



### From our Chairman:

A lovely summer is now coming to an end – though I do always enjoy Autumn – great to have a change of colours everywhere.

Always busy here in the MTA office; during one of my recent microwave cooking shows, a member of the audience asked ‘Do I really only need to stand 2 centimetres from the microwave oven when it’s working?’ – I was told that you had to leave the room, once it’s switched on’. Clearly after more scares highlighted in the media during the summer, there is no let up in the lack of understanding about microwaves and microwave cooking. So, we continue with our positive approach to keep getting the information out there, where-ever possible. Education is still the key to our success.

I note that IMPI has a new sector to their membership – that of RF (solid state) technology, so if you would like to learn more, please see their ad, in the ‘forthcoming events’ piece overleaf.

Meanwhile, I look forward to meeting up with you all again on 12<sup>th</sup> November, at the offices of R.H.Hall, for our Autumn members meeting. More details about the event, are overleaf as well, though as usual, if you would like anything added to the agenda, please let me know. Yet another very interesting newsletter from Greg Hooper, so I hope you enjoy reading it.

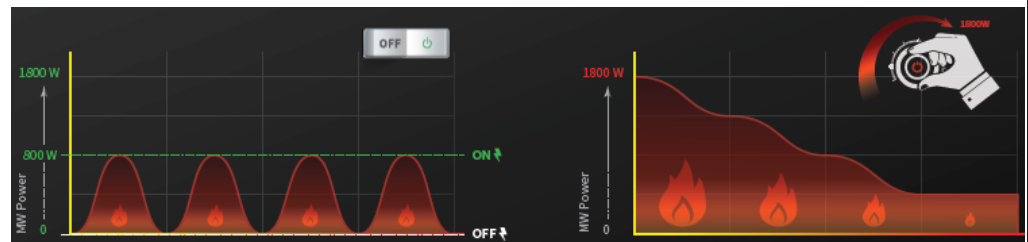
Jennifer Marshall-Jenkinson

Microwave product information from R H Hall:

### THE NEW SHARP R-7500M



The new Sharp R7500M extra heavy-duty professional microwave oven utilises patented inverter technology. Microwave ovens using inverter technology differ from traditional microwaves by providing constant, rather than pulsed power, when cooking, reheating or defrosting at reduced power levels. For example, a traditional microwave set at 50% will pulse by switching power on and off throughout the cooking period, which can lead to uneven results in some foods. Inverter technology will provide a precise and constant supply of power at 50%, making it easier to cook or reheat delicate foods slowly and defrost dishes to perfection:



Conventional Microwave Power Delivery  
Showing Pulsed Power

Inverter Microwave Power Delivery  
Showing Constant Power  
& Precise Control

Features of the Sharp R5700M include:

- PATENTED INVERTER TECHNOLOGY
- 1800W output
- 13 Amp - Plug & Go
- Large 19 Litre capacity
- 14 Precise power levels (1800~0)
- 30 Memory pre-sets
- Easy to use touch controls
- Clear and easy to read LCD display
- Easy view glass door
- Energy efficient LED cavity light
- Durable stainless-steel construction
- Stackable option as standard

For more information contact:

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## **British Retail Consortium Global Food Safety Standard – Issue 8**

In last summer's issue of Highlights (Issue 97) a brief mention was made of BRC's Global Standard Food Safety (new) Issue 8. One of the many updates in Issue 8 was the new clause 5.2.5 stating: "Where cooking instructions are provided to ensure product safety, they shall be fully validated to ensure that when cooked according to the instructions, they will consistently produce a safe, ready-to-eat product". Since many food product suppliers and retailers work to this Standard (and it's the world's most widely-applied food safety standard), I thought it might be useful to explain exactly what the phrase "fully validated instructions" actually means.

### **What is instruction validation and why is it so important?**

Instruction validation relates to the need to ensure that cooking and heating instructions for consumers are tested rigorously, to ensure that food is safe to eat and of acceptable quality. From a commercial perspective it's worth remembering that that understanding and incorporating scientific instruction validation principles at the start of any NPD, product changes or even validating existing instructions, will allow you to achieve both these aims. For food safety it's important to work to worst-case scenarios rather than averages – essential when you consider the need to eliminate the risk from food poisoning bacteria like *Listeria monocytogenes*, *E.coli* and *Salmonella spp.*

### **The thermal process and its equivalent**

The target combination of minimum temperature and cooking time is known as the thermal process. It is vital that this is measured in the slowest heating location (cold spot) of worst-case product samples - although this cold spot can be notoriously difficult to locate. For most chilled and frozen products which are not considered 'ready to eat' the thermal process required is 70°C for two minutes, or an equivalent, i.e. a higher temperature for a shorter time (e.g. 80°C for 5 seconds) or vice-versa (e.g. 60°C for 44 minutes).

