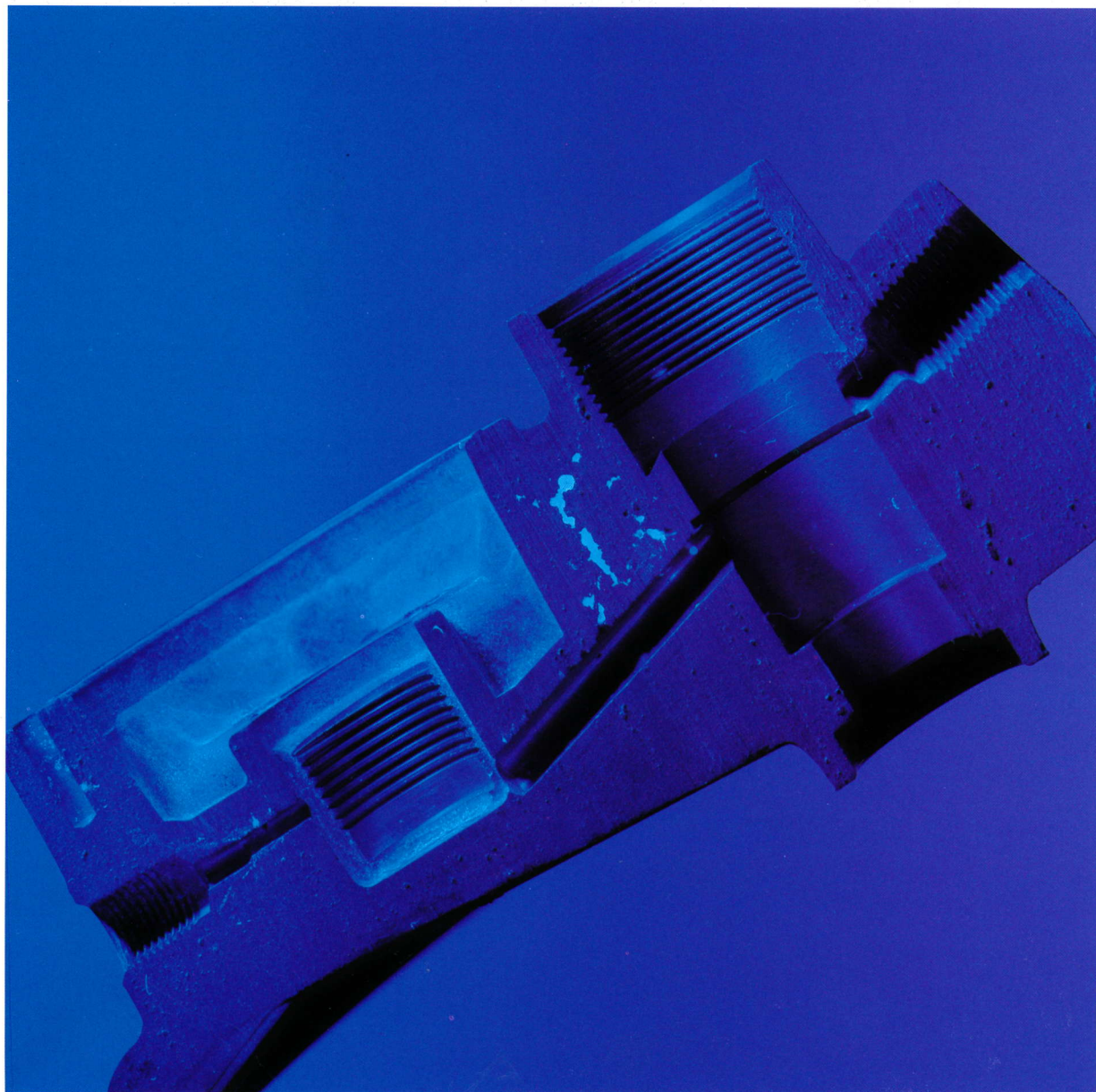


Impregnation

An Overview



Introduction

Impregnation is the fastest, most effective process for eliminating the inherent problems of porosity in cast and powdered metal.

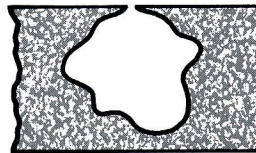
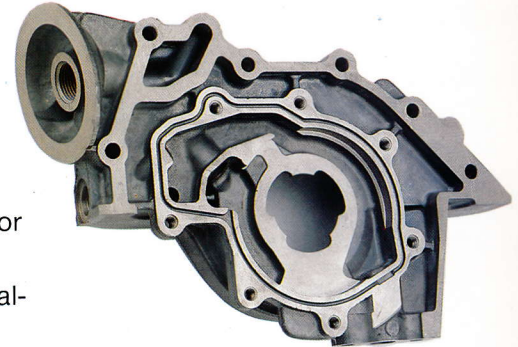
Why eliminate porosity?

