

Frequently Asked Questions and Answers to The MTA website

Q. Does the process of microwaving food alter the molecular structure in any way?

A. No! microwaves are very low energy level electromagnetic waves. Their quantum energy level is lower than that of visible light, for example. As a result, they are classified as non-ionizing, i.e. they are not energetic enough to break bonds and thereby alter food molecules. All they can do is heat. I suggest to Mr. Forge that he put his hand near a lightbulb to feel the heat. I have put my hand in high energy microwave tunnels, in excess of 10 kilowatts, at least 10 times more power than a home microwave oven, and I continue to play the piano. Cooking or heating food does change the molecular structure of the food (for example, when baking a cake the starch gelatinizes; or with ordinary cooking of meats, the proteins denature), but not in the harmful way Mr. Forge worries about.

Q. If so are there any toxins of any sort produced by the process?

A. No - see the answer above.

Q. Is the nutritional value of the food altered in any way?

A. Any cooking procedure alters the vitamin content of a food. Vitamin C, for example, for example, is extremely sensitive to heat and is partially or wholly destroyed by cooking. The question is whether microwave cooking is harsher on the nutritional content than other cooking methods. The answer is no, if the cooking is done properly. For example, when cooking fresh vegetables, very little water should be added - perhaps a tablespoon, and the vegetables cooked for a short time. Numerous reliable university and other nutritional studies have shown this type of microwave cooking to be as good as or better than steaming vegetables, generally considered the best way to cook them. However, using too much water will leach the water soluble vitamins, such as vitamin C, from the food and reduce the nutrition value - that is what happens with simple boiling of vegetables in water on top of a stove.

Q. If there is any alteration to the structure of the food will this condition improve either partly? Or wholly after a period?

A. If so how long should food be left to 'recover' before consumption. Not necessary - see above.

Q. Most manufacturers suggest leaving the food for 1 minute before serving, is this just to allow heat equalization? or is it to allow the molecular structure to recover also?

A. Heat equalization.

Q The paint is peeling/flaking in my oven. Must I buy a new one?

A. It is always difficult to give specific advice when the oven cannot be viewed. If the paint is unable to enter the food then this should be ok. However, if there is any

sign of rusting or pitting in any part of the oven a microwave engineer should be called or the oven replaced.

Q Where can I find the history of the microwave oven?

A. A short version is in the MTA book, The Wave Machine which can be purchased from the website. A full version was published by The Institute of Consumer Sciences in their journal, The Home Economist Volume 16 No2 April 1997 ISSN 0261.1384. The article was entitled The History of the Microwave Oven by Jenny Webb.

Q Where can I find more information regarding the microwave food labelling scheme?

A. A short explanation is given in the MTA book, The Wave Machine which can be purchased from the website. MAFF produced a free leaflet entitled Foodsense, The New Microwave Labels (1989), (PB0779). This may still be available or at a local library. For testing purposes, the specification is available to purchase from the Campden and Chorleywood Food Research Association, Chipping Campden, Gloucestershire, GL55 6LD UK. Entitled Guideline 14. Guidelines on the Verification of Reheating Instructions for Microwaveable Foods June 1997.

Q Can you give guidance as to the different cooking times for different power for outputs?

A. A paperback book is available from most book shops. Entitled, Microwave Cooking Times at a Glance it is written by Annette Yates a home economist, member of the MTA and Food Writers Guild and an expert in microwave cookery. Published by Elliot Right Way Books. ISBN 0-7160-2067-X

Q. The oven light has failed. Will this make a difference to my oven?

A. No, it only reduces the viewing facility. However, always use a microwave engineer to replace it.