

THE LEADER IN IMPREGNATION RESIN SOLUTIONS



Unlock Superior Performance With Hernon Impregnation Resins

Hernon Manufacturing is the global leader in impregnation resin technology, providing advanced anaerobic and heat-cure options for sealing porosity in castings, powder metal parts and brass valves. Our HPS Series resins eliminate microporosities, enhance machinability, ensure leak-proof integrity, improve overall component reliability and have been trusted by industries worldwide for over 47 years. Whether salvaging rejected parts, reducing scrap rates or boosting production efficiency, Hernon's impregnation resins deliver measurable results without altering part dimensions.

The Impregnation Process At A Glance

- » **Cleaning:** Remove oils, dirt and other contaminants
- » **Vacuum Stage:** Evacuate air from pores
- » **Resin Fill:** Introduce resin under vacuum
- » **Pressure Stage:** Force resin deep into porosities
- » **Cure:** Anaerobic/Heat for complete sealing



Key Advantages of Hernon Impregnation Resins

- » **Permanent Porosity Sealing & Leak Prevention:** Seals microporosities in castings, powder metal and brass components to prevent internal leaks. Ensures pressure integrity for high-stakes applications in fluids or gases. Transforms porous parts into leak-proof, pressure-tight structures ideal for fluid-handling systems.
- » **Enhanced Machinability & Tool Life:** Reduces tool chatter, vibrations and wear during machining by stabilizing porous structures. Improves surface finish, minimizing burrs and rough edges. Extends tool lifespan reducing overall machining costs.
- » **Increased Structural Integrity & Durability:** Fills voids without dimensional changes, strengthening porous areas against stress and cracks. Provides superior chemical and corrosion resistance to harsh environments.
- » **Manufacturing & Economic Benefits:** Reduces scrap rates by recovering parts that fail leak/pressure tests due to porosity. Increases production yield, minimizes rework and lowers overall costs. RoHS compliant, solvent-free formulas with fast cycle times for high-throughput automation. Compatible with Hernon impregnation equipment for seamless integration into production lines.
- » **Specialized Performance Features:** UV traceability for quick quality inspections. Flexible curing options: anaerobic or heat. Heat compatibility with oils, fuels, coolants and more.

Recommended Hernon Impregnation Resins:

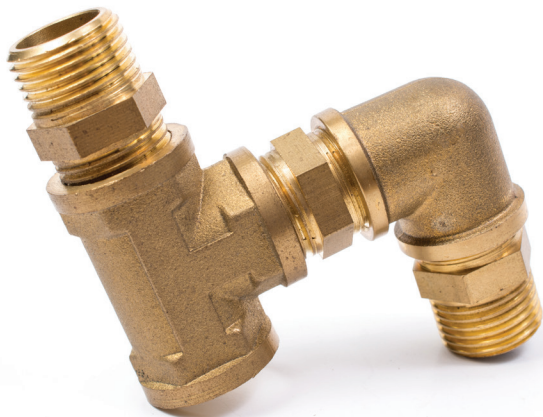
Hernon's versatile resin lineup meets diverse needs across many industries:

- » **HPS 990:** Anaerobic cure for general-purpose sealing;
High strength for castings & powder metal
- » **HPS 991:** Heat cure for high-pressure applications;
Excellent for general use in castings & powder metal



Trusted Applications Across Industries

- » **Automotive:** Gears, connecting rods, bearing caps, electric motors
- » **Aerospace & Defense:** Precision components, firearm parts, medium-caliber housings
- » **Valves & Fluid Control:** Brass valves, hydraulic/pneumatic systems, pump housings
- » **Industrial:** Composite parts, powder metallurgy components requiring tight tolerances



Impregnation Solutions For Fuel Cell Applications

Recent years have seen an increase in energy production from renewable feedstocks or low emission alternatives. This has given rise to energy production variations that shy away from the usage of fossil fuels (ie: wind turbine, solar panels, etc.). Many of these avenues are utilized for general electrical energy production but which can be a challenge for the transportation industry. This has led to creating different power options for automobiles and larger transportation vehicles to replace high emission products such as gasoline.

One such technology that has arisen for vehicular energy is the fuel cell. This method may utilize graphite plates as the bipolar plate which is essentially the heart of the fuel cell. They generate electricity in the form of direct current (DC) from an electrochemical reaction between H_2 and O_2 forming water as a byproduct instead of greenhouse gases.

Due to plate production methods, plates are porous and must be sealed. The impregnation resin selected to be used should have certain properties such as high temperature resistance, water and glycol resistance and good washability. These resins not only seal the porosities in the plates, but subsequently they also increase the hardness, impact resistance and modulus.

Hernon has developed impregnation resins that meet all of these requirements and that have been used with excellent success in this industry for over 20 years. **HPS (Hernon Porosity Sealants)** were the first generation of resins to be used in sealing graphite plates and they are still widely used in the industry today. These HPS resins, while still effective, have now been improved upon to make a new generation of **GPS (Graphite Plate Sealants)**. GPS resins are developed with higher glass transition temperature (T_g), better water and glycol resistance and better adhesion to the graphite plates.

Key Advantages of Hernon Impregnation Resins For Fuel Cell Applications:

- » **Permanent Porosity Sealing & Leak Prevention:** Resin infiltrates possible leak paths and is cured to create a permanent filling that gases and liquids cannot penetrate. This provides confidence in the final bipolar plate, ensuring that desired chemicals are separated until the desired point of contact.
- » **Enhanced Mechanical Properties:** The cured resin takes the place of otherwise empty voids within the material. This provides structural integrity to the bipolar plate, increasing the modulus and durability of the final assembled stacks.
- » **Increased Bipolar Plate Longevity:** Higher chemical (glycol and water) resistance leads to bipolar plates with longer in service times. This reduces the maintenance costs of replacing bipolar plates within the utilized stacks.

Hernon Recommended Impregnation Resins For Fuel Cell Applications:

» HPS 994

- Single component
- Cures with heat

» GPS 995T

- Single component
- Provides higher resistance to water and glycol
- Provides heat resistance
- Bonds effectively to graphite
- Cures with heat



Why Hernon?

With over 47 years of innovation, Hernon is an industry leader in high-performance adhesives, sealants, precision application dispensing valves, powerful UV curing systems, impregnation solutions & custom formulations. Our resins meet stringent standards (ie: MIL-I-17563C, ASTM B783) and are backed by Hernon's global technical support. Partner with us to solve your porosity challenges and achieve unmatched reliability!

Let's Enhance Your Components Together!

Contact us today to discover how Hernon's impregnation resins can revolutionize your production. Our experts are ready to provide tailored solutions for your specific applications.

