

Example of technical report the development of bulk metallic glasses bmgs at yale...

[Technology](#), [Development](#)



Students at Yale University have recently developed a metallic material that increases the physical toughness of a metal, durability, and malleability. The new developed metallic material is known as Bulk Metallic Glass (BMG). The students attribute the success of developing this metallic material as being similar to the discovery of synthetic plastics in the past century. This is because the development of this new metallic substance has allowed them to mold metal into different shapes. Some of the things that they have been able to create using the new discovered BMG's include metallic bottles, the cases used in the making of watches. One difference that exists between ordinary metals and BMGs is that ordinary metals have a crystal-like structure that makes them difficult to mold into different shapes. This is because if normal metals are to be molded they have to undergo other steps like joining them to other metals. On the other hand, the atomic arrangement of BMG's is random because BMG's are amorphous metals. In addition, when compared to normal metals, BMG's have a low critical cooling capacity and can therefore be molded into different shapes at slightly lower temperatures compared to normal metals.

The ability of BMG's to be malleable at lower temperature and pressure is cost-effective compared to the tradition method that has been adopted by the metal industry for a long time. Metal industries have traditionally used alloys such as copper and nickel to increase the malleability of ordinary crystalline metals. The amorphous property of BMG's minimizes the cost of both obtaining alloys and increases the speed of metal molding. This means that the discovery at Yale is likely to transform the traditional paradigm that was reliant on ordinary metals and will lead to the adoption of more cost-

effective metal molding methods that will enhance both production rates and reduce the cost of metallic material production.