

Low-cost formulas in the manufacturing of non-stick food molds

July 20 2018

There is good news for small and medium-sized baking businesses and amateur bakers of cakes, muffins and pastries made in extravagant shapes. A system designed by a University of Cordoba Belmez Polytechnic School research group manufactures non-stick food molds at a low cost.

To date, these molds were made at specialized factories equipped with huge presses and dies, which made these molds by means of deep drawing. Once shaped, the molds received their non-stick [coating](#) at a different site. This process is only cost-effective for producing thousands of identical molds, an insurmountable obstacle for small businesses.

The University of Cordoba Manufacturing Department research group has developed a new technique to manufacture these pieces at a machining center, thus completely changing the normal process. This alternative method makes molds from metal sheets covered with non-stick coating. Though this process is slower, it is more affordable and easy to use.

The new formula consists of simultaneously transforming a metal [sheet](#) covered in teflon (a very resistant plastic material) and a PVC sheet. A punch with a rounded tip gradually shapes both sheets. The path of the punch is directed by a computer that determines the precise movements it makes.

This solution allows for shaping the metal sheet without damaging the non-stick coating at any point, since the coating is protected by the PVC sheet. In this way, the outcome is a totally functional mold with the necessary shape and properties suited for demolding and proper cleaning.

This study has near-term practical applications, according to Pablo Romero, one of the authors of the article, published in *Applied Sciences*. Romero, a University of Cordoba researcher, says, "It allows for making molds easily in small batches." Romero considers this new system to have important socio-economic repercussions since "it opens the door to new start-ups that manufacture molds for small and medium-sized companies and to any already existing factory to widen the scope of its business with this new kind of manufacturing, focused on coating flat sheets and later shaping them at a low cost."

More information: Oscar Rodriguez-Alabanda et al, Manufacturing of Non-Stick Molds from Pre-Painted Aluminum Sheets via Single Point Incremental Forming, *Applied Sciences* (2018). [DOI: 10.3390/app8061002](https://doi.org/10.3390/app8061002)

Provided by University of Córdoba

Citation: Low-cost formulas in the manufacturing of non-stick food molds (2018, July 20) retrieved 4 May 2024 from <https://phys.org/news/2018-07-low-cost-formulas-non-stick-food-molds.html>

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