

MARS 6 Synthesis Vessels

Why are CEM's microwave vessels the safest on the market?

Each individual vessel is surrounded by our patented, advanced composite sleeve for maximum protection. Over 15 years ago, we used a rigid, plastic material to surround our microwave vessels, just like other microwave laboratory system manufacturers. We quickly came to realize that the plastic material would not hold up if the vessel failed, so we began the search for a better material from which to make the vessel sleeve. We soon developed a stronger, more flexible composite material that would expand in the event of a vessel failure, greatly reducing damage to the microwave and neighboring vessels if an unfortunate event occurred. Other companies have tried to imitate CEM's design, but none offer an alternative that is as durable and safe as our proprietary, advanced-composite vessel sleeve material.

GlassChem

The GlassChem™ vessel set is ideal for general use in organic, inorganic, or teaching laboratories. The simple 3-part design provides ease of use, minimizes cost, and makes cleaning the vessels easy. Chemistries with temperatures up to 180 °C can be performed with fiber optic temperature control and CEM's patented "vent and reseal" cap, which automatically releases pressure at 200 psi to prevent over-pressurization of the reaction vessel. For research applications, GlassChem vessels can scale up reactions for multi-gram production through parallel synthesis. In teaching labs, class sections of up to 36 students can run experiments simultaneously. Organometallic coupling reactions, condensations, cyclizations, rearrangements, and many other reactions can be completed faster than ever with GlassChem vessels.



| | Vessel Material | Vessel Volume | Maximum Temperature | Maximum Control Pressure |
|----------------------|-----------------|---------------|---------------------|--------------------------|
| Up to 24 or 36 vials | Pyrex | 20 mL | 180 °C | 200 psi |



GreenChem

Choose from either Pyrex® or Teflon® vessels with the GreenChem™ vessel set. These framed vessels are ideal for general use in organic, inorganic, or materials research laboratories, providing a larger reaction scale than the GlassChem set. Perform reactions at temperatures up to 200 °C with fiber optic temperature control and active pressure monitoring while CEM's patented "vent and reseal" cap prevents pressurization in excess of 200 psi. GreenChem vessels have a vessel volume of 100 mL, perfect for increasing reaction scales from GlassChem, and the Teflon vessels with sapphire thermowell are well-suited for applications utilizing hydrofluoric acid or other strong fluoride sources.

| Maximum Capacity | Vessel Material | Vessel Volume | Maximum Temperature | Maximum Control Pressure |
|------------------|-----------------|---------------|---------------------|--------------------------|
| Up to 14 vials | Pyrex or Teflon | 100 mL | 200 °C | 200 psi |



EasyPrep & EasyPrep Plus

EasyPrep™ vessels are the most rugged, framed vessel offered by CEM, perfect for inorganic and materials research labs with high-temperature or high-pressure applications. This Teflon vessel set has the option of either a Teflon coated (EasyPrep) or sapphire (EasyPrep Plus) thermowell, and uses a fiber optic probe or CEM's patented dual infrared and fiber optic (DuoTemp™) technology to monitor and control reaction temperatures up to 300 °C. EasyPrep vessels also have active pressure monitoring and CEM's patented "vent and reseal" cap to prevent pressurization in excess of 800 psi. As mentioned, the EasyPrep vessel is the only vessel with an entirely Teflon-wetted surface, making it well-suited for the highly alkaline solutions seen in zeolite, metal organic framework, and other material syntheses.

| Maximum Capacity | Vessel Material | Vessel Volume | Maximum Temperature | Maximum Control Pressure |
|------------------|-----------------|---------------|---------------------|--------------------------|
| Up to 12 vials | Teflon | 100 mL | 300 °C | 800 psi |

Open Vessel

The open vessel option for MARSTM 6 allows researchers to use existing, conventional glassware in a scientific microwave. As the most cost-effective way to start performing microwave chemistry, the open vessel option permits easy access to the reaction solution for addition or removal of reaction solution, removal of gaseous by-products, application of non-ambient atmospheres, and mechanical stirring for viscous reactions. In addition, this option accommodates the largest reaction scale, fitting up to a 5-L round-bottom flask in the MARS 6 cavity. This means chemists can enjoy the flexibility of conventional glassware while benefiting from the heating advantages of microwave technology.



| Maximum Capacity | Vessel Material | Vessel Volume | Maximum Temperature | Maximum Control Pressure |
|----------------------|-----------------|---------------|---------------------|--------------------------|
| 1 Round Bottom flask | Standard glass | 250 mL - 5 L | 300 °C | N/A |

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Pyrex® is a registered trademark of Dow Corning.

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