series size that suits the client.



PUR CABINET FOR AUDIOLOGICAL EQUIPMENT: MEASURING CHAMBER FOR HEARING AIDS

High-tech audiological equipment

Benoto ApS is an innovative company dealing with the development of high-tech audiological equipment – from basic units to high-end products. The company has customers all over the world. Tinby A/S has manufactured a range of different polyurethane cabinets for Benoto, which are, for instance, used as test environment for state-of-the-art audiological equipment.

Highly sensitive electronics | One of these cabinets is TBS10, a box that has been designed for the testing of hearing aids. The cabinet was cast from rigid integral foam, which provides a soft core and a hard, non-porous surface. PUR is extremely resistant to external impacts and thus shields the sensitive electronics against ambient interference.

Freedom of design

TBS10 consists of three parts, each cast in its own specially made aluminium mould. Each part has its own complex design details which ease the assembly of the box and give the test chamber a unique design and an elegant surface finish. The parts are varnished in different colours, structures and lustres. This provides the cabinet with an aesthetic and functional appearance that matches the modern technology it is used for. The items are cast in small series which is possible using polyurethane because of the rather low costs for production tools.

What the customer says

“A test chamber for hearing aids is, in principle, a loud-speaker cabinet. These cabinets are often made as a square box from MDF plate. PUR has many of the same acoustic properties as MDF and, in addition, the flexible PUR gives us great freedom of design, e.g. the possibility to cast a lot of details – which is difficult or even impossible when we use MDF. And this is precisely one of the reasons why we wanted to produce the test chamber from PUR. We were not disappointed for the result was impressive, and Tinby A/S delivered a high-quality product.”

Stefan Bengtsson, CEO, Benoto ApS www.benoto.dk

Facts about the polyurethane in TBS10

- 600 g/l rigid integral foam
- Stable sandwich construction with low density
- Impact resistant and protective
- Varnished in different colours, structures and lustres
- In compliance with REACH and RoHS regulations according to 2002/95/EC and 2011/65/EU, and does not emit phthalates



INTERNAL LACQUERING

At Tinby, we offer a full range of services in regard to your product from manufacturing to finishing, including surface treatments, in-mould coating and lacquering with polyurethane lacquer. As the lacquering process is done in-house, as a part of the manufacturing process, this not only ensures that the process is streamlined and efficient, but it also means we can keep the price down without the added cost of things such as transportation, and there are no extra handling or delays. Ask our sales department for advice - there are a whole range of different shapes and surface treatments to choose from.



FOAMED PUR: SPACIOUS BICYCLE BOX

User-friendly cargo bikes

Triobike designs safe and user-friendly cargo bikes that are customised for families with young children, making it possible to transport anything safely and easily through town – from up to four children and groceries to Christmas trees and many other things.

Small batch sizes at competitive prices

Tinby casts the box for Boxter in foamed polyurethane – in one casting. This means that the box has no sharp edges or joints. This part is a good example of how it is also possible to cast very large parts in polyurethane, even in smaller batch sizes and at competitive prices.



A very sturdy material

Foamed PUR is a very sturdy material with a high impact resistance, and it is resistant to bumps and scratches. The PUR tolerates high temperature fluctuations without losing its performance; it acts insulating, and is very suitable for the Danish weather conditions.

What the customer says

“My collaboration with Tinby is long-standing and positive. From the start, Tinby has been a full-service consultant on everything – from tools and materials to design and separation methods. Our demands for the product were given in advance, and based on these, Tinby has customised the procedure, so that the end product reaches the segment precisely. Among our wishes for the PUR were the options to be able to embed bushings, bolts, and nuts into the material – a factor resulting in us getting the exact competitive model, which Triobike Boxter is today, just right.”

*Sammy Eisinger, CEO, Triobike A/S
www.triobike.dk*

Facts about the PUR foam in the Boxter box:

- 500 g/l foamed PUR
- Cast in one casting
- No joints or sharp edges
- Re-lacquered in several colours
- Very sturdy material
- Tolerates high temperature fluctuations





FOAMED PUR: UNIBODY SOLAR WATER HEATER

The Unibody solar water heater is sold and marketed by Aguasol International ApS. The solar water heater is a patented and branded product used for the heating of, for instance, private homes. It is made by Tinby from moulded foamed polyurethane and was awarded the Cleantech Prize 2009.

