



Responsibility for our future – in processing too

As a family business, we feel a special responsibility to protect our environment. Commercial business is subject to particular constraints, but they must never be used to justify the destruction of our natural resources. Foam materials are petroleum-based, and their production requires many chemical processes and components. We are aware of this and are working to make them more sustainable. In our processing operations, we are already making a significant contribution to the protection of our environment.



Our photovoltaic system, commissioned in May 2019.

- Power supply using 100 % green electricity, certified with the Grüner Strom label
- Gas supply using 100 % biogas based on organic waste
- 1,800 m² photovoltaic system, calculated to cover 100 % of our annual energy requirements
- Gas heating systems using highly efficient gas condensing technology
- Comprehensive hall insulation
- Energy-efficient LED lighting in all halls
- Production processes that minimise waste
- Extensive collection and recycling of residues

We are always looking for opportunities to further reduce the environmental impact of our activities. Pahlke Schaumstoffe is one of the approximately 5,000 companies that have now signed the statement drawn up by Entrepreneurs for Future. This business initiative is composed of dedicated company leaders from a wide range of sectors who are committed to protecting the climate.



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Sustainable foam materials – the alternative

Producing individual solutions made of foams for over 60 years. And now processing innovative foam materials with a sustainable component.



- Foam materials based on renewable raw materials
- Chemical recycling of production residues
- CO₂ upcycling in a closed-loop process
- Solid dispersion of recycled rigid foams

 FOAM MATERIALS
PRODUCED &
PROCESSED
SUSTAINABLY

Pahlke® Schaumstoffe

Processes for producing sustainable foam materials

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Conventional polyurethane (PUR) foam materials are primarily produced from petroleum-based raw materials. Alternative processes reduce the proportion of fossil components, cutting greenhouse gases promotes climate protection, and various recycling processes pave the way for a resource-efficient circular economy. It is for these reasons that we work together with our suppliers and project partners to develop processes and approaches that have the potential to deliver a steadily increasing sustainable proportion.

Process 1: RENEWABLE RAW MATERIALS

In the production of polyols, one of the main components of PUR foam materials, crude oil (petroleum) is partially replaced by vegetable oils. In principle, various vegetable oils can be used – e.g. rapeseed, soya, palm, or castor oil. Castor oil has the advantage that it is obtained from the seeds of the tropical castor oil plant, which, unlike other oil plants, is not used as food or animal feed. As a result, the demand levels are low and cultivation can therefore be carried out in an environmentally friendly manner. By using castor oil in polyols, a sustainable proportion of up to 26 % can be achieved in the foam material.

- Partial replacement of crude oil with castor oil
- Environmentally friendly, sustainable cultivation
- Sustainable proportion: up to 26 %

Process 2: CHEMICAL RECYCLING

The production of semi-finished and finished products made of PUR foam results in material residues. These residues are recycled by turning them into new polyols through the chemical process of solvolysis. These recycled polyols are incorporated into the production of foam materials. Their addition makes it possible to achieve a sustainable proportion of up to 17 % in the foam.

- Proportionate use of recycled polyols
- Circular economy through recycling of material residues
- Sustainable proportion: up to 17 %

Process 4: CO₂ UPCYCLING

In the production of flexible foams, the required petroleum-based polyol is partly replaced by a polyol based on CO₂. Just like oil, CO₂ contains the element carbon. CO₂ is a by-product of chemical production processes and would otherwise be released into the atmosphere. As a sustainable raw material, CO₂ reduces the use of fossil components and does not pollute the environment in the form of emissions. By using CO₂-based polyols, a sustainable proportion of up to 13 % can be achieved in the foam material.

- Proportionate use of CO₂-based polyols
- Substitution of petroleum-based raw materials
- Circular economy through prevention of CO₂ emissions
- Sustainable proportion: up to 13 %

Process 3: SOLID DISPERSION

In particular, rigid foams used in the construction sector can also be physically recycled. This is done by grinding them into a fine solid, which is added during the production of PUR foam materials. If this solid dispersion is combined with other processes or materials, the sustainable proportion can be increased even further.

- Addition of rigid foam recyclate
- Circular economy through recycling of ground rigid foam residues
- Sustainable proportion: up to 10 %



MARKETS AND APPLICATIONS

Foam materials with a sustainable component can replace conventional products in many different markets. Talk to us about your areas of use and application. We will be happy to advise you on the properties and possibilities that sustainable foam materials can offer you now and in the future.