



SONOCHEMISTRY EQUIPMENT

The chemical effects of ultrasound are diverse and include dramatic improvements in both stoichiometric and catalytic reactions. In some cases, ultrasonic treatment can increase reactivity by nearly a million-fold. It does so through the process of acoustic cavitation; the formation, growth and implosive collapse of bubbles in a liquid.

During cavitation collapse, intense heating of the bubbles occurs. The localized hot spots have temperatures in the range of 5000°C, pressures approaching 500 atmospheres, lifetimes of a few microseconds, and heating and cooling rates greater than 10⁹ K/s. Of special interest for sonochemistry research, is the fact that cavitation generates highly reactive free radicals that greatly enhance chemical reactions.

Applications for chemical reactions exist in both homogeneous liquids and in liquid-solid systems. Ultrasound has also been found to be beneficial for the initiation or enhancement of catalytic reactions, in both homogeneous and heterogeneous cases.

SONOCHEMICAL REACTION VESSELS

The adapter Part No. 830-00014 screws onto the special probe Part No. 630-0217 at the nodal point. The glass chamber slides onto the adapter and is secured in place as the bushing is screwed into the chamber compressing the O-ring. Moving the glass chamber up or down on the adapter allows the portion of the probe protruding out of the adapter to be immersed at the optimum depth into the sample.



PART NO.
830-00011

4-10 ml reaction vessel. Two 14/20 side necks. Supplied with bushing and O-ring. Glass chamber height: 4 7/8" (123 mm).



PART NO.
830-00012

10-50 ml reaction vessel. Bottom well capacity: 10 mL. Main body capacity: 50 ml. Two 14/20 side necks. Supplied with bushing and O-ring. Glass chamber height: 4 3/4" (120 mm).



PART NO.
830-00013

40-250 mL reaction vessel. Three 14/20 side necks. Supplied with bushing and O-ring. Glass chamber height: 6 3/8" (162 mm).

ADAPTER

5" (127 mm long). Stainless steel. Internally threaded. Screws onto a full wave 10" (254 mm) long 1/2" (13 mm) probe at the nodal point.



PART NO.
830-00014



SONOCHEMISTRY PROBE

1/2" (13 mm) special 10" (254 mm) long full wave solid probe. Used with the adapter above.



PART NO.
830-0217