Water ingress into underground mine workings can cause many serious problems. While the penetrating water can often be pumped out, under certain circumstances it is necessary to seal it by creating a water tight injection barrier.

Two types of injection technique:

1. **PLUGGING**
   
   This injection method is designed to counteract water inrush which renders any further progress at the workplace impossible. The objective is not to stop the water inflow completely, but to reduce the inlet as much as necessary to proceed with the operation.

   ![Before injection](image1)

   ![After injection](image2)

2. **SEALING**
   
   This injection process is designed to seal all joints, fissures and other geological discontinuities through which the water can flow. In this case the aim is to stop water penetration completely.

   'Plugging' involves the use of a high-expansion water-reactive or two-component foam. Accelerators are available to speed up the reaction if required. Injected in the water bearing faults the product start foaming and stifles the water passage as the injection process develops.

   'Sealing' involves the use of low-expansion or non-expanding products. After injection, these two-component gel products form a waterproof barrier, re-directing water elsewhere.

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