

## Material Minus: Durable, Recyclable, and Affordable

### Less plastic waste, a lower carbon footprint in public space

*The new material Minus transforms discarded fishing nets, keyboards, refrigerators, televisions, and plastic cups into something entirely new. By repurposing waste, it keeps plastics out of incinerators and reduces the carbon footprint in public spaces. Recycled plastic has now earned its place alongside metal, concrete, and wood in our portfolio. You can already find Minus in our Morse, Morse Dot, and Orbit collections, with more to come. We spoke with Czech manufacturer Plastic guys, our newest partner, about the journey behind this material and what makes it unique.*

### Why did you dive into sustainable design? Was it always your goal, or was it more of a coincidence?

It was definitely a bit of luck, but given our background in construction, it wasn't entirely by chance. More like an opportunity no one else saw.

We've always been close to design, and as a new generation of architects, we took the chance to introduce innovative materials to the market. It turned out to be far more challenging than we initially expected, but after five years of development, we made it happen.

While studying architecture, we realized that most construction materials come wrapped in plastic, which is then discarded without a second thought. We saw its massive potential as plastic waste piled up worldwide, becoming a global issue. Our testing confirmed that plastics, like metal and glass, can be 100% recycled.

### Can any type of plastic be recycled, or does it need to meet specific criteria?

Plastics fall into two main categories. Thermoplastics, which can be repeatedly reshaped with heat, and thermosets, which can only be molded once and can't be reprocessed. We tested different plastic groups, each with unique properties suited for various applications.

The key is avoiding blends of materials that can't be separated and recycled again.

### So the panels can be recycled repeatedly?

That's the most important principle of our company. Our panels are made from a single type of plastic, ensuring they can still be recycled even 300 years from now.

Plastics can be recycled or remelted up to ten times before they start to degrade. But there's a simple trick—at the eleventh cycle, just add 10–15% new plastic, and the material regains its original strength and properties.

By making our products fully recyclable and easy to repurpose, we know we're building something for the future. We strongly believe that if a new business isn't sustainable, it shouldn't exist at all.

### Where does your raw material come from?

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We primarily work with industrial waste—materials that would otherwise end up in landfills or incinerators. Factory rejects and defective products are our main sources for material production. Our focus is on two types of plastic, sourced from discarded fishing nets, keyboards, refrigerators, televisions, and cups. Each plastic type has a unique melting temperature, so we never mix them to ensure the highest quality of our panels.

**In the final stage, the material is processed like wood. But what happens before that in your Brno-based facility?**

Yes, any carpenter can work with our material using standard woodworking tools—without needing to invest in new equipment. That’s one of its biggest advantages, along with its environmental benefits. Shredded plastic waste arrives at our facility, where we sort it by color, weigh it, and load it into metal molds. These then go into a press, where the plastic is heated to 200°C for 30 minutes—similar to ‘roasting a chicken in the oven’.

**For the first time, your panels are being used in exterior applications through your collaboration with mmcité. What makes them special?**

This is our first partnership with such a major global player. Together with mmcité, we’ve developed Mínus—recycled plastic panels for outdoor use.

We’re incredibly grateful for this collaboration. At the same time, we’re expanding rapidly to keep up with future orders across Europe. We’re scaling up our production line to manufacture the largest recycled plastic panels in the world. This allows us to reach a price point that makes Mínus a viable alternative to other materials.

We believe Mínus will resonate with designers and architects due to its unique color palette and textures, which are still relatively unknown. It’s resistant to outdoor conditions, easy to machine, and even allows for backlighting. Plus, it’s available in different thicknesses, from 5mm to 25mm.

**Have you discovered anything unexpected during product testing in extreme weather?**

We had already tested most of our materials in previous projects, so we knew they could handle tough conditions. However, we still had to convince mmcité to test and evaluate it themselves.

After a year of testing through all seasons, we reached the conclusion together—Mínus meets all the key criteria for urban furniture applications.

If the panels wear down after years of use, they can simply be sanded and refinished, looking brand new again. What’s particularly interesting is that each time they’re refinished, the surface can take on a different look—matte or glossy, depending on customer preference.

**You’ve started measuring the carbon footprint of your products. What kind of CO<sub>2</sub> savings are we talking about?**

Yes, we had a carbon footprint certification conducted to assess our impact. It helps us understand how much CO<sub>2</sub> we save compared to producing new materials from scratch. Without this data, we wouldn’t be able to supply products across Europe and beyond.

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The calculations show that for every 1 kg of plastic we recycle, we save 1.7 kg of CO<sub>2</sub> compared to sending it to incineration or landfill. The emissions from burning or dumping plastic are far higher than those from recycling it.

To put it simply, our products have a carbon footprint that is three times lower than solid wood countertops, eight times lower than newly extracted plastic, and four times lower than MDF panels containing adhesives. We'll provide data with each product showing how many kilograms of plastic were diverted from incinerators or the environment.

### **What's next for your recycled products?**

Mínus panels are primarily designed for furniture and architectural applications, which is where we see our future growth. We plan to design and manufacture our own products—pieces that people can buy and use in their homes or commercial spaces.

This year, we're launching a new production line to create the largest recycled plastic panels worldwide. Once that's in place, we'll begin experimenting with bending the panels into organic shapes and introducing a Take Back program.

Our 'Take Back' initiative will allow customers—whether they're closing a business or renovating—to return their used Mínus panels to us. We'll recycle them into new products, and in return, customers will receive a discount or a new piece of furniture.

Instead of letting materials go to waste, this creates a win-win solution—reducing waste while keeping production truly circular.

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