

Technical Data Sheet HPS 80151NF

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Product Description

When Mixed with Initiator 91H, HPS Resin 80151 has the following properties:

Hernon[®] Porosity Sealant (HPS) 80151NF is the solution to leak proof parts, improving machinability, in addition to increasing the durability and surface quality of many surfaces. The required addition of **HPS Initiator 91** activates **HPS 80151NF** enabling the system to cure at elevated temperatures. The hardened resins exhibit superior chemical resistance and stability.

The microscopic voids, where potential leaks occur (between metal grains or ceramic plastic molecules) in the part are filled by the low viscosity resin during vacuum application or by heat. Sealed micropores cure without shrinkage to form a tough cross-linked thermoset polymer, permanently sealing the workpiece. Residual adhesive film is rinsed from the part surfaces with water.

Product Benefits

- High speed processing – impregnation cycles of 25 minutes.
- Economical – quick room temperature cures coupled with efficient utilization of resin allows for excellent process economics.
- Reliability – hardened resin exhibits superior chemical and elevated temperature resistance.
- Simplified processing of treated parts – immediate painting or machining of impregnated parts is possible because **HPS 80151** resin treatment leaves no residue on part surfaces.

Typical Applications

- Wood
- Automotive carburetors
- Engine blocks
- Water and fuel pumps
- Valves, manifolds
- Hydraulic pumps
- Compressor parts
- Powdered metal gun parts

Typical Properties when Mixed (Uncured)

Property	Value
Resin	Acrylate blend
Appearance	Clear liquid
Viscosity @ 25°C, cP	8 - 15
Specific gravity	1.03
Flash point	See MSDS

Cure Mechanism And Rate

HPS 80151 cures to form a thermoset polymer when exposed to elevated temperature. Higher temperatures produce quicker cure rates. **HPS 80151** cures within the range of 177°F to 205°F (80°C to 96°C).

Proper cure requires the work piece to uniformly attain full cure temperatures. Parts that do not transfer heat well will require longer processing times. Efficient thermal conductivity yields shorter processing cycles. Parts with heavier cross sections require longer time in the heat cycle to attain sufficient temperature internally.

Typical Properties (Cured)

Property	Value
Hardness, Shore D	70 to 80
Operating Temperature, °C (°F)	-55 to 121 (-65 to 250)

Activation Instructions

HPS Initiator 91 must be added to **HPS 80151NF** in order to form the active HPS system.

Activate using the following mixing proportions:

To achieve a Gel time of 7 to 8 mins at 90°C or a Gel time of 13 to 15 mins at 82°C use the following amounts of **Initiator 91** with **HPS 80151NF**

<u>HPS 80151NF</u>	<u>HPS Initiator 91</u>
1 Gallon	23 to 30 grams
5 Gallons	115 to 150 grams
50 Gallons	1150 to 1500 grams

Mix the Resin and Initiator thoroughly until completely dissolved before use.

Parts Preparation

Cast Parts or Wood pieces must be free of all cutting oils and dried prior to resin impregnation. Impregnate parts prior to any plating, anodizing, etc.

Powdered Metal Parts

The best way to impregnate the powdered metal parts is immediately after sintering and before any secondary operation. Tumbling and machining tend to smear over porosity making it more difficult for the resin to get into the porosity.

Directions for use

Consult **Hernon®** Technical Service for specific process requirements.

1. Fill tank with resin. Use any of the following vacuum impregnation methods to impregnate parts in **HPS 80151**:
 - Wet Vacuum/Pressure
 - Dry Vacuum/Pressure
 - Pressure Impregnation
2. After impregnation procedure, centrifuge or drip drain the parts to reclaim excess sealant from the parts.
3. Clean parts by washing/agitating in plain water. Parts can be inspected with UV light to ensure removal of excess resin.
4. To cure the resin, soak parts in a hot water tank at 90°C (194°F). Allow sufficient time for sealant to cure within the parts. A corrosion inhibitor can be added to the hot water tank to provide part protection from rust or corrosion.

NOTE: At 90°C sealant will cure in 6 to 10 minutes, but allow sufficient time for interior sections of parts to reach 90°C temperature.
5. Remove parts from the hot water tank, and allow sufficient time for parts to thoroughly cool.

Disposal of Waste water

Wastes generated during the impregnation process can, in general, be adequately handled by conventional biological treatment methods. Since both the circumstances of use and local environmental requirements vary, waste disposal recommendations are somewhat application specific.

Storage

HPS 80151NF should be stored in a cool, dry location in unopened containers at a temperature between 50°F to 85°F (10°C to 29°C) unless otherwise labeled. **Activated resin should be stored at 75°F ± 5°F.** To prevent contamination of unused material, do not return any material to its original container due to contact with metal parts. Store in original container and away from direct sunlight and prolonged exposure to UV light.

HPS Initiator 91

Store at 60°F ± 5°F. Bring to Room Temperature (70 to 80°F). Mix well before use. Higher temperatures can cause decomposition of Initiator.

Active **HPS 80151** stored in an impregnation tank with normal use has unlimited pot life if recommended controls are maintained, including temperature controls. Do not allow continuous exposure to ultraviolet light.

General Information

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

These suggestions and data are based on information we believe to be reliable and accurate, but no guarantee of their accuracy is made. HERNON MANUFACTURING®, INC. shall not be liable for any damage, loss or injury, direct or consequential arising out of the use or the inability to use the product. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine whether the product is of satisfactory quality and suitability for their operations, and the user assumes all risk and liability whatsoever, in connection therewith. Hernon's Quality Management System for the design and manufacture of high performance adhesives and sealants is registered to the ISO 9001:2008 Quality Standard.