Dessert on demand: Pressurized carbon dioxide turns flavored liquid into ‘instant ice cream’

One moment, you have a bowl of creamy chocolate liquid. Then, in an instant, it’s ice cream.

Forget hocus-pocus: This is physics and engineering.

After a five-year application process, the U.S. Patent and Trademark Office awarded Patent No. 10,624,363 B on April 21 to Syed Rizvi, professor of food science engineering, and Michael E. Wagner, Ph.D. ’15. And just like that, the world got a little sweeter.

With Rizvi and Wagner’s newly patented process – where pressurized carbon dioxide does all the work – anyone can make any ice cream at any time.

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With this new method, highly pressurized carbon dioxide passes over a nozzle that, in turn, creates a vacuum to draw in the liquid ice cream. When carbon dioxide goes from a high pressure to a lower pressure, it cools the mixture to about minus 70 degrees C – freezing the mixture into ice cream, which jets out of another nozzle into a bowl, ready to eat.

Instant ice cream can be served right on the spot, all without the challenges of commercial transportation “cold chains,” in which the product must be frozen and maintained at minus 20 degrees Celsius.

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