### **Finding the cold spot**

It is imperative that the cold spot is identified and the temperature at this location is monitored using a probe. You can probably guess that it is likely to be at the most dense or thickest part of a product, but it isn't always that simple. It may not be where you'd expect, for instance when microwave heating it is possible that the cold spot may be near the product surface (depending on the microwave field patterns). If the cold spot is missed and this slowest heating location does not receive the required minimum thermal process, then there is a possibility that any food poisoning bacteria present will not be sufficiently killed and consequently pose a risk to consumers. Using a 'hedgehog' device (multiple probes set into a grid array to measure several product location temperatures at the same time) or a given number of temperature measurements may not locate the cold spot (as it may well lie in between the probes!). Careful and thorough probing of the sample is necessary – remember the cold spot (as the name implies) may be a very small area. Post heating stand times should also be considered when perfecting heating instructions – as cold spot temperatures may continue to increase due to conduction from hotter product areas or decrease if at the product surface.

### **Equipment – testing, calibration and selection**

Accurate measurement of temperature (and time) is of course essential when determining cooking instructions. All testing equipment must be correctly calibrated. This relates to temperature measuring devices, such as probes, as well as the microwave ovens and we need to consider how the different models might behave. Microwave ovens will vary, so care needs to be taken when picking a wide range of ovens for your validation testing – just using one or two ovens really isn't sufficient and all should be regularly calibrated in accordance with IEC60705. Microwaves with the same power rating can heat products differently due to different microwave field patterns. The following criteria should be taken into account when selecting ovens for instruction validation:

- the size of the cavity (oven should be selected for testing with small and large cavities)
- whether or not it has a turntable (and whether the turntable is metal or glass)
- if it is a combination microwave – i.e. one which also has a grill or hot oven features
- where the microwave energy enters the oven cavity (e.g. top or side)

Factors such as the power supply voltage and when the oven was last used can impact on the microwave performance and should be considered. Replicate trials should be performed and BRC issue 8 suggests testing the same product five times in each appliance and the samples tested need to be worst case (e.g. thickest, heaviest, slowest heating).

### **What will BRC Global Food Safety Standard Issue 8 mean?**

There are more issues to consider but hopefully this article has shone a light on some of the key areas on effective microwave instruction validation required by BRC Issue 8. Fundamentally it underlines the importance of recognising that products and equipment are not homogenous - product thickness varies, microwave ovens behave differently (even those of the same wattage). By identifying the many areas where variations exist, the new standard highlights best practice and to build greater confidence in on-pack instructions. Ultimately, it will help ensure that food safety and product quality standards are maintained and improved, which is great for both the consumer and the industry.

A free white paper on Clause 5.2.5: Cooking (heating) instruction validation is available for download from Campden BRI:

<https://www.campdenbri.co.uk/white-papers/cooking-instruction-validation.php>

## **Forthcoming Events**

**Microwave Technologies Association Autumn meeting**  
**Tuesday November 12<sup>th</sup>, 2019. 11 am start (to be confirmed), at RH Hall, Hallco House, Beacon Court, Pitstone Green Business Park, Pitstone, Bedfordshire. LU7 9GY.**

IMPI's Seminar, "The Brave New World of Microwave & RF" will be held November 6<sup>th</sup> to 8<sup>th</sup> at TurboChef Headquarters in Carrollton, Texas, USA. Further details see: <http://impi.org/symposium-short-courses/>

**Cooking Instruction Validation – (inc. BRC Issue 8 compliance)**  
Course: Tuesday 29<sup>th</sup> October 2019 –Campden BRI, Chipping Campden.  
See: <https://www.campdenbri.co.uk/training/BRC8-cooking-heating>

## **MICROWAVE TECHNOLOGIES ASSOCIATION**

**[www.microwaveassociation.org.uk](http://www.microwaveassociation.org.uk)**

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Technical Officer: Gordon Andrews

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