

Response to concerns regarding microwave cooking in plastic containers.

Q. I've heard it is unsafe to microwave food in plastic products. Is this true?

Tupperware™ products are safe. Health and safety are top priorities at Tupperware™ and all Tupperware™ products meet or surpass Federal government safety standards for food contact applications. All Tupperware™ products designed for use in the microwave are labeled on the bottom of the container and on the seals if they are to be used in the microwave. If the words, "microwave re-heatable" or "microwave cooking" or an icon showing short wavy lines appears on a Tupperware™ product, it has been designed to function safely in the microwave.

Q. Are all Tupperware™ products safe to use in the microwave?

Only Tupperware™ products specifically designed and recommended for use in the microwave should be used in the microwave. Tupperware™ is careful to specify which products are appropriate for microwave use and further specifies which of those microwave products are appropriate for cooking and which are appropriate for re-heating.

Using the appropriate product not only results in optimal performance, but also prevents damage to our products. The high heats generated by foods prepared in a microwave can warp and melt non-microwave safe materials and microwave use would void the warranty. More importantly, this damage poses a safety hazard that could cause accidents and injuries to the user.

Q. There have been stories in the media about the potential health risk associated with using plastic in the microwave. How can consumers be assured that Tupperware™ products are safe?

All Tupperware™ products meet all applicable laws and regulations for product safety in each country where they are sold. The plastic materials, additives and colorants used in the manufacture of Tupperware™ food storage, preparation and serving products sold in the United States meet the requirements in the Regulations of the Food and Drug Administration of the United States of America. All colorants used in those products are registered on the French Positive List (Circular Letter No. 176), which is the most stringent in the world, and comply with the requirements of the Council of Europe Committee of Ministers Resolution AP (89) 1.

Q. Are Tupperware™ products, not designated for use in the microwave, safe to use in the microwave?

Though there are no known health risks, we recommend that you use only Tupperware™ products specifically designed for use in the microwave. Tupperware™ is careful to

specify which products are appropriate for microwave use and further specifies which of those microwave products are appropriate for cooking and which are appropriate for re-heating.

Q. Do materials in Tupperware™ products migrate into food when re-heating or cooking in a microwave oven?

The safety of plastic for food storage, preparation and serving containers has been confirmed many times by the U.S. Food and Drug Administration (FDA) - the government agency that regulates all products intended for direct and indirect contact with foods and beverages.

Yes. All containers and cookware exhibit migration of materials into foods to some extent. This is seen in porcelain, crystal, aluminum, stainless steel, iron, tin, non-stick coatings and glass, as well as plastic. You may have seen the warnings to avoid using ceramics with glazes containing lead in food contact applications. As you can see, it is not the migration that is the concern, but the material and amount migrating. FDA sets the standard for what's considered an acceptable level of migration – at parts per billion. None of our materials, additives or colorants are carcinogenic and therefore has no health effects in humans. Nor do migration levels of materials in our products exceed the levels permitted by law.

Points related specifically to microwave cooking

In a 1994 article entitled, *The Hidden Hazards of Microwave Cooking*, the author suggests that the process of microwaving food poses a serious health risk to humans. It claims microwave cooking causes “severe molecular damage” in food and when consumed causes “abnormal” changes in human blood and immune systems. The Q & A above is intended to help provide information only about the safety of Tupperware™ microwave products, not microwave cooking.

The following points are intended to inform those who have concerns about the effects of microwave cooking on food and human health with information based on 30 years of study and research.

- ✓ Microwave ovens heat food by oscillating waves of energy through food at a rate of 2450 million times per second. As these waves pass through food, water and fat molecules generate heat caused by the friction produced by the waves. It is this friction that heats the food.
- ✓ Heating baby formula in a microwave oven poses a risk due to the potential for the temperature to exceed an acceptable level for consumption by an infant. Microwaves tend to heat the upper parts of the liquid more than the lower parts. As a result, sections of the formula will be hotter than other sections. It is recommended that you shake the bottle thoroughly and check the temperature before giving it to a child.

- ✓ Glass, paper and plastic are considered to be “transparent” to the microwave energy and cannot generate heat. Thus, the only way plastic containers can become heated is through food-contact. Conventional cooking in an oven happens just the opposite way. The hot air heats everything in the oven, including the container that holds the food.
- ✓ A microwave oven heats food in a more energy efficient manner than conventional cooking. In fact, some methods of conventional cooking can increase the presence of theoretically harmful substances, some of which are known to be mutagenic or even carcinogenic. There is no credible scientific evidence to support the conclusion that cooking in a microwave alters the molecular structure of food cells, thus reducing the nutritional value of food any more than conventional cooking.
- ✓ The Food and Drug Administration, one of the world’s most respected regulatory bodies, has conducted research on microwaves to assure that consumers would be safe. For 30 years, microwave ovens have been in use. More than 90% of American households now use microwave cooking to prepare food for their families – keep in mind heating food is widely considered an effective way of eliminating harmful organisms.

Question & Answer

Q. Do chemical or structural changes of any kind occur in food due to microwave cooking?

No. Energy needed to change structure is much higher than can be supplied by a microwave. There are thermal (heat) effects on molecules and ions as a result of the wave action generated by microwaving. Friction of water and fat molecules contained in the food is what produces the heat.

Q. Can any specific change in proteins and enzymes take place in microwave heated foods?

Changes in protein and enzymes depend on temperature, not the source of heating. The energy required to damage these molecules is much higher than can be supplied by a microwave oven.

Q. Can molecular changes occur in food?

No. Energy needed to change molecular structure is much higher than can be supplied by a microwave.