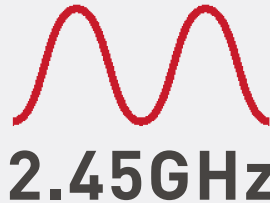
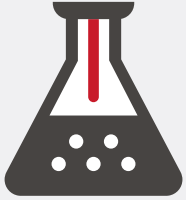




Customer Profile

- Investment-backed biomimetic technology organisation
- Specialist in chemistry, pharmaceutical processing, microwave synthesis



2.45GHz



Background

An international biotechnology organisation approached Emblation seeking OEM microwave generators for a new chemical processing product.

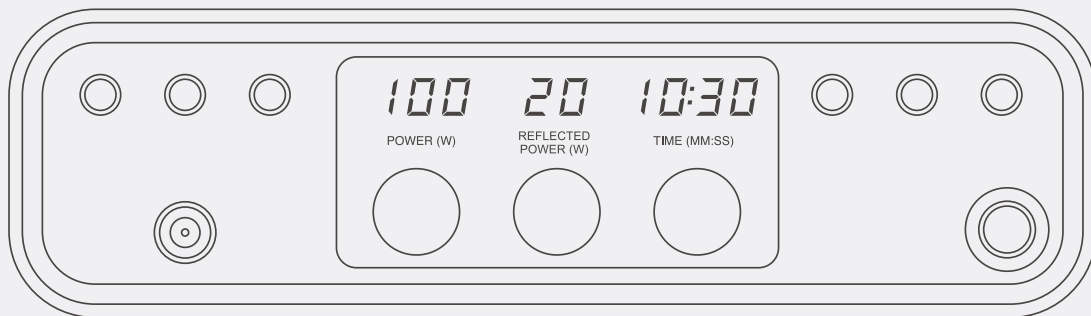
With strengths in research and development and an initial product design, the organisation required a flexible microwave power source that would ensure an effective transfer of energy into a sample chemical. It quickly became apparent that in addition to the supply of microwave power sources the organisation would require microwave design consultancy to progress their microwave reaction chamber to an advanced prototype stage.

Challenges

The value of the chemicals under process meant that a repeatable and reliable design was essential.

There were two primary areas of consideration – working with the existing reaction chamber design to create a microwave system that would couple energy effectively from the generator into the sample, and creating a design that would be easily and cost-effectively manufactured.

The Emblation team ran numerous simulations and outlined a number of fundamental changes that would be necessary to create a reliable and effective product. Due to the value of the chemicals and the nature of the product it was also crucial to have reliable, real-time feedback on the impedance match into the chamber to ensure efficiency in the chemical processing.



Outcome

By re-designing the chemical reaction chamber and finding the optimal microwave feed network the new design improved the coupling of the energy into the reaction chamber. A number of simulations were deployed to optimise the design (in excess of 1700 in total for parametric analysis) and real-time feedback was made possible by Emblation's patented SafeSweep™ technology. With reliable reflected power feedback it was possible to understand the efficiency and effectiveness of the process with respect to power deposition. Emblation were also able to suggest alternative components that would improve durability and lower the cost of manufacture, without adversely affecting performance.



For more information visit
www.emblationmicrowave.com