- To prevent leakage of fluids and gases
- To prevent plating defects
- To increase machinability
- To reduce scrap and increase **profits!**

Properly processed castings are clean and have no change in appearance or dimensions. Castings can be impregnated in the rough, or fully machined.

The physical seal in Imprex-impregnated castings is permanent. Imprex sealants will withstand pressures equal to the bursting point of the component. Our sealants are impervious to all but the most aggressive acids and caustics. In almost all cases, the parent metal will deteriorate long before the impregnant is affected.

Porosity can be caused by numerous factors in the design, tooling or pouring of castings and forming of P/M parts. Cold shuts, enclosed gas bubbles and poor metal flow will all cause porosity in metal.



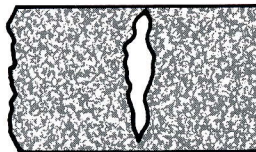
Porosity can change in size and shape throughout the casting wall. What is seen on the surface is seldom an accurate picture of what is inside.



Basically porosity, regardless of cause, can be classified as:

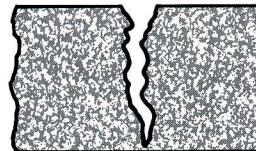
1. Enclosed Porosity

This type would not cause a problem in a casting unless it is exposed in a subsequent machining operation.



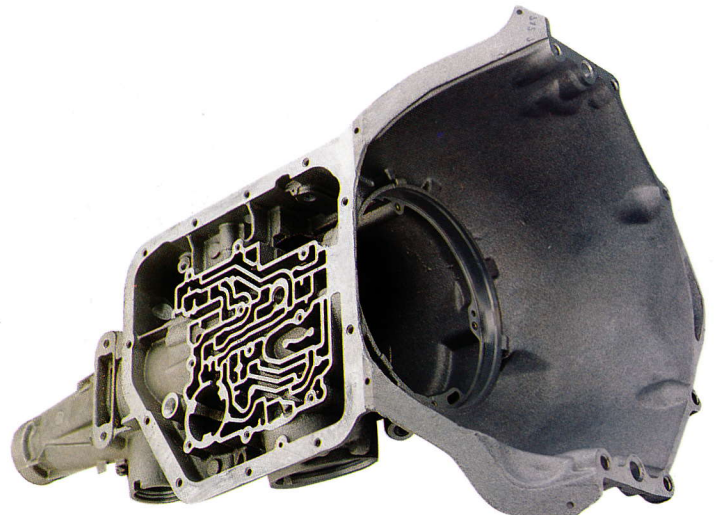
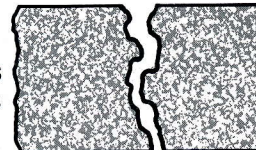
2. Blind Porosity

Blind porosity can lead to internal corrosion, spotting or blow-out of any finishing coating.



3. Through Porosity

This sometimes occurs in as-cast areas of castings, but usually appears in machined areas. This type of porosity will obviously cause leakage through a wall section of an otherwise sound casting, which must be scrapped or reclaimed by impregnation.



What Does Imprex Mean?

IMPREX MEANS IMPREGNATION.

From castings and powdered metal parts to electrical and electronic components, our only business is impregnation. We are the experts.

IMPREX MEANS EXPERIENCE.

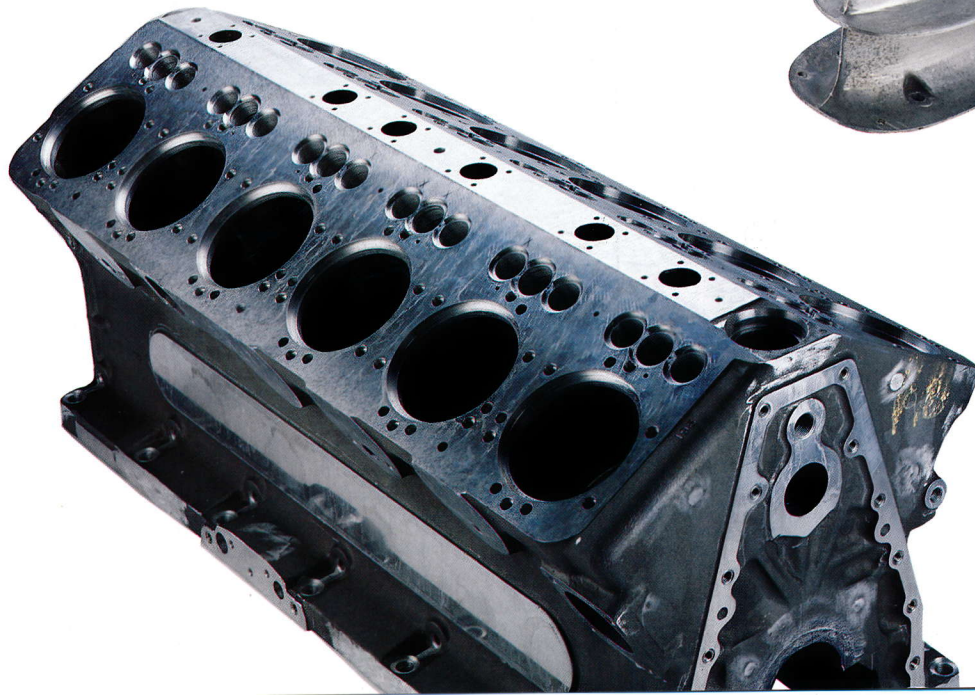
With a management and sales staff that averages over twenty years per person of first-hand experience, you have a resource that will quickly and effectively solve your impregnation problem. There is no substitute for hands-on experience.

