



Baking in space

[Innovation](#) > [Work & Lifestyle](#) > [Startup is helping astronauts to bake bread in space](#)

STARTUP IS HELPING ASTRONAUTS TO BAKE BREAD IN SPACE



WORK & LIFESTYLE

A German company is working to develop a way of baking crumb-free bread that will be safe for space expeditions.

We have seen a range of new ideas for preparing and cooking food, from monthly [bread subscriptions](#) to a [smart oven](#) that can set itself to cook whatever food is put inside it, but one thing technology has not cracked is how to bake bread in space. While bread is a staple here on Earth, in space a slice of toast can be deadly. The only time bread was eaten in space was on the 1965 Gemini 3. Astronauts Gus Grissom and John Young smuggled a corned beef sandwich on board, took one bite, and quickly put it away after the crumbs began flying around in the microgravity – where they risked getting into the electrical panels and starting a fire. Sandwiches were banned from space after this, and astronauts have had to make due with bite-sized bread cubes and tortillas.

Now, German company [Bake in Space](#) is working to develop both an oven that will work in space, and a bread recipe that will not create crumbs – allowing astronauts to not only eat bread again, but to enjoy the fresh-baked aroma as well, helping them feel closer to home. According to the company, “Besides a source for nutrition, the smell of fresh bread evokes memories of general happiness and is an important psychological factor.” Bake In Space is working with the [German Aerospace Center](#), [OHB System AG](#) and food scientists from several research organisations to develop a dough mixture and baking process capable of producing a crumb-free bread roll.

The biggest challenge is to develop a bread that is crumb-free but not tough and chewy. Working with the constraints of the International Space Station (ISS) is another challenge. Electricity is limited on the ISS, so the oven cannot use more than 250 watts – just one-tenth the power of an oven on

Earth. And the exterior of the oven cannot become hotter than 45 °C (113 °F). Designs being developed include vacuum baking, which uses low pressure inside a sealed oven, which could also increase fluffiness. Bake In Space will test different methods and recipes on board the ISS during the European Space Agency's Horizon mission in April 2018. The entire baking process will be controlled from the ground using video feeds from inside the oven. What other ways might there be to bring some home comforts to space?

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