



# LET'S TAKE IT BACK TO BASICS

*Edinburgh-based David Russell is an expert on heating in plastic thermoforming, having run a number of businesses in that sector and consulted to many more. Here he spells out the clear benefits of working with infrared source*

I managed a technical thermoforming company for 13 years and inherited 30 years of moulding technology. But even with this marvellous technical foundation it was sometimes difficult to remember the 'basics' of the thermoforming process. Daily fire-fighting and responding to customer deadlines would deflect attention away from a declining moulding performance and increasing costs. And when we tried to mould materials different to what we were used to we struggled. It took an outside 'force' in the form of Frank Wilson of Ceramicx to bring us back in line.

I first met Frank at the SPE European Thermoforming Conference in Ghent in 1998. Frank did a presentation on Infra-Red heating and the importance of reflectors – something we were unaware of at the time. Soon afterwards we changed to new elements with reflectors on our busiest machine and found we were back in

control of the process – uniform heating, much reduced cycle times and energy input – and better quality mouldings.

Now I am seeing the same old problems the market. One of the advantages of being an independent consultant is that you get to visit a diverse range of businesses with different products and different levels of technology. In 9 years, in every troubleshooting assignment, I have found problems with heating the sheet – sometimes lack of heat, sometimes huge differences in temperatures across the sheet and sometimes hot and cool spots – all leading to poor quality mouldings. Few of the moulders I have helped were aware of the decline in heater efficiency through time (see attached analysis) and most had platens with mixed efficiency elements – leading to increased cycle times and energy costs – something nobody needs in today's competitive marketplace.

Now, thanks to Ceramicx, we are again making moulders aware of the benefits of reflectors and the bi-annual replacement of all elements – and giving the process the necessary boost in efficiency and process control by getting "Back to Basics!"

Comparison of heater efficiency %



Heater type	Average life (hours)	age months (1 month = 440 hours)				
		0	6	12	18	24
Gas	6,000	45	25	13	7	-
Ceramic	15,000	62	55	49	43	38
Tubular rods	3,000	42	21	10	-	-
Coiled wire Nichrome	1,500	18	10	-	-	-