

D.4 Microwave Chemical Processor

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The CSIRO Division of Telecommunications and Industrial Physics in conjunction with CSIRO Division of Molecular Science has constructed and patented a device to assist in the processing of chemicals. This device called a *Microwave Chemical Processor* has the ability to reduce reaction times and improve the yield of the final product. Three prototype units have been constructed and installed in Australia, Germany and Sweden.

The unit is a stand-alone device with safety interlocks and a self-contained fume cupboard. It is built around a stainless steel cavity designed to withstand the stresses generated when heating chemicals to about 260 degrees Celsius and associated pressures of 10 MPa. Chemicals to be processed are contained in a PTFE cup and may be stirred via a magnetic stirrer bar. Facilities to measure the temperature and pressure are provided, as is a system for sampling the contents. Rapid cooling of the contents is also possible.