

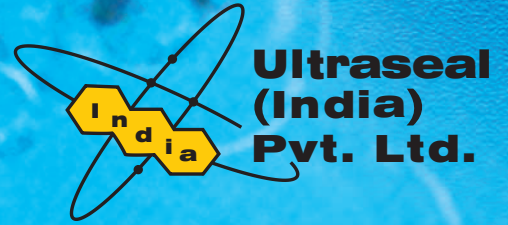


QMS - ISO 9001 - 2000,
Certificate No 5020

POROSITY

SEALING

SYSTEMS

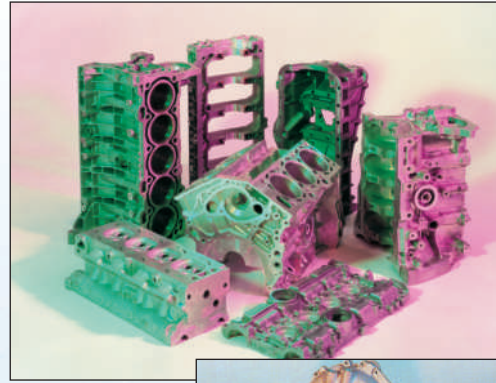


THE ULTRASURE WAY TO SEAL POROSITY

- US MIL standard MIL-I-17563C
- CE approved

About us

- Headquartered at Pune in the prime industrial belt of Pimpri-Chinchwad with a Corporate Office at Mumbai
- Formed in 1978, Ultraseal introduced for the first time ' Vacuum Impregnation Plant' in India.
- Offers imported Ultraseal PC 504/66 I sealant from M/s Ultraseal International UK
- Professionally managed company staffed by highly experienced engineers & commercial personnel
- Impregnation franchisees are located at all metros & major towns in India
- Leading supplier to all major OEM's , Engineering & Foundry industries
- Over 60 Impregnation plants in India. Exported plants to UK & Malaysia



About Ultraseal International, UK

- A part of Norman Hay plc group of Companies, located in Coventry, England in the industrial heartland of the UK. Introduced globally for the first time an impregnation sealant 30 years ago
- Hardcore experience & knowledge resulted in Ultraseal being recognized as world leader in this technology, providing innovative solutions through both equipment & sealant to a global customer base
- ISO 9001 / 2000 registered & having a global operation with a network of subsidiaries & partners
- Keeping pace with latest technologies through ongoing R&D programme
- Having state-of-the-art R&D facility

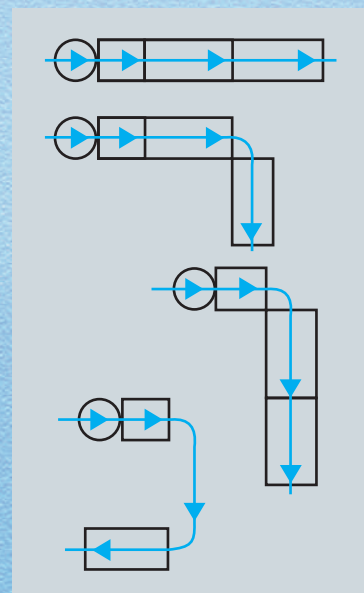
Porosity sealing system

What Ultraseal (India) Pvt. Ltd.(UIPL) can offer

Having worked dedicatedly in this field for the last 18 years in India with support from ULTRASEAL INTERNATIONAL UK, UIPL can offer complete solutions for impregnation requirement to our customers. UIPL not only sells the equipment & sealants to their customers, but also gives customers right advice & dedicated service.

UIPL can offer full turnkey solutions for any impregnation requirements

- Batch Type Plant
- Semiautomatic Plant
- Fully Automatic Plant



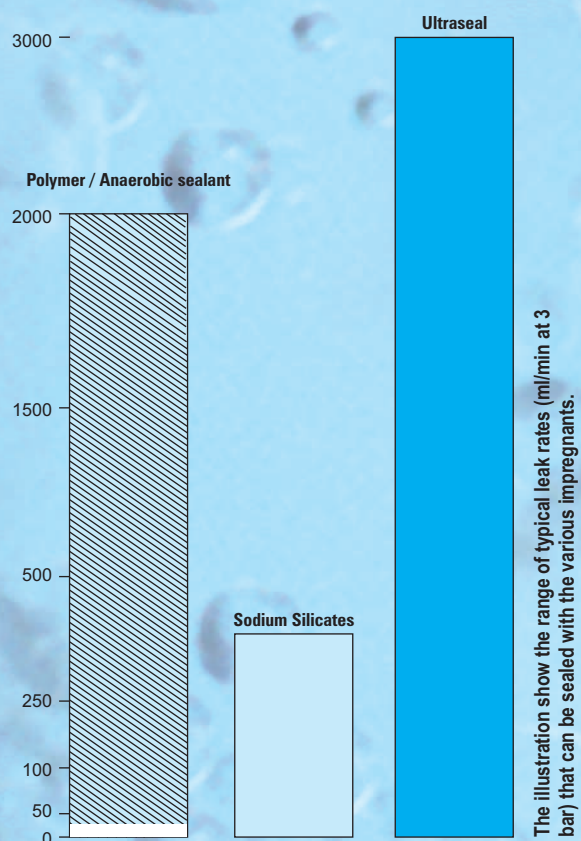
Typical plant layouts for batch type operations

