KDF®-55

Purity meets Performance with KDF®

Use KDF® Process Media in your POU & POE systems to remove chlorine, hydrogen sulfide, heavy metals, and bacteria.

KDF®-55 is offered in granule form, with coarse, fine and extra-fine mesh sizes. It is non-toxic, 100% recyclable and contains no chemical additives.

Contact us today for additional information and technical assistance for your specific application.

Independent laboratory results and samples available.

Watertech an official distributor of KDF®, leads the industry in cost-effective, water filtration solutions that are safe, highly effective and adaptable for a variety of applications.

KDF® process media are proprietary high-purity copper-zinc granules designed for removing or reducing chlorine, hydrogen sulfide and soluble heavy metals, microorganisms and scale. When used in water, the KDF® process media undergoes a chemical redox (oxidation-reduction) reaction, effectively and safely filtering out harmful substances, improving water quality and overall filter performance.

KDF® process media improves water treatment performance by protecting, and in some cases, replacing, existing filtration and purification technologies. The performance and versatility of KDF® media make them an economical and user-friendly water treatment technology in both new systems and retrofit applications.
When used alone, KDF® media can remove more than 95% of chlorine, iron, heavy metals, hydrogen sulfide and other contaminants from water. When used in combination with granular activated carbon (GAC) or reverse osmosis (RO) and ion exchange systems, KDF® media can significantly enhance the performance and life of the filter, as well as safeguard expensive membranes, resins and system components.

KDF®-55 medium can remove over 99% of free chlorine, enhancing granular activated carbon systems to more effectively remove organic contaminants, extending the useful service life by up to 15 times, as well as reducing chlorine removal costs by over 50%. As GAC removes chlorine by surface chemistry, it actually fosters bacterial growth. KDF® is a true bacteriostatic whether the filter is active or inactive, and when used in combination, creates an environment deadly to many microorganisms. By reducing inorganic contaminants before they get to the carbon bed, KDF®-55 Process Medium protects GAC from bacterial fouling and bacterial buildup,
thus reserving the adsorption capacity of GAC for removing organic contaminants.

KDF® FLUID TREATMENT

watertech

KDF® process media product specifications for point-of-use (POU) applications

KDF-55 Process Medium Specifications

Applications: Chlorine and Heavy Metal Removal

Medium composition.....high purity copper/zinc alloy
Color.....golden
Physical form.....granular
Screen size (U.S. mesh) .....-10 + 100
Particle size range .....0.149 mm to 2.00 mm
Apparent density .....2.4-2.9 g/cc (2.74 g/cm³)
Turbidity .....<20 ntu
Skid.....48-1/3 cu. ft. drums (1,241 kg.)
Odor and tastes .....none

KDF 85 Process Medium Specifications

Applications: Iron and Hydrogen Sulfide

Medium composition.....high purity copper/zinc alloy
Color .....reddish brown
Physical form.....granular
Screen size (U.S. mesh) .....-10 + 100
Particle size range .....0.149 mm to 2.00 mm
Apparent density .....<20 ntu
Skid.....48-1/3 cu. ft. drums (1,241 kg.)
Odor and tastes .....none

Recommended Operating Conditions (use 3-cycle valve):

Service flow .....61 L/min/sq. m
Backwash for 10 min. @ .....122 L/min/sq. m
Purge/rinse for 3 min. @ .....maximum
Bed expansion, backwash .....10 to 15%
Free board 20%
Minimum bed depth (6" dia.) .....254 mm
pH range: drinking water .....6.5 to 8.5
Water temperature, influent .....1.7° to 100°C

Recommended Operating Conditions (use 3-cycle valve):

Service flow .....61 L/min/sq. m
Backwash for 10 min. @ .....122 L/min/sq. m
Purge/rinse for 3 min. @ .....maximum
Bed expansion, backwash .....10 to 15%
Free board 20%
Minimum bed depth (6" dia.) .....254 mm
pH range: drinking water .....6.5 to 8.5
Water temperature, influent .....1.7° to 100°C

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The data included herein are based on outside laboratory tests. We believe the data are reliable, but recommend that users test performance on their own equipment. When using KDF media, proper backwash procedures should be applied.