IMPREX MEANS RELIABILITY.

Since 1950 we've conceived, built and tested literally hundreds of systems, concepts and formulations. Whether you are buying our equipment or impregnating with our materials, you know you have the best products available today.

IMPREX MEANS QUALITY.

We've spent almost forty years building our business and our reputation. We've continually researched and upgraded our products to insure you the finest materials and the best service. When you come to Imprex, we've earned your trust. And we're proud of it.



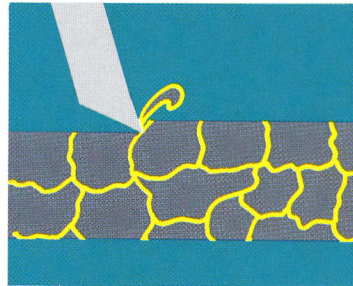
Powdered Metal Applications

We specialize in supplying easy-to-control, economical products that are effective for sealing powdered metal components.

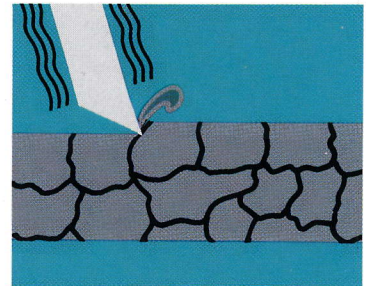
Imprex-impregnated P/M parts have these advantages:

1. Excellent Machinability

Porosity in powdered metal causes chatter, resulting in reduced tool life. When porosity is filled with Imprex resin, chatter is eliminated and tool life is extended up to 1000%.



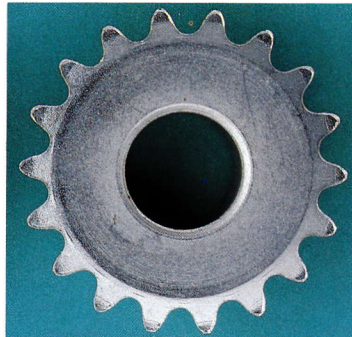
WITH IMPREGNATION



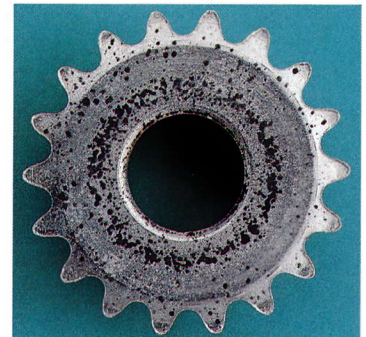
WITHOUT IMPREGNATION

2. Excellent Plateability

The porosity in powdered metal will absorb oils, deburring fluids, pre-plating cleaners and acids that can later cause spotting on the plated surface. Impregnation fills voids and eliminates spotting.



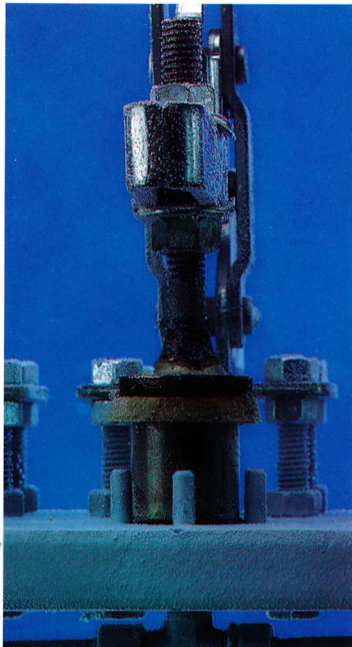
WITH IMPREGNATION



WITHOUT IMPREGNATION

3. Pressure Tightness

Interconnected porosity can cause leakage of gases, fuels, hydraulic oils, and so on through the wall section of the part. Imprex impregnation fills this porosity, eliminating leakage.



