

**Ch 2 Interview on Microwave Oven Safety
with Krista Marino, 12:30 pm, 1/22/04**

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Key points:

Microwave ovens operate differently from conventional ovens in that they pass electromagnetic radiation back and forth through the product to induce heating by exciting molecules within the product.

A microwave oven is basically a metal cavity provided with a source of microwave energy (a magnetron) and equipped with a door and seal. When closed, the door and seal effectively prevent microwave energy from escaping the unit. Doors often feature a viewing window equipped with a screen that shields against microwave emissions.

Protective measures have been established to protect users from exposure to microwave radiation, which can result in localized heating or can possibly interfere with certain implanted medical devices, like pacemakers.

So, the emission limits for microwaves are:

- At time of sale –emissions no more than 1 milliwatt per square centimeter at 5 centimeters from the unit
- And 5 mW/cm² at any time thereafter
- Shall have 2 interlock mechanisms to prevent unit operation upon opening

Units to make such measurement can be obtained from electronics stores.

Food Contamination

Water molecules respond particularly well to microwave stimulation, and that's why products high in water content can be heated more quickly than others.

Splattering occurs when the moisture content of the food is heated and boiled –the expanding steam can cause the product to burst – like a baked potato. That's why the recommendation is to puncture the product to allow for venting.

When bursting occurs, food can splatter on the interior of the unit

If not cleaned, the residual food can support bacterial growth

The presence of bacterial growth can be monitored for with different types of growth media – for example –this RODAC plate is used by public health professionals when evaluating the presence and concentration of micro-bacterial contamination of surfaces

But requires a period of time for culturing and then assessment and results interpretation

Food poisoning

Typical symptoms present 1-48 hours after ingestion of contaminated food

Clostridium perfringens, an example of a quick acting food borne illness, rarely fatal, lasts 1- days. Typical symptoms: gastritis, nausea, vomiting, diarrhoea, dehydration

Did a review of the literature and contacted a few colleagues in the field -- could not identify a documented case of food borne illness known to have come from a contaminated microwave oven. However, food borne illnesses are widely recognized to be under-reported – folks don't know they have it or don't know where it came from. So contamination is possible

An old adage in the food safety business: “cleaner is safer”

What to do?

Cover food,
wash your hands,
clean over regularly,

if unit not working –
take out of service,
get serviced by qualified repair person or replace.