

## Tastier, fresher, longer shelf life: Creating Bolognese, Goulash and more with the Micvac method

The Micvac method has revolutionised the market for chilled ready meals. Micvac, the company behind the method, has developed a process by which chilled ready meals are created using a microwave tunnel. This process involves careful in-pack cooking and pasteurisation and serves up fresh and tasty meals. The Micvac method is ideal for a wide range of meals, from traditional dishes like Goulash and Beef Stroganoff to modern, international food like Bolognese, Lasagne and Asian cuisine. But how exactly does the Micvac method work? And how does it create flavourful meals that stay fresh and tasty for such a long time?



Ready meals produced using the Micvac method: high-quality meat dishes, full of flavour and without additives.

### The production process – four simple steps

The Micvac method consists of four production steps: filling, sealing, cooking and cooling. As both cooking and pasteurisation take place in-pack, high product quality is guaranteed while at the same time eliminating further production steps.

Trays that are specially designed for the Micvac process are filled with fresh, raw or pre-cooked ingredients. This can be an entire meal with meat, side dishes, vegetables and sauces. The trays can be filled manually or by machine. During this process it is important to avoid food spillage, for example sauce on tray edges, as this can hinder proper sealing of the trays.

The filling process is followed by sealing. Trays are sealed with a special film to which the patented Micvac valve is applied. When using an automated process, valve application is an integrated function of the sealing machine. The sealing film remains in place reliably throughout the heating process but can nevertheless be easily removed from the tray when the food is ready to eat. The patented valve can be used repeatedly – it is still in fully functioning order even after undergoing numerous heating processes.

The third step involves cooking and pasteurising the sealed trays at a maximum temperature of 100 °C. This can either be done in the microwave that is part of the Micvac test kit or in the Micvac microwave tunnel which can be adapted to suit different production capacities and which heats the trays with great efficiency. The tunnel ensures even and uniform heat distribution by heating the trays as they pass through lengthways. What makes this process so effective is its natural, gentle preservation of food to extend the shelf life of the final product. During the pasteurisation process, pressure forces the valve to open, and steam and oxygen leave the tray. This creates a natural vacuum. When the trays are cooled, the valve closes and the trays are hermetically sealed.

The vacuumised meals are then moved to a cooling unit, preferably a spiral cooler which ensures a fast, controlled cooling process. These fresh ready meals can now be kept for a number of weeks without the need of additives.

### The importance of packaging material

The packaging material plays an integral role in the success of the Micvac method. Apart from the patented Micvac valve another important element is the shape and material of the trays, which are specifically designed to optimise the production process. Their oval shape ensures even heat distribution. The flexible tray bottom and the sealing film both allow controlled deformation as the air leaves the package and a vacuum is created. The heating process can be repeated as often as necessary – the valve ensures that the tray is hermetically sealed every time.

The Micvac trays are available in a variety of colours, shapes and sizes, including two-compartment trays. The two-compartment option makes it easy to create new recipes as it allows meat dishes and side dishes such as rice and couscous to be separated.

### Developing recipes with Micvac microwave technology

The Micvac method can be used with raw and pre-cooked ingredients. In order to produce fresh Micvac dishes with an extended shelf life, it is important for the recipe to contain some sauce. The sauce acts as flavour carrier of seasonings, and facilitates the even deformation of the tray during the vacuumising process.

When using pouches or thermoformed packaging, less liquid is needed as the packaging is formed to fit tightly around the product. As a rule, white meat (poultry) can be used raw, whereas red meat should be pre-cooked to ensure that it is ready at the same time as the other ingredients. Pan frying meat before filling it into the trays allows the pores to be closed and achieves a grilled look. Frying the meat beforehand can also prevent small pieces of meat from forming clumps during the Micvac cooking process, and enhances the sauce.

Due to the gentle cooking process the taste of individual ingredients remains intact. Vegetables stay crunchy and fresh, pasta can be done al dente. The process is ideal for pasta dishes such as Spaghetti Bolognese. The result is so tasty that salt and seasoning can be kept to a minimum and flavour enhancers omitted.

Frozen ingredients, however, can only be used if they have been allowed to defrost before starting the cooking process. The microwave technology does not work with frozen food. Very cold food also has the effect of slowing down the cooking process and causing unpredictable temperature changes that make pasteurisation difficult. The coating on crumbed products does not remain crisp.

Tasty dishes can be created with a large number of different flavours, components and ingredient combinations. The many varied options offer a broad range of opportunities to develop individual creations. The main task when developing a recipe is to find the optimal parameters including whether meat should be added raw or pre-cooked, the right size, weight and cooking time for the planned meal.

When developing the recipe and planning production, Micvac specialists with long-standing experience and detailed knowledge are on hand to help clients. They know how the filling temperature of the sauce can influence the final outcome and recommend that this temperature should be as high as possible – approx. 60 °C – to make the entire process as energy efficient as possible. Another important aspect is that all added ingredients should have a uniform temperature as this determines the consistency of cooking and pasteurisation results. When the right mix of ingredients is combined with optimal quantities and an ideal cooking time, the Micvac method is extremely reliable. Adherence to these quantities, times and temperatures will ensure that consistent results can be achieved every time.

### Pilot plant or small-scale kit to test the process

For those who are interested in testing the Micvac method, a pilot plant is available in Gothenburg, Sweden at Micvac's premises. The pilot plant is a full-scale production unit that allows potential customers to test standard recipes or a recipe of their own creation.



The Micvac pilot plant in Gothenburg, Sweden. Customers can test the process, develop recipes and produce small test quantities.

Another opportunity to test the Micvac method is provided by the portable test kit which is a small-scale version of the entire Micvac process. Micvac experts visit customers at their own production plant to demonstrate how the small-scale kit works, as well as offer expertise and support. Many customers keep using their portable kits to try out new ideas and recipes for future production. The modular system on which the Micvac microwave tunnel is based makes it a safe investment as it is easy to adapt to changing production needs. Modules can be added step by step, and thus output can be increased gradually as production grows.

### Tasty ready meals for the modern consumer

By offering meals that are fresh, full of flavour and healthy Micvac fulfils the wishes and tastes of the modern consumer in these fast-moving times. Extended shelf life and ingredients that keep their taste and texture after heating make chilled ready meals produced with the Micvac method so attractive.

Ease and simplicity are part of the concept - consumers simply heat the closed tray in their microwave. When the meal is ready, the patented valve that is integrated into the packaging opens to let off steam. In so doing it makes a whistling sound which signals to the consumer that their meal is perfectly and evenly heated all the way through and ready to eat: "Fresh thinking, served."

### Further information and contact

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