

Plastic for an eco-sustainable tomorrow

Fabio Terragni illustrates the techniques of flat head expansion and co-extrusion for the reuse of recycled materials. «Two innovations that allow the production of plastic boxes that can be reused many times and recycled with better performance while having less impact on the environment»

Reducing the quantity of raw materials and energy consumption, increasing the performance of processes and products. It may seem like a contradiction in terms, especially when talking about plastics. But, as those in the field know, this is the direction in which the industry in general is going: it is the production ideal of our time, in which eco-sustainability has become an unavoidable requirement.



However, there are those who realized the double advantage in unsuspecting times: Fabio Terragni is at the helm of the Milanese AgriPak, a company that has been experimenting in this direction since the 1990s. "But, at the time, perhaps we were anticipating the times too much - says Terragni - and



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the market was not mature enough to fully understand the economic and above all environmental advantage".

It all starts from research "begun with my father and which we are still carrying forward today - specifies Terragni -, to improve our extrusion lines and the finished products that our customers put on the market. So we have developed high-performance and automatic machines perfectly in line with what is required by Industry 4.0, with particular attention to energy saving thanks to more flexible, efficient, high-performance and, at

the same time, less energy-intensive machines. However, we do not limit

ourselves to the development of process technologies alone, we also try to work on the front of plastic polymers or their mixes to be transformed with the extrusion plants we produce». The innovations that the Milanese entrepreneur talks about are two: flat head expansion and co-extrusion for the reuse of recycled materials, in order to produce new objects that perform equally well to those obtained with virgin raw materials. «The flat head expansion

technology – explains the owner of AgriPak – consists of adding gas to the molten mass of plastic to create gas microcells inside it that increase its mass while reducing its density by 10 to 40 percent. This allows both the reduction of the quantity of polymer used to produce that given object and the quantity of electrical energy to produce that same object, with a consequent lower environmental impact.

Not only that, but at the end of its life, that product can be recycled, using less energy, to produce other products. The absurd thing is that many customers only today, due to the high cost of raw materials, in addition to their increasing scarcity and high energy cost, realize the incredible opportunity offered by the expansion process: reduction in the cost of raw materials (which are the most important cost factor) and energy consumption (which today has become very high) as well as lower plastic tax on the portion of virgin raw material».

Co-extrusion technology instead allows the use, within products, of post-industrial and post-

consumer waste with a barrier of virgin raw material to improve external appearance, color and suitability for possible food contact. «Obviously, by putting recycled material back into the production process, the environmental impact is reduced – says Terragni –. Co-extrusion technology is now increasingly in demand, thanks above all to the greater availability of recycled raw materials that can be obtained in significant quantities, by educating the population to throw waste in the appropriate bins at designated collection points and by making the

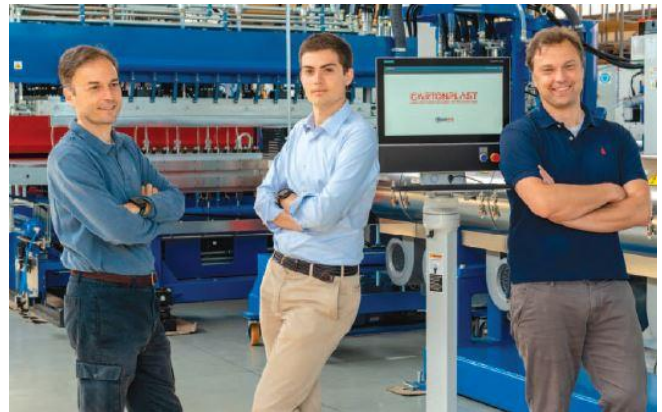
necessary resources available to selected public bodies to be able to proceed with continuous and timely separate waste collection. A push towards the reuse of recycled materials should also come from the plastic tax mechanism that should tax only virgin raw materials placed on the market. It should also be emphasized that expansion and co-extrusion technologies are not mutually exclusive, but can coexist and be used at the same time".

Finally, another technology that AgriPak is working on is monofilament spinning. "It was invented by my

father in the mid-1950s. We have adapted and refined the

spinning process of various plastic polymers to obtain Macrofibres for cement reinforcement which, mixed with appropriate dosages in cement, are increasingly being used for the construction of both industrial and civil flooring,

airport runways, roads, etc. Also in this case, great benefits are obtained in terms of environmental impact, because they allow the complete elimination or reduction of the size of the iron cages/rods used, at the same time providing greater elasticity, reducing microfractures and extending the useful life of the cement».



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