'Climate Cover Technology'

In cooperation with Aguasol Tinby developed the special type of polyurethane which is now known as 'Climate Cover Technology'. It is suited for applications in which first-class insulation has high priority – e.g. in this solar water heater.

The special PUR has extremely good insulating properties and is suited for encapsulating vital parts and sheltering them from frost and rough weather conditions, etc.

Increased effect and energy savings | The water tank, the absorber and the glass plate in the Unibody solar water heater are all moulded into one single polyurethane cabinet. Thus the effect of the solar heating plant is increased considerably, and the energy loss is reduced. The solid outer PUR shell provides the solar water heater with a nice surface and a simple expression.

Experience with large dimensions | This solar water heater is but one of the products that prove Tinby's vast experience with complex products of large dimensions as well as the development of special raw materials which insulate and provide a wear-resistant surface. PUR is among the insulation materials available that has the highest thermal efficiency. In this way it is possible to achieve maximum energy efficiency – also with small wall thicknesses.

What the customer says | "From our first contact and until we saw the final result, Tinby has acted very proactively and persistently to solve the challenges we were facing. We chose Tinby as the supplier of our moulds, and I can warmly recommend them because they really assume the responsibility for providing the proper moulding quality. Their know-how and literacy are unique worldwide, which others in our line of business have experienced and confirmed, too."

Morten Fuur, CEO www.aguasol.dk

Facts about PUR 'Climate Cover Technology':

- 170 g/l foamed black PUR
- Specially designed and highly insulating
- Weather-proof
- Resistant
- Nice surface finish



FOAMED PUR: BASKETTE, THE FISH LINE BASKET

KetteGear is the entrepreneur behind the product BasKette – a practical fish line basket intended for both deep-sea fishing and fly fishing. The product designer wanted to use polyurethane for this new outdoor product for active fishermen because of its unique properties. The result is a practical and multifunctional design. BasKette is cast as a sandwich construction from foamed black PUR and consists of a light core and a hard, firm shell. The basket is cast in one single piece in a specially developed aluminium mould and has various fine details like e.g. notches to hold the fishing rod, logo on the side, cones at the bottom and holes to drain off the sea water. BasKette easily floats on the water, and the lightweight material makes the basket easy to handle and transport. Thanks to the robustness of the material, the basket can also be used as a stool/seat.



NEW TECHNOLOGIES FOR RECYCLING

Plastic is an indispensable raw material and is found all around us in products we use every day. It can be found in life-saving protective equipment, in medical equipment, in the soles of our shoes, in our car dashboard, in the chairs around our dining room table, in the insulation in our house, in the cabinets we use to protect our electronic gadgets, in toys and tools in the playground, and in the blades of wind turbines that generate power for us. And in a whole host of other places.

As a plastics manufacturer, it is important for all of us at Tinby, to demonstrate a sense of responsibility with regard to how the plastic we produce for the items our clients request is used and recycled, so that our impact on the environment is as minimal as possible. We do this by, among other things, collaborating with the Danish Technological Institute and a number of other plastics manufacturers on the RePURpose project - and by contributing to the fulfilment of the UN's Global Goal No. 7 on sustainable development, as we manufacture a wide range of items for the wind turbine industry. By focussing on the environment, sustainability and recycling, and working together with several other players in the plastics/PUR industry, we can carry on the work of developing new methods of recycling PUR products.

WHY TINBY?

