

## Company:

Fricke und Mallah  
Microwave Technology GmbH  
Werner-Nordmeyer-Str. 25  
31226 Peine  
Germany

Tel. +49 5171 5457 0

info@microwaveheating.net  
www.microwaveheating.net

## Products:

Tunnel Ovens  
Chamber Ovens  
Laboratory Ovens  
Solid State Technology  
Generators  
Magnetrons

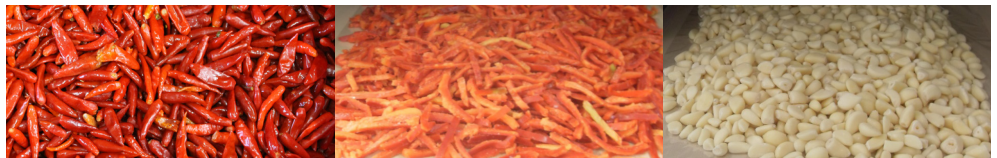
## Applications for:

Wood Industry  
Food Industry  
Ceramic Industry  
Chemical Industry  
Plastic Industry  
Microwave Plasma  
.... and many more

## Benefits:

Consulting and Support  
Research and Development  
Practical Process Design  
Simulations with CST Studio  
Service worldwide

## Tempering of fruit and vegetables



### Challenge

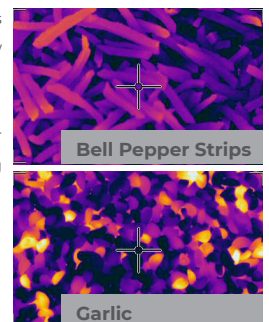
The gentle and uniform tempering of fruits and vegetables is a challenge for the food industry. Above all, oxidation and color changes must be avoided. However, consumers are also increasingly demanding the preservation of nutrients and flavor. Regardless of the tempering results, the industrial process is a crucial point. For example the products must be tempered quickly and homogeneously from -20° C to -4° C, which is the processing temperature.

Tempering chambers have the disadvantage that the products cannot be guided through the plant by means of a transport system. Therefore, tunnel systems are particularly suitable.

### Solution

Fricke und Mallah has developed a process to gently and homogeneously tempering fruits and vegetables with microwave irradiation at 2.45 GHz and 12 kW (irradiation from below and above).

In our modified test facility, various types of vegetables such as chili peppers, bell pepper strips and garlic with a bulk height of up to 5 cm were tempered in a few minutes (starting temperature in each case -14° C) very gentle.



### Benefits

Microwave treatment is excellent for tempering fruits and vegetables. The higher the water content in the product, the faster it can be tempered (comparison: bell pepper strips in 2 minutes and garlic in 5 minutes). The result is excellent. The taste, texture and color are preserved and the target temperature is reached on the point..

The tunnel system makes it possible to realize fast tempering processes and accelerate production in the food industry.