

'Greener' Plastic Recycling Uses No Water And Only Half The Energy

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Discarded plastic items await recycling (Photo: Shutterstock)

By [Dario Borghino](#)

Mexican startup Ak Inovex has developed a new method of recycling plastic that does away with water and only consumes half the energy of previous systems. At the same time, it produces plastic pellets of equal or better quality, resulting in an environmentally friendlier process that also promises to be significantly cheaper.

Plastic recycling can turn discarded bottles and other scrap into a myriad of useful objects, helping produce anything from [polyester clothes](#) to [3D printing filaments](#) and even [diesel](#). However, it is a [long, laborious](#) affair that consumes plenty of resources – especially water. Among other things, the plastic needs to be thoroughly washed to get rid of impurities, carefully dehydrated inside an oven, and then water-cooled once again as the newly-formed plastic filaments are cut into small pellets.

According to Marco Adame, the new method that his startup has come up with can produce pellets of equal or better quality using just half of the energy by getting rid of the need for these temperature extremes, while also doing away with the need for water altogether. The system uses special walls that, on contact, are able to both mold the plastic into the desired pellet shape and cool those pellets at the same time.

The energy-demanding dehydration process, which involves temperatures of around 180° C (360° F), had been a necessity so far because, after being washed, the plastic molecules would otherwise [attract water](#) to themselves and prevent the plastic from crystallizing properly. Being able to process scrap plastic without water has therefore simplified things considerably.

Adame says that using his technique, the same machines are able to process styrofoam, polystyrene and ABS, which together make up about 90 percent of all plastics. The improved versatility would mean less space would be needed for operation.

"Ak Inovex has a pending patent registration of the three technologies that integrate the development, which are responsible for cooling the plastic through contact with special walls and form the plastic beads," says Adame.

The company is now looking to expand the recycling capabilities of its prototype system and to further reduce costs by employing a "green" washing machine for plastics that uses a special biode detergent instead of the more commonly-used [lye](#).

Source: [Investigacion y Desarrollo](#) via [Alpha Galileo](#)