1. As your Danish partner, we will guide you safely through all phases of the development, start-up and production from our own factories in Denmark, China, the USA, Latvia and Poland
2. We have extensive know-how, experience and expertise, when it comes to polyurethane, and we are constantly developing the technology
3. We participate actively in developing new products in collaboration with our clients, and we also provide project management as a natural part of our partnership
4. We deliver reliable quality - on time
5. We work globally
6. We are flexible, and we adapt to our clients' demands
7. We offer customized solutions
8. We are a robust company and benefit from the support of our strong parent SP Group A/S, which has extensive expertise within the field of plastic manufacturing and finishing treatments

12 ADVANTAGES OF DIFFERENT TYPES OF PUR

Tinby has been working with PUR since 1972. This type of plastic material can - depending on the chemical process used - vary in density and rigidity. This allows it to be used for a wide range of applications, alone as well as in combination with steel, fibreglass and other plastic materials. PUR is found in e.g. insulation materials, cabinets and furniture components and, at Tinby, we manufacture items moulded in PUR for a wide range of industries - from wind turbines and the construction industry to furniture component and toy manufacturers, as well as the food and healthcare sectors. PUR offers the following advantages, among others:

1. It can be used to manufacture items that weigh from 50 g to 25 kg
2. The thickness of the material can be from 5 to more than 100 mm in the same casting
3. The material can be produced in hardnesses from Shore 20A to Shore 90D - in one and the same product
4. Bushings, reinforcements, handles, etc. can be embedded so the item can be assembled with other parts - so often no further assembly is required later
5. Option of lacquering in all qualities and using conductive varnishes
6. Acts as an insulator
7. Is highly stable and lightweight; has outstanding mechanical properties
8. It is a sturdy material that can withstand heavy daily wear and tear
9. It is an environmentally friendly material - for instance, it does not emit phthalates
10. It can withstand temperatures from -40 to +130° C
11. Colours can be introduced into the PUR itself to give the final product colour all the way through
12. The material is colour-resistant, chemical-resistant and water-repellent - and can withstand cleaning and disinfection.



TINBY - A PART OF SP GROUP A/S



SP GROUP IS HEADQUARTERED IN DENMARK AND WAS FOUNDED IN 1972



SALES IN
88
COUNTRIES



ULTIMO 2019
2,181
EMPLOYEES



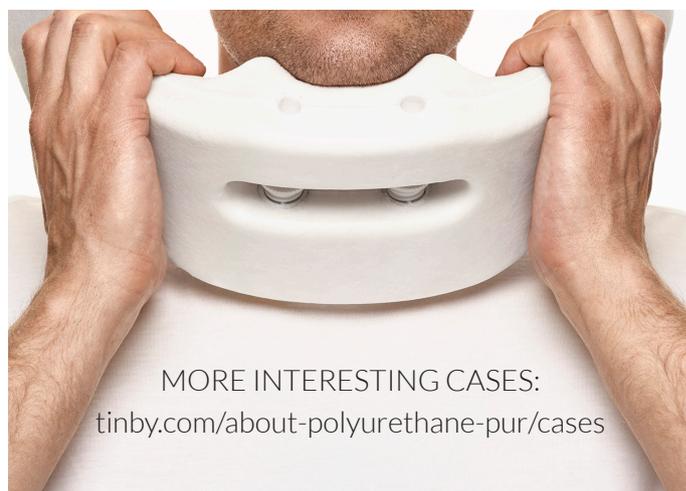
PRODUCTION IN
11
COUNTRIES ON
3 CONTINENTS

WHO IS TINBY?

Tinby A/S has been supplying complete industrial and polyurethane solutions to clients all over the world since 1972. With 250 employees throughout Denmark, the USA, China, Latvia and Poland, we primarily serve four segments: 1) Cabinets, 2) flex and design, 3) cleantech, and 4) insulation.

We strive to build and optimise long term business relationships with our customers in order to provide top quality solutions customised to each individual client – relationships in which we'll be happy to shoulder responsibility for a large portion of the value chain – from concept, design and development to production, processing and distribution.

Tinby guarantees top quality and reliable delivery at competitive rates from our production plants in Denmark, the USA, China, Latvia and Poland.



MORE INTERESTING CASES:
tinby.com/about-polyurethane-pur/cases

WHY TINBY?

"We listen to our customers and find solutions with you in an open dialogue. We adapt our processes and working methods to your needs and deliver quality on time."

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