Ecoseal User Guide
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The following user guide has been designed to provide a step-by-step guide for the application of our Ecoseal product range.

We have tried to include a range of common joint types and as much information as possible, however, if you have any questions, queries, or would like to gain some hands-on experience at one of our training sessions, please contact: admin@mwpolymers.co.uk or call: 01332 853001.
Introduction to Ecoseal

MW Polymers has been supplying Ecoseal to the gas industry since the 1980s. It manufacturers three varieties of the product; thick, thin and ultra thin. The variety required will depend on the type of joint and the flow of gas.

Ecoseal Thick viscosity (Red) is designed for use on mechanical joints or where the yarn has completely decayed.

Ecoseal Thin viscosity (Yellow) can be applied to lead yarn joints.

Ecoseal Ultra Thin viscosity (Green) is ideally suited to the repair of tightly packed joints.
Background to Ecosceal

The Ecosceal repair system manufactured by MW Polymers is a non-toxic, environmentally friendly, internal injection system designed to repair leaking cast iron or metallic pipe joints. Ecosceal is highly flexible and ideal for use where there is excessive ground movement, including areas with levels of high traffic and earthquake prone zones.

Joints can be repaired by injection through the socket or directly through the lead joint face. Ecosceal can be used on spigots, mechanical joints, socket joints, and valves. It can be used on steel, cast iron and ductile iron pipes up to 2 bar pressure. This means it can be used on pipelines within the gas, water, oil, chemical, and steam industries.
Features and benefits

• Approval – Ecoseal is approved to GIS/LC25. This standard is designed for external sealant injection systems for joint repair on metallic distribution pipes operating at pressures of 2 bar or less

• Variety – Ecoseal is available in three viscosities to suit every need:
  - Thick viscosity (Red) is comparable to treacle and is designed to be used on mechanical joints or where the yarn has completely decayed
  - Thin viscosity (Yellow) is comparable to honey and is ideal for lead yarn joints
  - Ultra Thin viscosity (Green) is similar to water in consistently and is perfect for tightly packed joints

• Non-toxic and environmentally friendly – no need for costly PPE or waste disposal

• Flexibility – the consistency of Ecoseal once cured is flexible to allow for pipe movement. This lengthens the life of pipes in areas with excessive ground vibration or movement

• Waterproof once cured – this feature makes Ecoseal ideal for a range of pipe repairs and industries

• Longevity – the product is designed to last for up to 50 years

• Easy application - when injected correctly, Ecoseal forms an elastic seal around the joint. Injecting slowly enables full penetration through the whole circumference

• Ecoseal is an alternative to encapsulant products
Step one: Establish the correct drilling location

The correct drilling location will vary depending on the type of joint that needs to be repaired. We have included a series of diagrams showing the correct drilling location on a number of common joint types:
Step two: Drilling

We appreciate it isn’t always possible, but if it is, drill as close as possible to the leak path. If the joint is leaking around the whole circumference or in multiple locations, the joint should be drilled at the ’12 o’clock’ position. More than one point of entry may be required depending on; the type of joint, the volume of the leak and the pressure.
Step three: Drill depth

Ensure drill depth guides are correctly set to obtain a 10mm depth. This allows drilling and tapping of thread to take place with no gas present. Ensure drill bits are in good condition.
Step four: Pilot hole

Drill the pilot hole using 4mm drill bit with the depth collar set to 10mm
Step five: Open pilot hole

Open 4mm pilot hole using 8mm drill bit with the depth collar set to 10mm
Step six: Remove swarf from around the drilled hole using a magnet
Step seven: Tap hole to 1/8 BSP using a taper plug
Step eight: Check fit!

Prior to completing the drilling sequence, ensure the MW Polymers Ecoseal injection body fits the cut thread correctly.

As the injection body is a tapered thread, the injection body should be a secure, gas tight fit. If for whatever reason the thread is not adequate, the drilling location can be abandoned and a new location to drill established.
Step nine: Removing brass cap

After checking the fittings are secure, remove the brass cap from the injection body and keep it safe as you will need it to cap drilling once completed. Remove the iron swarf using the magnet.
Step ten: Complete drilling through the injection body

Using the 4mm drill bit (without the depth collar), drill through the centre of the injection body until the bit makes contact with the spigot.

Immediately after the drill bit has passed through the bell and made contact with the spigot, there should be a flow of gas evident through the injection port, prior to removing the drill from the brass body.