About Ultraseal PC 504 / 66 I Sealant

Technical Specifications

Product Composition	Blend of Methacrylate Monomers
Uncured Properties	
Appearance	Liquid
Colour	Light (or pale) straw
Odour / taste	Mild (faint)
Density / Specific Gravity	1.005 - 1.015 Temperature 20°C
Viscosity	32 - 34 S Temperature 20°C
Solubility Description	Forms an Emulsion
Flourescent	Yes
Surface Tension at 20°C	32
Gel Time at 90°C	1 - 4 min
Pot Life	Indefinite under recommended operating conditions
Cured Properties	
Temperature Range	-50°C to 200°C
Pressure Resistance	Greater than 12,000 psi (815 bar), Pressure strength of the impregnant is equal to the structural strength of the parent metal.
Chemical Resistance	Includes Freon Gases, Acids, Hydraulic fluids, oils, water, steam, alkalis, antifreeze and most petrochemical products. Further information is available on request.
Electrical Resistance* Surface resistivity at 23°C (73°F) and 75% RH to BS 771	Greater than 10 to the power of 14 ohms
Electrical Strength* BS 771	Approx 150 KV centimetres
Dielectric Constant*	Approx 3 at 50 Hz - 2.5 at 9 Hz
Co-efficient of Linear Expansion	
ASTM D696 - 79 Sealing Performance	0.000117 per °C Excellent

Impregnation Chemicals



Impregnation

Knowing the facts.....

To understand the process of impregnation, it is equally important to understand the root cause i. e. porosity .

Porosity in casting can be divided into three categories

Fully enclosed



Problem only if opened by machining-operation

Blind porosity



Can cause spotting out of plating & blowout of paint finishes

Through porosity



Which will allow the passage of liquid or air through the wall



Impregnation

It is a permanent solution to the porosity.

Vacuum impregnation will fill voids & defects with stable yet flexible material. Ultraseal (PC504/66I). This sealant is resistant to attack from heat, oil, chemical & other external influences.

The process can be performed on raw as well as finished machined parts as it causes no dimensional change or contamination of the components.

Applications

Aerospace components, Air compressor parts, Automotive cylinder heads, Blocks & manifold, Electrical housing & connectors, Switchgear equipment, Sintered metal component. Filtration Equipment, Fuel supply system, Hydraulic pumps & Valves, Pneumatic Components, Process Control Equipment, Subsequently Plated Components, Telecommunication Equipment, Transmission Housing, Carbon and graphite components etc.

Fully Automatic Vacuum Impregnation Plant



Ultraseal (India)'s one of the recent Installation including 'Rotational Pre Wash, Vacuum Dry & Transporter with PLC based Control Panel'.

Salient Features :

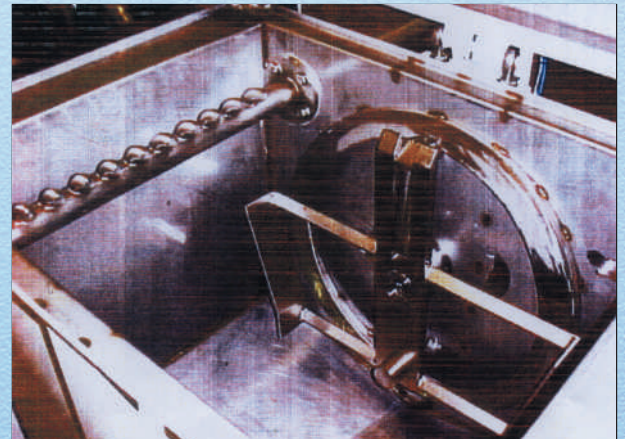
- The system consists of unique "Rotational Basket Mechanism"
- All the cycles are automatic & managed by a single operator
- Caters a high production requirement

Advantages of the Ultraseal Rotational System over Conventional Systems



CONVENTIONAL CENTRIFUGE SYSTEM

- This is an old technology.
- Rotation of the basket is along the vertical axis.
- Speed of the rotation is @ 100 RPM or even higher.
- High speed generates Centrifugal force. This force is tangential to the outer circumference of the basket & may bleed out the sealant from the porosity. This affects the sealing performance.
- Centrifugal action removes the sealant from outer vertical & bottom surface only. Sealant on the top surface & inside areas gets trapped. This results in unclean surface & poor sealing quality.