WITH IMPREGNATION



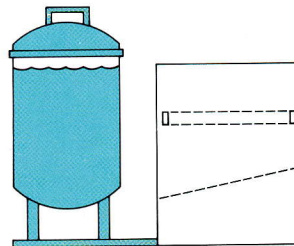
WITHOUT IMPREGNATION

Primary Impregnation Processes

WET VACUUM APPLICATION

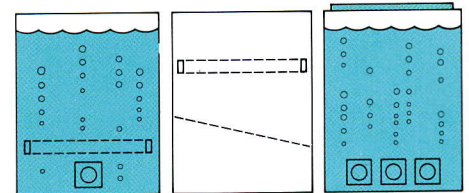
FEATURES:

- Less capital equipment required
- Less space needed
- Fast cycle time (10-12 minutes)
- Easy to operate
- Can be used as a resin system



CHAMBER
IMPREGNATION TIME
Approximately 15 minutes per load

RESIN RECOVERY
10-20 minutes



WATER RINSE
2-4 minutes

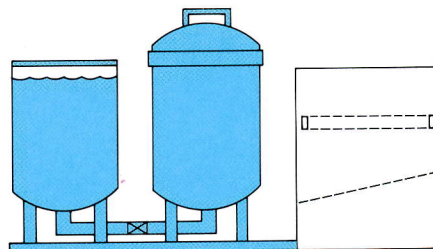
SPRAY/DRAIN
1-4 minutes

CURE
CURING TIME
Hot water, 10 minutes at 195° F

DRY VACUUM-PRESSURE APPLICATION

FEATURES:

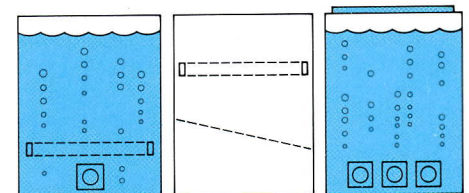
- Cycle time of 20-30 minutes
- Maximum sealant penetration into porosity
- Optimum sealing results possible for high-pressure requirements
- Required process for compliance with MIL-I-17563B
- Can be used with resin or sodium silicate impregnants



RESERVOIR

PRESSURE VESSEL
IMPREGNATION TIME
Approximately 45 minutes per load

RESIN RECOVERY
10-20 minutes



WATER RINSE
2-4 minutes

SPRAY/DRAIN
1-4 minutes

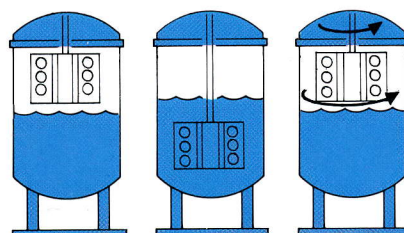
CURE
CURING TIME
Hot water, 10 minutes at 195° F

QUICK-SHOT APPLICATION

(Patented Process)

FEATURES:

- No baskets required
- Even less space required than for wet vacuum system
- Minimum amount of startup charge of resin
- Lends itself to automated transfer lines

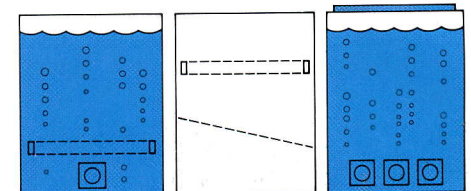


MULTI-PURPOSE CHAMBER

DRY VACUUM
1-2 minutes

WET VACUUM IMPREGNATION
1-2 minutes

RESIN RECOVERY (CENTRIFUGE)
1-2 minutes



WATER RINSE
2-4 minutes

SPRAY/DRAIN
1-4 minutes

CURE
CURING TIME
Hot water, 10 minutes at 195° F

Imprex-Affiliated Job Shop Network



Over many years of business, our goal has always been to offer our customers the most effective products combined with the fastest service available. We knew we couldn't do it from a single location. So over the years we authorized strategically-located firms that meet our high quality standards to offer you impregnation with Imprex sealants. Today you can find our affiliated job shops in over forty locations throughout the United States, Canada, Mexico and Europe.

We are intensely proud of our name and reputation. Close contact with every job shop means you can be assured of the same technical competence and commitment to service from them that you receive at our home office and plant. Depend on fast turnaround and Imprex reliability at your Imprex-affiliated job shop. If you'd like a sample-parts processing free of charge, call your local job shop or call us directly.

