

AllSeal

Water and gas conformance service

APPLICATIONS

- Water and gas control in the wellbore, near-wellbore area, formation matrix, or natural fractures
- Injector or producer wells
- Bullheading or spotting through coiled tubing

BENEFITS

- Shuts off or controls water and gas production with engineered selection of technologies suited to specific well or reservoir conditions and economic considerations
- Minimizes operation time and fluid requirements with engineered treatments and operational schedules
- Extends effectiveness of operator engineering teams by integrating with Schlumberger experience and expertise
- Improves hydrocarbon recovery, well economics and lifetime, and environmental footprint

FEATURES

- Portfolio of robust solutions from simple to advanced gelled, crosslinked, or single-phase fluids
- Compatibility with brines and freshwater-based fluids
- Engineered solutions for challenging environments, including high permeability, natural fractures, and nearby production zones
- Stability and functionality up to 350 degF [177 degC]
- Suitability for carbonate, sandstone, or shale formations

Unwanted water and gas production challenge operators as they explore new ways of extracting resources to meet global demands. With more than 80 years of oil and gas experience in technologies and services for water and gas management, Schlumberger offers solutions not only to optimize water supply and disposal in highly regulated environments but also to control or shut off unwanted water and gas production.

AllSeal* water and gas conformance service is an engineered approach to minimize or stop unwanted water or gas production.

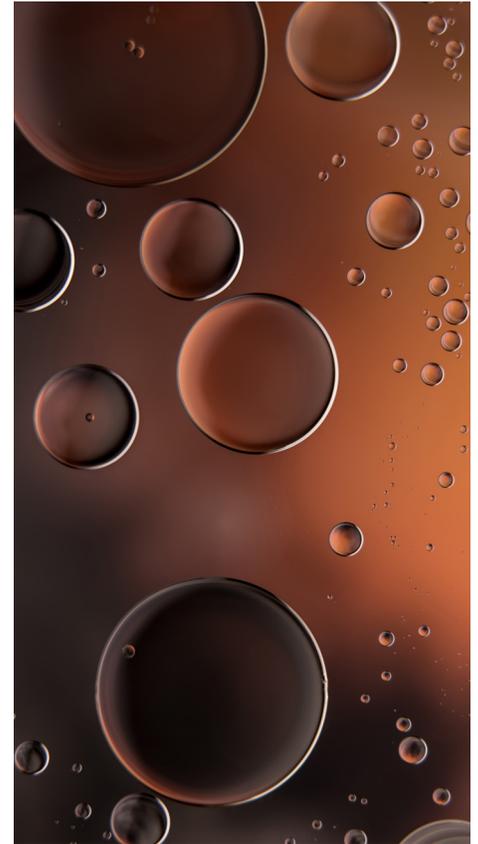
Control water to improve recovery

Water and gas production characteristics and causes vary significantly from well to well, and water strategies vary among operators and locations. To accommodate this variety, the AllSeal service integrates a wide portfolio of shutoff technologies from relative permeability modifiers and temporary chemical blocks to permanent cements. Schlumberger engineers select the right solution based on field and operator requirements, reservoir characteristics, economic constraints, logistics, and best practices gathered over decades of work around the world. The result is a fit-for-purpose solution matched ideally to a particular well or situation.

By managing water production, operators can reduce or eliminate costs of lifting, handling, hauling, and disposing of water. Timely attention to water production issues can extend a well's producing lifetime, improve environmental stewardship, and increase hydrocarbon recovery.

Restore oil production after gas breakthrough

Gas breakthrough is common in naturally fractured carbonate oil reservoirs or through leaks in cement or casing. The increasing gas production reduces crude oil production. Eventually the well becomes uneconomic, leading to shutting in the well despite its potentially recoverable reserves.



AllSeal service integrates chemistry, geology, operations, economics, and logistics to reduce or eliminate water and gas production for a particular well or field.

When reservoir pressure is low and permeability contrast is high, gas control is particularly challenging because water-based gas control fluids can bypass the gas cap. Again, economics may dictate that one zone or a whole well must be shut off, leaving behind recoverable reserves.

AllSeal service provides engineered alternatives to restore production to these shut-in wells and recover otherwise lost reserves, which can significantly improve the economics of operating the field.

Conformance Technology	System Description	Application		Wellbore and Perforations	Treatment Penetration		Chemical Resistance			Injector	Max. Application Temperature, degF [degC]	Viscosity Range, cP
		Water Control	Gas Control		Matrix	Fracture Networks	Acid Resistant	H ₂ S Resistant	CO ₂ Resistant			
MABA-SEAL ¹ system	Rigid crosslinked polyacrylamide gel	✓	✓		✓		✓	<100 ppm	✓	✓	250 [121]	100
Organoseal R* rigid organic crosslinked gel system	Rigid organic crosslinked polyacrylamide gel	✓	✓		✓		✓	Yes, after gelation	✓	✓	325 [163]	100
H ₂ S-tolerant gel system	Rigid organic crosslinked specialty polymer gel	✓	✓		✓		✓	✓	✓	✓	250 [121]	20-80
FoamSEAL* stable crosslinked foaming gel	Crosslinked foamed polyacrylamide gel	✓	✓		✓		✓	<100 ppm	✓	✓	325 [163]	100
MARCI ¹ system	Flowing crosslinked polyacrylamide gel	✓	✓		✓		✓	<100 ppm	✓	✓	200 [93]	50-300
Organoseal F* flowing organic crosslinked gel system	Flowing organic crosslinked polyacrylamide gel	✓	✓		✓		✓	Yes, after gelation	✓	✓	325 [163]	50-300
ZONELOCK* permanent zone sealing fluid system	Rigid inorganic gel	✓	✓		✓		✓		✓	✓	180 [82]	1-2
Delayed gelation system (DGS)	Rigid delayed gelation inorganic gel	✓	✓		✓				✓	✓	200 [93]	1-2
Particulate gel system	Physical plugging gel	✓	✓	✓			✓	✓			350 [177]	10
ZONETROL XT* zonal water conformance system	Relative permeability modifier	✓			✓						250 [121]	10
FracCON* water-conformance fracturing fluid	Water-conformance fracturing fluid	✓			Matrix near fracture faces						250 [121]	100-300
OLIMAX* matrix acidizing diverter	Matrix acidizing diverter for high-water-cut wells	✓			✓						250 [121]	10
Annular cement packer (ACP)	Annular cement packer	✓	✓	✓			✓	✓	✓	✓	195 [91]	
WaterSEEKER Gel* water-reactive polymer system	Water-reactive polymer	✓			✓		✓	Yes, after gelation			325 [163]	
WaterSEEKER Cement* water-reactive cement system	Water-reactive cement	✓			✓		✓	✓			325 [163]	
SqueezeCRITE* remedial cementing solution	Microcement system	✓	✓	✓			✓	✓	✓	✓	320 [160]	60

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