



## RADIATION SAFETY OF MICROWAVE OVENS

### The Issue

Some people are concerned about the potential health effects of exposure to microwave energy when they use their microwave ovens.

### Background

Microwave ovens provide a convenient way to thaw, cook, and reheat food. They are now common in most Canadian homes and restaurants, and are also found in many commercial and industrial establishments.

Microwaves are a form of radiofrequency electromagnetic energy. When they penetrate food, they cause water molecules in the food to rotate. The rotation causes friction between the molecules, resulting in a rapid rise in temperature. This is why the cooking time with a microwave oven is much shorter than with a conventional oven.

Microwaves should not be confused with X-rays or other intense forms of energy. The microwaves generated by a microwave oven do not cause food or the oven itself to become radioactive. When you shut the oven off, the microwaves disappear. They do not remain in either the food or the oven.

### Health Issues Associated with Microwave Leakage

Some microwave energy may leak from your oven while you are using it, but this would pose no known health risks, as

long as the oven is properly maintained. Health Canada has established a regulation that limits the amount of leakage allowed from any microwave oven sold, leased or imported into Canada. This limit is well below the level of microwave exposure that would cause any known health effects.

Proper maintenance is the key to keeping microwave leakage levels within acceptable limits. The amount of leakage may go up if the oven's door or seal is damaged, or if there is a build-up of dirt around the seal. It is also important to keep all of the hinges and latches in good working order.

### Concerns about Pacemakers

Some early models of pacemakers were susceptible to interference from microwave ovens. Improvements in the shielding and filtering of modern pacemakers and a reduction in the leakage levels from newer microwave ovens have reduced or eliminated these concerns. Most models today are not affected by being near a microwave oven, as long as the leakage is within the limits specified by Health Canada's regulation. Anyone with a pacemaker who gets dizzy or experiences discomfort around a microwave oven should move away from the oven immediately and consult a health care professional.



## Re-Selling Your Microwave Oven

Ovens offered for re-sale must also comply with the regulation. If you plan to sell any microwave oven you own, even if it has never been used, you are responsible for making sure that the microwave leakage does not exceed the regulatory limit.

## Minimizing Your Risks

You can maintain low microwave leakage levels by keeping your microwave oven in good working order. The following is a list of suggestions:

- Follow the manufacturer's instructions for operating procedures and safety precautions.
- Hire qualified service technicians for all adjustments and repairs.
- Do not use the oven if the door does not close, or is bent, warped or damaged in any way.
- Do not disable or tamper with the oven's safety interlocks.
- Never insert any object through any opening in the oven or around the door seal.
- Always keep the oven door and seal clean; do not use abrasive cleansers.
- Take a good look at your microwave oven. If there is noticeable damage to the door or door hinges, latches or screen, there may be excessive leakage. Contact

the manufacturer, distributor, or a qualified service technician to have the oven professionally inspected.

## Health Canada's Role

Health Canada has established a regulation under the Radiation Emitting Devices Act to govern the design, construction and functioning of microwave ovens that are sold, leased or imported into Canada. As noted, the regulation specifies limits for microwave leakage from ovens.

Manufacturers who import, sell or lease microwave ovens voluntarily submit technical information to Health Canada showing that their oven models comply with the regulation. To ensure compliance, Health Canada periodically conducts inspections of microwave ovens before they are offered for sale by retailers. As of the spring of 2002, none of the ovens inspected were found to emit radiofrequency energy in excess of the regulatory limits.

## Need More Info?

For further information about microwave oven radiation safety, visit:  
[www.hc-sc.gc.ca/ewh-semt/pubs/radiation/microwave\\_ovens-microwondes/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/microwave_ovens-microwondes/index-eng.php)

<http://laws.justice.gc.ca/en/R-1/C.R.C.-c.1370/159775.html#rid-159854>

You can also contact:

The Consumer and Clinical Radiation Protection Bureau  
775 Brookfield Road, Ottawa, Ontario K1A 1C1  
Telephone: (613) 954-6699  
Fax: (613) 952-7584

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