PRODUCT	FX1	HC90	HC100	RT20	RTP20PM
DESCRIPTION	Anaseal FX1 is a very high quality, water washable impregnation sealant for flexible porous materials (i.e. plastics). Ideal applications include wire harnesses and overmolded electronic components. It has been formulated to cure anaerobically at room temperature. Polymerization (cure) occurs as the result of the presence of free ions and the inhibition of Oxygen (O2). Cure speed can be controlled through adjustments in the process variables.	Anaseal HC90 thermal curing sealant is specially formulated for ease of use and simplicity of process. It requires minimum sealant/ process maintenance while providing high yields of sealed castings and other porous metal components. HC90 is detergent free yet washes easily in plain water. It is compatible with all types of impregnation process equipment.	Anaseal HC100 thermal curing sealant is specially formulated for ease of use and simplicity of process. It requires minimum sealant/ process maintenance while providing high yields of sealed castings and other porous metal components. HC100 is detergent free yet washes easily in plain water. It is compatible with all types of impregnation process equipment.	Anaseal RT20 is an ambient temperature curing sealant formulated to eliminate bleed out and assure the highest yields of sealed parts. Its anaerobic cure forms a very high quality polymer providing exceptional temperature and solvent resistance. RT20 is a plain water washable formulation utilizing the most advanced chemistry. It is designed for use in impregnation systems having aeration and refrigeration capability, and is particularly suitable for use on powder metal parts and heat sensitive materials.	Anaseal RT20PM is an ambient temperature curing sealant specially formulated plating grade sealant for the powder metal industry. Its anaerobic cure forms a very high quality polymer providing exceptional temperature and solvent resistance. RT20PM is a plain water washable formulation utilizing the most advanced chemistry. It is designed for use in impregnation systems having aeration and refrigeration capability.
CURE METHOD	Anaerobic	Heat	Heat	Anaerobic	Anaerobic
WATER WASHABLE	Y	Y	Y	Y	Y
APPROVALS	--	Mil-I-17563C, QPL listed	Mil-I-17563C, QPL listed	Mil-I-17563C, QPL listed	--
Uncured Resin Properties					
TYPE	Methacrylate	Methacrylate	Methacrylate	Methacrylate	Methacrylate
APPEARANCE	Amber Liquid	Amber Liquid	Amber Liquid	Amber Liquid	Amber Liquid
VISCOSITY @25C (ZAHN CUP N1)	30	29	33	29	29
FLASH POINT °	>100°C	>100°C	>100°C	>90°C	>100°C
SOLVENT %	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Cured Resin Properties					
APPEARANCE	Flexible Plastic	Hard Plastic	Hard Plastic	Hard Plastic	Hard Plastic
SHORE D	41	80	75	80	82
FLUORESCENCE	Y	Y	Y	Y	Y
Solvent Resistance					
WATER	Y	Y	Y	Y	Y
OIL	Y	Y	Y	Y	Y
HYDRAULIC FLUID	Y	Y	Y	Y	Y
HYDROCARBON FLUID	Y	Y	Y	Y	Y
TURBINE FUEL	Y	Y	Y	Y	Y
LUBRICATING OIL	Y	Y	Y	Y	Y
CARBON REMOVING COMPOUND	Y	Y	Y	Y	Y
ETHYLENE GLYCOL	Y	Y	Y	Y	Y

ANASEAL

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ANASEAL

Vacuum Impregnation

CHEMENCE®

VACUUM IMPREGNATION METHODS

A variety of processing methods may be used to impregnate parts. The method selected depends on the sealant and the requirements of the parts.

Fundamentally, vacuum impregnation sealing of porosity addresses a pair of fluid mechanics problems. The laws of fluid mechanics govern the flow problem of removing the air from the pores and the flow problem of filling the pores with liquid sealant. The entire process can be reduced to four basic steps:

1. Remove the air from the pores.
2. Fill the pores with liquid sealant.
3. Wash excess sealant from outer surfaces of the parts (without removing sealant from the pores).
4. Cure the sealant within the pores.

Each of the following impregnation process methods accomplishes these steps, but in slightly different ways.

WET VACUUM / PRESSURE (VP)

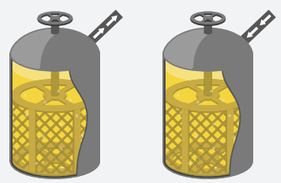
This process method requires only one tank. Parts are submerged in the sealant, which remains in the process tank at all times.

The vacuum is applied to parts and sealant together, followed by pressurization with air. This process retains the pressure step, but does not use the dry vacuum. This is often an effective compromise, as the dry vacuum is less beneficial than the pressure step. The equipment is greatly simplified and the process will run faster.

1. Place parts in the process basket and load into process tank.
2. Draw vacuum in process tank to remove air from pores of parts.
3. Release vacuum and pressurize tank with air.
4. Release pressure.
5. Remove parts. Wash and complete other process steps.

VP processing is more common for production processing of castings with very fine porosity and for high density PM parts.

