Your Partner
in Custom Manufacturing

www.varsal.com
Founded in 1993, VARSAL grew from a small analytical instrument company to an international custom chemical and instrument manufacturing company. VARSAL is a global producer and supplier of specialty chemicals, amino acids and derivatives, pharmaceutical intermediates, and scientific instrumentation. VARSAL specializes in custom production, contract manufacturing, and has the capability to deliver Total Quality Assurance (TQA) products through reverse integration of key raw materials. VARSAL’s future is driven by research in advanced technologies at our wholly-owned ISO 9001 certified manufacturing plants with globalized services and partnerships.

MISSION STATEMENT
We build partnerships now and into the future by offering quality products at competitive prices with on-time delivery.

INDUSTRIES SERVED
- Electronic chemicals
- Pharmaceutical synthesis chemicals
- Personal care and cosmetic intermediates
- Specialty coatings, adhesives and sealant additives
- Agricultural chemical intermediates
- Polymer synthesis
- Bio-nutritional compounds
- Oilfield chemicals
- Textile and flame-retardant chemicals
- Construction additives
- Fine chemicals

4C Principle
Total Quality Assurance
IP Protection

Credibility in VARSAL brand, honesty and guaranteed delivery
Conservation in our green technologies and integrated processes
Creativity in our production, customization and services
Cleanliness in our production facilities through environmental stewardship

We control quality beginning with sourcing of raw materials, scale-up batch processing, logistics and final sample retention.
We engage confidentiality and non-disclosure agreements in all aspects to protect rights, methods and technical know-how.
**Varsal: Core Chemical Processes**

**Varsal Phosphorous Product Family**
- Sodium hypophosphite
- Hypophosphorous acid

**Phosphorous Chemicals**
- Ultra pure base material yields high quality core products
- Use of unique ion exchange column to produce high quality grade HPA
- Green technology for reverse integration of by-products

**Varsal Methanesulfonyl Product Family**
- Triflic acid
- Methanesulfonyl chloride
- Methanesulfonic acid

**Sulfonyl Chemicals**
- Ultra pure sulfonyl process yields high quality core products
- Unique proprietary chemical reactions of methanesulfonates
- Integrated chemistries with our phosphorous based chemical family
- Purification processes allow customization to specification
- No methyl mercaptan odor
- No methyl ester or dimer formed

**Varsal L-Aspartic acid Product Family**
- L-Aspartic acid
- Z-Aspartic acid

**Amino Acids and Derivatives**
- Capability to customize particle size per specification
- Produce pyrogen-free products packaged in clean room
- Halal and Kosher certified manufacturing facilities
**VARSAL: INSTRUMENTATION AND ENGINEERING CAPABILITIES**

**W1900 Microwave Digestion System**
**SIMPLE, PRACTICAL AND SAFE**

VARSAL’s continuous microwave emission digestion system provides increased safety for microwave induced chemical reactions in a closed digestion vessel. The W1900 microwave digestion system integrates the control function and the oven into one single unit.

**FEATURES:**
- Continuous microwave, not pulsating emission
- Actual vessel temperature display
- Industrial oven
- Multi-safety assurance in system design
- Intelligent programming
- Microwave leakage less than 1mV/cm²
- Simplified operation
- Pre-installed EPA methods
- Durable safety door design
- Teflon® coating for acid/base corrosion protection
- High throughput

**FACT:** You CANNOT control the temperature and the pressure of the vessel after the reaction has started. You CAN ONLY control the power and the time of the microwave. Therefore, any system that uses temperature and pressure feedback to control the reaction may yield questionable results. Varsal engineers have simplified the design by making it possible to read the temperature directly from the vessel.

**VARSAL offers contract manufacturing (OEM) of specialty equipment and devices.**

**VARSAL specially designed vessel features:**
- Vessel holds up to 600 psi inner pressure
- Rupture disk rated at 300 psi OPV (Over Pressure Valve)
- Temperature holds up to 230°C
- Real time temperature monitoring with temp vessel
- 100 ml sample intake
- Outer vessel made from polyethyletherketone (PEEK)
- Inner vessel made from polytetrafluoroethylene (PTFE)
- Acid/base resistant at high temperature and pressure

**VARSAL’s engineering group has the ability to produce precision parts with:**
- Dimensions up to 800 x 500 x 500 mm
- Diameters up to 300 mm
- Holes down to 0.5 mm in diameter
- Hardness up to HRC55
- Measurement accuracy within 0.001mm

**VARSAL’s instrumentation team has the ability to research, develop, service and customize analytical, biochemical and medical instruments including:**
- Optical instruments
- Electronic devices
- Microwave technologies
- Mechanical parts
- Optical lenses
- Glass, quartz and IR cells