Maximum Service Flow *(lpm)*	Tank Size Diameter *(cm)*	Backwash Valve Required	Distributor	Minimum Backwash Rate *(lpm)*	Pipe Size Diameter *(cm)*	KDF® Process Media			
						Bed Depth *(cm)*	Weight *(kg)*	Volume *(m³)*	No. of Drums
11.36	15.24	3-cycle	Fine slotted	22.71	1.905	25.40	12.93	.0045	0.5
15.14	17.78			30.28	1.905	27.94	19.41	.007	0.75
20.82	20.32			37.85	1.905	30.48	25.85	.009	1.0
22.71	22.86			45.42	1.905	33.02	38.78	.014	1.5
30.28	25.40			60.57	1.905	35.56	51.71	.019	2.0
41.64	30.48			83.28	2.54	40.64	77.56	.03	3.0
56.78	35.56		Hub and lateral	113.56	2.54	45.72	129.27	.04	5.0
75.71	40.64			151.42	3.81	50.80	180.98	.06	7.0
94.64	45.72			189.27	4.445	55.88	284.40	.10	11.0
136.27	53.34	Diaphragm nest		272.55	5.08	60.96	387.82	.14	15.0
170.34	60.96			340.69	5.08	63.50	517.10	.18	20.0
272.55	76.20			545.10	6.35	63.50	801.50	.29	31.0
378.54	91.44			757.08	6.35	63.50	1163.46	.42	45.0
545.10	106.68			1090.20	7.62	63.50	1551.29	.57	60.0
711.66	121.92			1423.31	10.16	63.50	2016.67	.74	78.0
1226.47	160.02			2452.95	12.70	63.50	3490.39	1.27	135.0

KDF®-85

Purity meets Performance with KDF®

Use KDF® Process Media in your POU & POE systems to remove chlorine, hydrogen sulfide, heavy metals, and bacteria.

KDF®-85 is offered in granule form, with coarse, fine and extra-fine mesh sizes. It is non-toxic, 100% recyclable and contains no chemical additives.

Contact us today for additional information and technical assistance for your specific application.

Independent laboratory results and samples available.

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When used alone, KDF® media can remove more than 95% of chlorine, iron, heavy metals, hydrogen sulfide and other contaminants from water. When used in combination with granular activated carbon (GAC) or reverse osmosis (RO) and ion exchange systems, KDF® media can significantly enhance the performance and life of the filter, as well as safeguard expensive membranes, resins and system components.

KDF®-55 medium can remove over 99% of free chlorine, enhancing granular activated carbon systems to more effectively remove organic contaminants, extending the useful service life by up to 15 times, as well as reducing chlorine removal costs by over 50%. As GAC removes chlorine by surface chemistry, it actually fosters bacterial growth. KDF® is a true bacteriostatic whether the filter is active or inactive, and when used in combination, creates an environment deadly to many microorganisms. By reducing inorganic contaminants before they get to the carbon bed, KDF®-55 Process Medium protects GAC from bacterial fouling and bacterial buildup,
thus reserving the adsorption capacity of GAC for removing organic contaminants.

KDF®
FLUID TREATMENT

KDF® process media product specifications for point-of-use (POU) applications

KDF-55 Process Medium Specifications

Applications: Chlorine and Heavy Metal Removal

Medium composition.....high purity copper/zinc alloy
Color.....golden
Physical form.....granular
Screen size (U.S. mesh) .....-10 + 100
Particle size range .....0.149 mm to 2.00 mm
Apparent density .....2.4-2.9 g/cc (2.74 g/cm³)
Turbidity .....<20 ntu
Skid.....48-1/3 cu. ft. drums (1,241 kg.)
Odor and tastes .....none

KDF 85 Process Medium Specifications

Applications: Iron and Hydrogen Sulfide

Medium composition.....high purity copper/zinc alloy
Color .....reddish brown
Physical form.....granular
Screen size (U.S. mesh) .....-10 + 100
Particle size range .....0.149 mm to 2.00 mm
Apparent density .....<20 ntu
Skid.....48-1/3 cu. ft. drums (1,241 kg.)
Odor and tastes .....none

Recommended Operating Conditions (use 3-cycle valve):

Service flow .....61 L/min/sq. m
Backwash for 10 min. @ .....122 L/min/sq. m
Purge/rinse for 3 min. @ .....maximum
Bed expansion, backwash .....10 to 15%
Free board 20%
Minimum bed depth (6" dia.) .....254 mm
pH range: drinking water .....6.5 to 8.5
Water temperature, influent .....1.7° to 100°C

Recommended Operating Conditions (use 3-cycle valve):

Service flow .....61 L/min/sq. m
Backwash for 10 min. @ .....122 L/min/sq. m
Purge/rinse for 3 min. @ .....maximum
Bed expansion, backwash .....10 to 15%
Free board 20%
Minimum bed depth (6" dia.) .....254 mm
pH range: drinking water .....6.5 to 8.5
Water temperature, influent .....1.7° to 100°C

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Maximum Service Flow *(lpm)*	Tank Size Diameter *(cm)*	Backwash Valve Required	Distributor	Minimum Backwash Rate *(lpm)*	Pipe Size Diameter *(cm)*	KDF® Process Media			
						Bed Depth *(cm)*	Weight *(kg)*	Volume *(m³)*	No. of Drums
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41.64	30.48			83.28	2.54	40.64	77.56	.03	3.0
56.78	35.56		Hub and lateral	113.56	2.54	45.72	129.27	.04	5.0
75.71	40.64			151.42	3.81	50.80	180.98	.06	7.0
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1226.47	160.02			2452.95	12.70	63.50	3490.39	1.27	135.0

