

OSORB[®] MEDIA

Osorb[®] Media is a revolutionary, regenerable, adsorbent used for the treatment of oilfield water and gas streams. It adsorbs free, dispersed, and water soluble hydrocarbons, as well as many non-polar oilfield chemicals from water.



BENEFITS

- + Removal of free, dispersed, emulsified & soluble hydrocarbons
- + Regenerable - minimal loss of efficiency over numerous regeneration cycles
- + Fast capture mechanism - minimal residence time requirements
- + Reduced footprint and equipment size
- + Customized application options
- + Minimal consumable and utility requirements

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The technology also removes vapor phase and micro-droplet hydrocarbons from natural gas streams to improve the value of sales gas, increase burner efficiency, and manage other environmental gaseous emissions.

With a high surface area and internal pore volume, Osorb Media has significantly increased capacity relative to alternative adsorbent

media technologies.

HOW IT WORKS

Osorb Media is both an adsorbent and absorbent, using a unique matrix structure and intermolecular interactions to capture hydrocarbons and organics without the creation of any permanent chemical bonds.

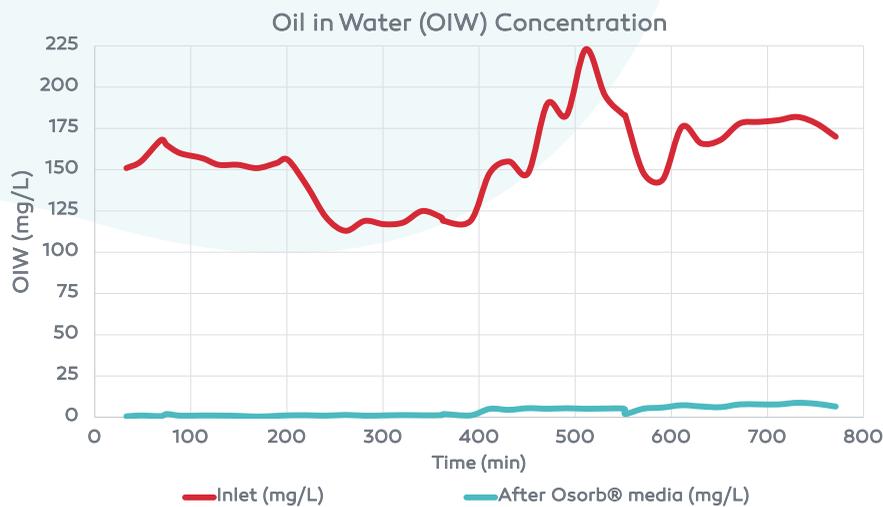
This lack of any permanent bonds between the Osorb Media and captured

contaminants enables the repeated regeneration and reuse of the media, in addition to recovery of the contaminants from the media's matrix.

DOWNSTREAM PROCESS WATER - MIDDLE EAST - OSORB® MEDIA TEST COLUMN

Parameter (ppb)	Treatment Duration (hours)									
	0		2		5		9		21	
	In	Out	In	Out	In	Out	In	Out	In	Out
Benzene	120	<1	873	47	773	<1	1,316	78	<1	<1
Toluene	7	<1	89	11	267	7	154	14	12	6
Ethyl-Benzene	56	<1	74	3	26	<1	66	<1	<1	<1
Xylene	58	<1	68	10	55	<1	90	2	1	<1

OFFSHORE TREATMENT FOR DISCHARGE - NORTH AMERICA - OSORB® MEDIA TEST COLUMN



The media has demonstrated a high affinity for organic compounds like dispersed and emulsified oils, water-soluble organics, volatile organic compounds (VOCs), and some oilfield chemicals.

TREATMENT LEVELS

Osorb Media maintains treatment performance in the presence of many oilfield chemicals and in typical temperature/pH environments. Furthermore,

it is not negatively affected by salinity or total dissolved solids (TDS) in water.

The technology is applied in both onshore and offshore applications for the treatment of produced water, flow back operations, completion fluids, chemical EOR injection, pipeline fluids, environmental discharge of water, well re-injection and reuse, prevention of membrane fouling, and control of air emissions.

REGENERATION

The regeneration method of Osorb Media depends on the molecular weight of the sorbates. Regeneration methods include heat plus gaseous purge, steam purge, and displacement fluid purge. All adsorbed and absorbed hydrocarbons can be returned back into the process as liquid hydrocarbons to the client's production stream.

APPLICATIONS

- + Bulk Media Vessels
- + Canisters
- + Injection into the flowline
- + Low flow technology feasibility testing using 6" axial flow test columns