Carefully remove the 4mm bit, being mindful that gas will be present. The injection body is fitted with a rubber diaphragm, which should greatly reduce the flow of gas through the injection body.
Step eleven: Attach the injection line

Attach the MW Polymers Ecoseal injection line to the brass body ensuring the fittings are sufficiently tight.
Step twelve: Pinch clamp

Ensure the white pinch clamp is closed to prevent the flow of gas.
Step thirteen: Inserting the EcoSeal cartridge into the dispensing gun

Prior to attaching the EcoSeal cartridge to the injection line, insert the EcoSeal cartridge into the dispensing gun.
Note the correct placement of the cartridge in the gun:

The wrong placement of the cartridge can distort the dispensing gun and cause the Ecoseal to leak.
Step fourteen: Setting up the cartridge

Push the rods of the gun up to the backs of the pistons within the cartridge. This will prevent the gas pressure pushing the pistons out of the cartridge when attached to the injection line.
Step fifteen: Removal of cartridge cap

Using a flathead screwdriver or similar tool, pry the cap off the cartridge and keep it somewhere safe as it can be used to reseal the cartridge. Ensure to match the circle/square symbols on the cartridge cap to the symbols on the cartridge. This prevents contamination of the cartridge for re-use.
Step sixteen: Attaching the injection line

Once the Ecopeal cartridge is correctly positioned in the gun, attach the injection line to the brass body. Ensure the pinch clamp is closed to inhibit the gas pressure in the cartridge.

Ensure the injection line is fully on before screwing the locking ring on the static mixer.
Step seventeen: Injecting the Ecoseal

Start injecting the Ecoseal. Once the line is filled, inject slowly.

Top tip: one squeeze of the trigger per second for three seconds, then hold the trigger closed for three seconds.

Repeat this process until the Ecoseal has flowed into the leak paths.

If you are using the incorrect viscosity or if it is not suitable for the job, you run the risk of over pressurising the application gun, cartridge and line assembly.
Step eighteen: Injecting the Ecoséal

Monitor the flow and viscosity of the Ecoséal, ensuring that it does not fully cure as it will no longer flow. If the line blocks, replace it and re-establish the gas path.
Step nineteen: Using multiple cartridges in a single line

If multiple cartridges are required, cartridge swaps should be done as quickly as possible (ideally within a minute) to prevent the product from curing in the line. Repeat steps 15 through to 18 as required. It helps to have everything to hand while still ensuring you don’t over pressurise the line.

Top tip: Once the leaks have stopped, continue to apply moderate pressure to the gun to ensure the joint/leak path has been fully filled with Ecoseal. As long as the Ecoseal is still in a liquid state, the pressure from the pipe will try to push Ecoseal out of the joint.

Do not disassemble the cartridge or the injection line until you are satisfied sufficient Ecoseal has been injected to provide a gas tight seal within the joint.
Final steps

Remove the injection line from the injection body and secure the brass sealing cap in place.

Check the joint gasket and injection ports for leakage.

The job is now complete, pat yourself on the back – another job well done using Ecoseal!
Practical advice

Storage: Keep Eoseal out of direct sunlight, preferably between -20˚c - 50˚c.

Expiry dates: The last four digits of the batch code are the expiry code

Recommended volumes (please note: this is just a guideline, please contact us for specific advice):

<table>
<thead>
<tr>
<th>Diameter of mains (inches)</th>
<th>Recommended number of cartridges</th>
<th>Maximum number of cartridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-6</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8-10</td>
<td>1.5</td>
<td>3</td>
</tr>
<tr>
<td>12-14</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>16-18</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>24</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
Disposal

• Empty cartridges and used injection lines can be disposed of as general waste
• Part-used or out of date cartridges should be dispensed through an injection line or mixer into a cup and cured before being disposed of as general waste
• Please note: if exposed to air, the activator will begin to set immediately
The Ecosel Cartridge

Part used cartridges can be reused if resealed correctly. To correctly reseal the Ecosel cartridges, re-match the correct circle/square symbols and gently tap with a hammer to close.
Set Up for Injection

Please note: Ecoseal must only be injected through an MW Polymers injection line
Please contact MW Polymers directly on: +44 (0) 1332 835 001 or email: admin@mwpolymers.co.uk if you have any questions or queries regarding Ecosseal.