

## The plastic sausage machine

*A new factory can turn almost any plastic into a useful product.*



*Shutterstock*

Despite efforts to recycle plastic, mountains of the stuff still end up in dumps and landfills. The problem is that plastic bottles, lids, punnets, film and the like must not only be clean, but must also be sorted into their various types, if recycling them is not to be prohibitively expensive. Recently, though, a factory has opened which changes those calculations. It is the first to be capable of taking mixed plastic waste, even dirty waste, and turning it into an environmentally friendly substitute for plywood.

Most plastics are made by coaxing the carbon-containing compounds found in oil into long molecules called polymers. If a plastic is made from one type of polymer, it can be usually be washed and shredded into pellets that can be reused. But when different polymers—and contaminants such as food residue, bits of glue and shards of metal—are mingled, the resulting recycled plastic may contain flaws that cause it to tear or break.

The new factory, which has been set up in Luton, England, by a company called 2K Manufacturing, turns mixed plastic into a composite board called EcoSheet. The board has been tested by Bovis, a construction company, which is supporting the project. EcoSheet costs about the same as plywood and, like plywood, can be used to build a variety of things including advertising hoardings, flooring and the shuttering used to contain concrete. It has a number of advantages over plywood, however. It is easier to work with because it does not produce injurious splinters. It does not rot. And, unlike plywood, which usually ends up in landfill because it contains adhesives and preservatives and is often painted, EcoSheet can be recycled into more EcoSheet—even if it is painted and full of nails.

2K Manufacturing was set up by Omer Kutluoglu, a bond-trader turned businessman, and Turul Taskent, a process engineer who used to build composite structures for racing cars. Their production process uses a form of encapsulation called powder-impression moulding. Workers at the factory grind mixed plastics into powdery flakes, spread the material over a polymer skin, cover it with another skin and sinter it. Sintering is a way of making objects by shaping them out of powder and then heating the powder to just below its melting point so that the particles adhere to one another. During the 2K process, air is blown through the sandwich to create a spongy-looking core. Once the material has cooled and hardened, it acquires mechanical strength from its composite structure.

In its first phase the factory in Luton will be capable of making 360,000 sheets of the material a year. Mr Kutluoglu is hoping to double that with a second production line and, eventually, to open another ten plants in Britain so that the waste used can be collected locally and

transported over shorter distances. Britain uses about 5m tonnes of plastic a year, but barely one-fifth of that is recycled or recovered, according to the Waste and Resources Action Programme, a government-funded agency. Mr Kutluoglu and Mr Taskent hope to change that.

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