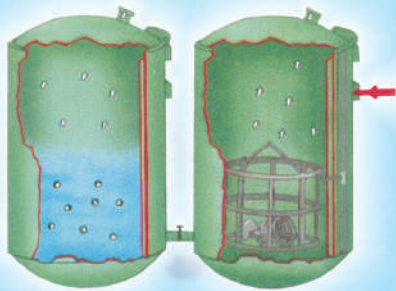


Vs. ULTRASEAL ROTATIONAL SYSTEM (PATENDED DESIGN)

- This is a latest technology from ULTRASEAL.
- Rotation of the basket is along the horizontal axis.
- Speed of the rotation is @ 4 RPM.
- At the time of draining, the basket is indexed at four different stages of the rotation. This results in effective drainage of the sealant from all corners & threaded holes.
- In washing stage, due to the cascading action the components are cleaned thoroughly & the sealant trapped (if any) in the threaded holes & cavities get washed away.

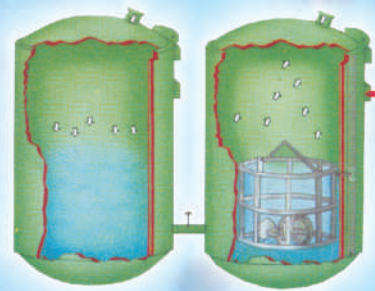
Impregnation Process

1.0 Dry Vacuum :



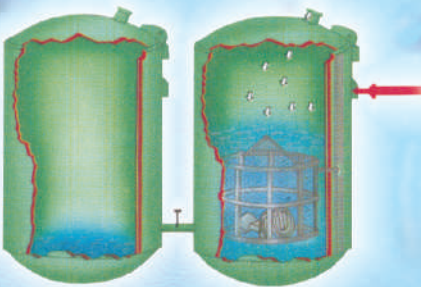
The charge basket is lowered into the autoclave. Within the autoclave, the charge basket is subjected to high speed vacuum. Simultaneously the reservoir is subjected to a similar vacuum.

2.0 Resin Transfer :



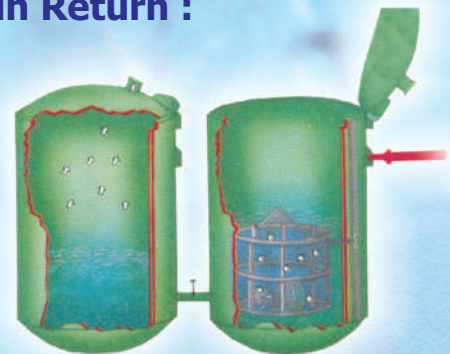
The sealant is transferred from the reservoir to the autoclave.

3.0 Impregnate / Wet Vacuum :



The vacuum in the autoclave is maintained until the components are thoroughly impregnated. Then the valve is opened to return the autoclave to atmospheric pressure, further forcing the sealant into the porosity.

4.0 Resin Return :



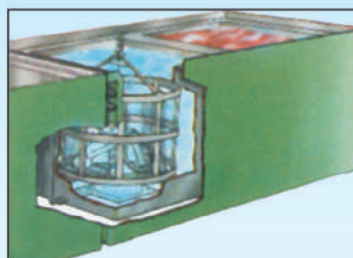
The autoclave lid opens and the charge basket is removed and transferred to the next station. A vacuum is generated in the reservoir and the sealant is transferred from the autoclave back into the reservoir.

5.0 Drain



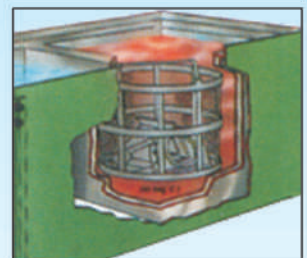
With the basket hoisted over the drain station, the low viscosity sealant drains quickly and is returned to the autoclave. An automatic rotational drain station is available as an option.

6.0 Wash



The components are washed by agitation, room temperature water, to remove residual sealant from the component surfaces.

7.0 Cure



Finally, the process basket is lowered into water maintained at 90 deg. C for 10 minutes allowing the sealant to polymerize. The components are now ready to use.

Note : The whole process takes 30 minutes and components can be used / pressure tested immediately
Conditions of the Castings : Must be free from all metal swarf, rust, dirt, oil & other contaminants.