

Impregnation



Benefits Of Impregnation :-

Eliminates Leaks•Reduces Scrap•Increases Throughput•Reduces costs•Increases Profit!

Surface Finishing

Impregnation will seal the surface of a component prior to plating, conversion coating, painting and other similar surface finishes. If porosity is left untreated the surface can absorb plating fluids which may subsequently leak out and corrode the plated surface. The treatment leaves no surface film.

Brazed/Welded Assemblies

Brazed seams often contain microporosity which allows leakage under pressure. Quite often joints cannot be re-brazed or sealed which makes vacuum impregnation the most efficient way of sealing.

Sealing Inserts

Vacuum impregnation improves insert bonding and the sealing of gaps of less than 0.13mm. The complete assembly can be sealed and bonded in one application.

Components that can be impregnated include

- Aerospace components
- Hydraulic pumps/valves
- Air compressor parts
- Pneumatic components
- Automotive cylinder heads/blocks
- Process control equipment
- Electronic housings/connectors
- Telecommunications equipment
- Fighting vehicle components
- Transmission housings
- Filtration equipment
- Washing machine components
- Fuel supply systems
- Wheels
- Hose, Pipe & Tube fitting

At Adept Solutions we have extensive experience of component impregnation - both high volume processing and specialised one off components.

What is Porosity?

Porosity is the general description given to the minute cracks and cavities that are formed during the cooling stage of casting. Porosity can render the component susceptible to leakage of air and liquids. These cavities can take various forms and are largely undetectable by the naked eye. It is always encountered in castings to some degree but is not always a problem.



Fully enclosed

Not a problem unless uncovered by subsequent machining



Blind porosity

Often the cause of internal corrosion giving rise to 'spotting-out' of plated surfaces and 'blow-out' of paintwork



Through porosity

An in-service problem where gas or liquids seep through the casting.

Frequently asked questions:

How do you know that your process has impregnated the component correctly?

Our process is strictly controlled in line with our ISO 9001:2000 procedures. As part of these procedures, we attach a sintered steel ring to the process basket containing the component. Following processing, we leaktest the ring. If the ring doesn't leak, we are confident that our process is operating correctly. In addition, we check the process parameters each cycle to ensure they are within set limits.

At what stage in our process should we impregnate our components?

Ideally, components should be impregnated following machining which invariably exposes further porosity. However, if it is known that the porosity is in an area that won't be machined it can be cost effective to impregnate prior to machining.

What is the maximum size of porosity that can be sealed?

In theory, it is possible to cure sealant in any size of hole. However, this has to be balanced by the structural soundness of the component and, particularly where a number of components are to be processed, economies of scale.

Can impregnation seal a crack in a casting?

It is not advisable to seal cracks with impregnation. This is because the casting may be unsound. We recommend that the crack is welded to provide structural strength then impregnated to seal any residual porosity.

