SwellPlug Permanent Perforation Shut Off System

Operationally simple and effective permanent isolation of existing perforations to allow water shut off and/or re-completion.

Throughout the life of a well, it may be necessary to isolate existing perforations for the purpose of re-completing an alternative section of the wellbore or to stop water from being produced. Traditional methods involve setting a plug, straddling the perforations or performing a cement squeeze, all of which can be complex and costly and in the case of a straddle, result in a reduced ID wellbore.

TAQA has developed SwellPlug, a cost effective, low complexity, patent protected method to isolate existing perforations and allow water shut off or re-completion to take place. SwellPlug uses TAQA's patented, field proven swelling elastomer technology.

SwellPlug sized swellable elastomer particles are pumped from surface into existing perforation tunnels and allowed to swell in-situ to provide an effective high pressure seal up to 10,000psi. The SwellPlug particulates are batch mixed at surface and pumped downhole using standard cementing equipment. The design and volume of the particulate material and carrier fluid are based on the length of the zone to be isolated.

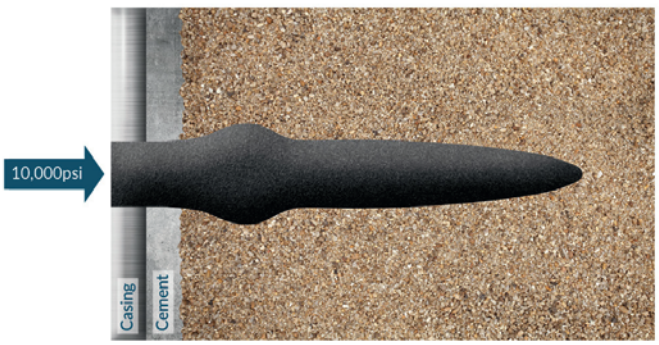
SwellPlug's proprietary water swellable particles use a combination of super absorbent polymers and osmotic swell mechanisms to optimise speed and strength of the swelling process and maximum chemical resistance.

Features

- Forms tight, permanent seal when swollen
- Proprietary osmotic swell mechanism
- Chemical and temperature resistant (up to 250°C)
- Plug design tailored for well conditions
- Pumped using standard cementing equipment

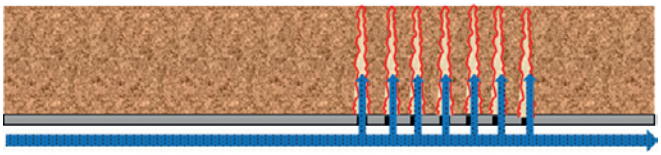
Benefits

- Maintains full bore access
- Operationally simple
- Suitable for all environments
- Multiple applications: water shut off, re-completion
- Permanent swell: unaffected by saturation
- Plug withstands significant pressure drop



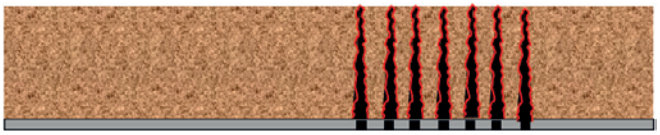
SwellPlug withstands 10,000psi

Step 1: **SwellPlug slurry is pumped into existing perforations**

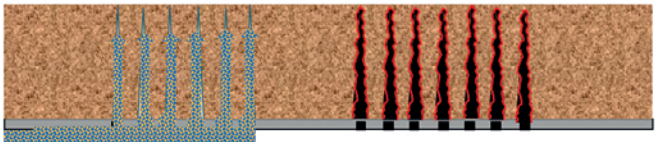


Unswollen SwellPlug has sufficiently low permeability to cause diversion of particles

Step 2: **Particles swell and provide permanent seal**



Step 3: **Re-completion operations are performed**



SwellPlug maintains seal during re-completion and production