MyCelx HRM Cartridge - Patented MyCelx Oil Removal Technology

Key Benefits of MyCelx HRM Cartridges:

- Oil Removal Cartridge
- Delivered as dry cartridge – no liquid or chemicals.
- Permanent immobilization of the oil in the MyCelx cartridge. No desorption.
- Operating pressure drop across the media upon oil removal: 1 psi
- High flow capacity at smallest footprint compared to any alternate technology.
- Safe and easy to handle. No hazardous components. Certified by EPA and Fish and Wildlife Department for safe handling and discharge into aquatic environment.
- Spent oily cartridge holds less than 0.0001% water; therefore saturated cartridge has high BTU residual fuel value due to high oil content and very low water content.
- Typical flow capacities of MyCelx Big Blue cartridges based systems: 1 gpm- 10,000 gpm

Operating Features of MyCelx HRM Cartridges:

- Dimensions: 2.5" OD and 30" and 40" Ht – Yellow in color
- Operating pH range: 3 – 11
- Maximum operating temperature: 170F
- Minimum operating pressure required: 2 psi
- Particle pre-filtration recommended to extend media life.

Comparison to Alternate Technology and Competitive Media Options

	MyCelx HRM Cartridge	Clay/ Carbon	OWS/Coalescers	Hydrocyclones
Mechanism of oil removal	Instant, permanent and complete oil removal upon contact. True and Broad phase affinity. No desorption. Required contact time for oil removal (>0.1 microns): < 1 sec	Adsorption Desorption isotherms apply. Required contact time for hydrocarbon removal (0.1 microns): 5 min	Gravity or media assisted enhanced gravity based separation. Required contact time for oil removal (30-50 microns): 10-15 min	Centrifugal or enhanced gravity based separation. Required contact time for oil removal (30-50 microns): 5-10 min
Required Flow rate/ Surface area to achieve 99% oil removal effectiveness to 0.1 microns oil droplet size (gpm/ sq.ft SA)	130	10-15	NA Cannot remove oil to 0.1 micron droplet size	NA Cannot remove oil to 0.1 micron droplet size
Robustness to handle variable oil loading	Effectively handle high to low oil loading to same effectiveness and < 1 psi pressure drop	Fouls and plugs even with medium oil loading	Cannot remove oil to 0.1 micron droplet size. Can remove oil only up to 30-50 microns oil droplet size	Cannot remove oil to 0.1 micron droplet size. Can remove oil only up to 30-50 microns oil droplet size
Oil Removal Capacity to greater than 90% removal effectiveness to 0.1 micron oil droplet sizes	4-10 lbs/ lb of MyCelx media	0.03-0.3 lbs/lb of adsorbent media	Cannot remove less than 30 micron oil droplets. 99% removal only at 50 microns	Cannot remove less than 30 micron oil droplets. 99% removal only at 30 microns
Ability to handle mixed oily water streams	Yes. Instant, permanent and complete removal	No. Desorption occurs	No. only free phase or > 50 micron droplets will be removed	No. only free phase or > 50 micron droplets will be removed
Foot print of system per flow requirements	1 X	10-60 X	100 X	50-90 X
Cost to remove 99% of oil to 0.1 microns at smallest footprint, lowest waste generation and sustained effectiveness	1 X Environmentally Benign Concentrated dry oily waste	10-100 X	100 X 99% effective only for oil droplets > 50 microns	100 X 99% effective only for oil droplets > 50 microns

T:+1.888.306.6843 F:+1.770.534.3117 Email:mycelx@mycelx.com Web:www.mycelx.com

Operational comparison of various MyCelx oil removal technology based media and cartridges

Parameters	MyCelx HRM Removal	MyCelx EB Cartridge	MyCelx High Temperature Cartridge	MyCelx PCB Cartridge	MyCelx Big Blue Cartridge	MyCelx PermaKleen Media	MyCelx Snippets Media	MyCelx Oil Spill Response Products	MyCelx Oil and Odor Removal air Filter	MyCelx Compressed air oily mist Filters
Color	Yellow	Green or orange	Colorless or light yellow	Colorless or light yellow	Yellow	Mixed	Yellow	Yellow	Yellow or orange	yellow
Type of media	Cartridge	Cartridge	Cartridge	Cartridge	Cartridge	Mesh media pillows	Mesh media pillows	Mats and Pads	Pleated	Cartridge
Std Dimensions	2.5"OD x 10"/30"/40" Ht	2.5"OD x 10"/30"/40" Ht	2.5"OD x 30"/40" Ht	2.5"OD x 30"/40" Ht	4.5"OD x 10"/20"Ht	Standard media filled bag filters/ mesh bags	11' x 12"; 20"x 24" mesh bags	Various sizes per individual product specifications	20"x 24"x 2"; 24"x24"x6"; 24"x24'x12"	2.5"/4.5"OD x 10"/20"/30"/40" Ht
Recommended Flow rate	5-15 gpm/40' ht cartridge	5-10 gpm/40' ht cartridge	5-10 gpm/40' ht cartridge	5-7 gpm/40' ht cartridge	1 -10gpm/20' ht cartridge	38 gpm/ sq ft SA	100-300 gpm/ sq ft SA	na	1000 cfm/ filter	100-300 cfm per filter
Operating Pressure drop	1 psi	1 psi	1 psi	1 psi	1 psi	10 psi	0.25 psi	na	0.1 inches of water	0.2 psi
Min Operating Pressure Required	1 psi	2 psi	2 psi	2 psi	1 psi	5 psi	1 psi	na	na	1 psi
Max Temperature Rating	170 F	170 F	210 F	170 F	170 F	150 F	170 F	170 F	200 F	170 F
Oil Removal Capacity per lb of media lb oil removed/lb media	4-10	4-10	4-10	4-10	4-10	4-10	5-10	3-10	4-10	4-10
Oil and Solids Handling capacity	Yes. But Partiicle prefiltration recommended	Yes. But Partiicle prefiltration recommended	Yes. But Particle prefiltration recommended	Yes.But Particle prefiltration recommended	Yes. But Particle prefiltration recommended	Yes. Particle Prefiltration not necessary	Yes. Particle Prefiltration not necessary	na	Yes.	Yes
Oil Removal Effectiveness – 99% removal to oil droplet sizes	0.3 microns	0.1 microns	0.1 microns	0.05 microns	0.3 microns	10 microns	15 microns	na	HEPA/ULPA Ranges	0.05 microns

Disclaimer: The flow rates and capacities are intended as guidelines and are not a warranty of performance. Performance may vary based on particular conditions of your waste steam.