Vacuum / Pressure Process



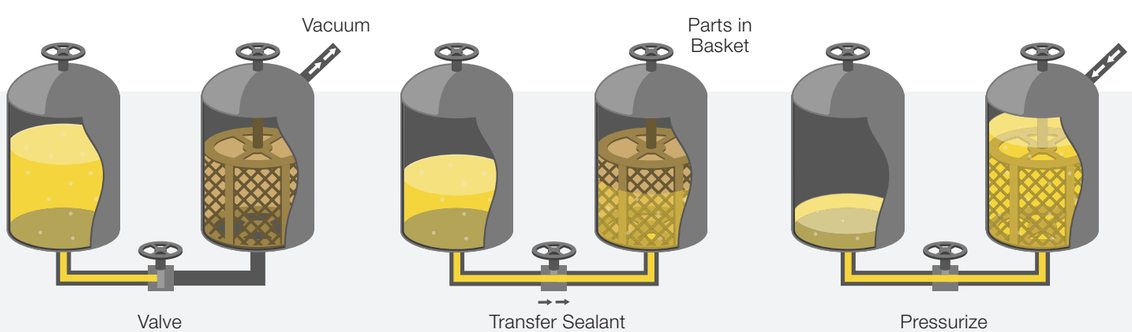
DRY VACUUM / PRESSURE (DVP)

This is the most complex vacuum impregnation method. The cycle requires two tanks, one which holds the sealant, and one in which the parts are processed.

1. Place parts in process basket and load into process tank.
2. Draw vacuum in process tank to remove air from pores of parts. (Dry vacuum)
3. Transfer sealant from storage tank to process tank and submerge parts, still under vacuum.
4. Release vacuum and pressurize process tank with compressed air. Pressure helps to drive the sealant into the pores.
5. Release pressure and transfer sealant back to storage tank.
6. Remove parts. Wash and complete other process steps.

DVP processing was traditionally used with old-tech high-viscosity sealants. The DVP method is now sometimes specified with modern sealants where porosity is very small and sealing requirements are unusually rigid. The advantage of the dry vacuum is that there is no liquid present to interfere with degassing the pores. In a typical impregnation tank with a liquid level of 30 inches, the presence of the liquid column of sealant can reduce effective vacuum at the bottom of the tank by almost 8 percent. Use of dry vacuum eliminates that small variable. The pressure step is helpful in forcing the sealant into the pores. This is most important where the porosity is extremely small.

Dry Vacuum / Pressure



WET VACUUM

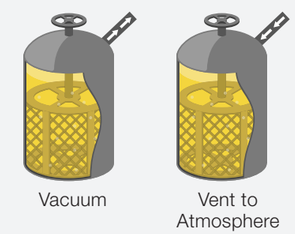
This is the simplest and fastest of the vacuum impregnation methods. It is similar to the VP method, except that the tank is not pressurized.

Instead, the tank is simply vented to atmosphere after establishing the vacuum. Penetration of the resin into the parts takes place at atmospheric pressure. The resin flows in to fill the vacuum created inside the porosity of the parts.

Wet vacuum impregnation is the most widely used application method by far. The simplicity and rapid processing, along with lower equipment cost, make this the method of choice in many impregnation system installations.

1. Place parts in baskets and load into process tank.
2. Draw vacuum in process tank to remove air from pores of parts.
3. Release vacuum and vent tank to atmospheric pressure.
4. Allow parts to soak briefly while sealant penetrates.
5. Remove parts. Wash and complete other process steps.

Wet Vacuum Process



PRESSURE IMPREGNATION

This specialized method of applying impregnating sealants generally is used to treat parts individually and can be a very effective way to seal porosity in some situations.

Typically, the parts are not placed inside a tank. Instead, each part is fixtured so it can be filled internally with the liquid sealant. The sealant is then pressurized, usually with compressed air, to force it to flow through any porosity leaks. The part is then drained, washed and processed further as in a tank method.

1. Position part in fixture and close all open ports.
2. Fill part with liquid sealant.
3. Pressurize to force sealant through any leaking pores.
4. Release pressure and drain liquid sealant from part.
5. Remove part from fixture. Wash and complete other process steps.

Pressure impregnation in a highly automated system requires only seconds to process each part. Specially assembled set-ups can be useful when the part is too large to fit into a vacuum process thank, or when there is a large number of large parts where vacuum impregnation in a tank system would be costly.

PROCESSING FOR HOT WATER CURING

Processing is similar for Chemence Anaseal HC90, Chemence Anaseal HC100.

1. Impregnate parts using any of the process methods described in section titled “Vacuum Impregnation Methods”.
2. Use the Chemence centrifuge to spin the baskets of parts before removal from the impregnation tank. This removes most of the surface resin from the parts, returning that resin to the original bath. This step is very important for part clean-up. The sealant removed by the spinner returns to the bath, minimizing sealant usage. This is the most effective method available for removing excess sealant with no risk of damage to the parts.
3. Using the Chemence oscillator, lower the basket into the wash tank to clean the parts. Washing takes place in plain water with constant overflow, using the oscillator to agitate the parts in the water.
4. Place the basket of parts into the hot water cure tank and allow sufficient soaking time for the sealant to cure within the parts. The sealant will cure in four to ten minutes at 90°C (194°F), but time must be allowed for the parts to reach that temperature throughout. Ten minutes of soak time in the hot water tank is usually sufficient.

Note: Parts must be allowed to cool after removal from the hot water. They can be leak tested as soon as they are cool. A corrosion inhibitor can be added to the hot water tank to provide protection for parts that might rust or corrode easily.

Processing Details for Hot Water Curing