Technical Bulletin

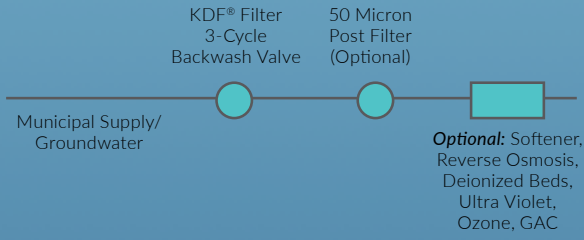
KDF® 55 and 85 Process Media in Point-of-Entry Water Treatment Systems: Chlorine, Iron and Hydrogen Sulfide Reduction

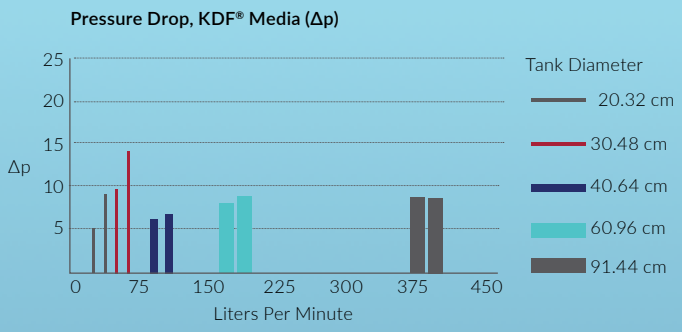
What is KDF® Process Media?

KDF® (Kinetic Degradation Fluxion) process media consists of a patented high-purity copper-zinc alloy that creates a redox (reduction-oxidation) reaction. The redox process involves the transfer of electrons between substances facilitating reactions to remove contaminates from water.
Engineered for efficiency and versatility, KDF® 55 is highly effective in removing chlorine in point-of-entry (POE) treatment for municipal water supplies, while KDF® 85 excels at eliminating iron (ferrous) and hydrogen sulfide (H_2S) in POE treatment of groundwater.

These environmentally responsible medias go beyond contaminant removal by extending the lifespan and enhancing the performance of existing filtration systems.
KDF® 55 and 85 media also control microorganisms and scale without the use of chemicals, offering a sustainable
and cost-effective solution for potable water treatment. Their compact design allows for smaller tank sizes, streamlining system engineering and installation.

This technical bulletin provides guidance on the optimal use of KDF® media across residential, commercial, institutional, and light industrial applications, supporting service flows from 11.4 - 1226.5 liters per minute with maximum chlorine, iron, and Hydrogen Sulfide concentrations of 5 ppm.





Medium Requirements and System Sizing
Accurate sizing is essential for optimal pressure and filter performance, with the flow rate, relative to the surface area of the KDF® Media, being the key factor. Improper sizing is the most common cause of filter system issues.

For most filter media, the service flow rate must not exceed 203.7 liters per minute (lpm) per square meter of surface area, with a minimum filter bed depth of 76.2 cm.

KDF® Process Media, however, offers a distinct advantage with a service flow rate of 611.2 lpm per square meter of surface area (or .061 lpm per square centemeter)—three times the effective flow rate of conventional filter media.
This exceptional performance allows for more efficient and compact system designs.

KDF® Media POE Recommended Operating Conditions
(use 3-cycle valve)

Service flow :	611.2 lpm/ m2
Backwash for 10 min. @	1222.4 lpm / m2
Purge/rinse for 3 min.	maximum
Bed expansion, backwash :	10 to 15%
Free board :	20%
Minimum bed depth (15.2 cm dia.) :	25.4 cm
pH range: drinking water :	6.5 to 8.5
Water temperature, influent :	1.7°C to 100°C

(Always maintain wetness)

Backwashing Instructions for KDF® Media in POE Systems

Electrochemical Reduction Byproduct Management
Byproducts: Surface products formed during the process, along with calcium and magnesium precipitates, must be periodically backwashed.

Valve and Distributor Selection
Backwash Rates (11.4 - 94.6 lpm):
- Use a high-quality 3-cycle backwash valve (service, backwash, purge).
- Opt for a high-flow backwash mode for optimal performance.

Backwash Rates (136.3 - 1226.3 lpm):
- Use a diaphragm nest valve for efficient operation.

Distributor Selection:
- 11.4 - 41.6 lpm: Fine slotted distributor recommended.
- 56.8 - 1226.3 lpm: Use a hub and lateral distributor (#8 garnet underbedding suggested).

Cycle Timing
Backwash for 10 minutes.
Purge for 3 minutes.

Frequency
Backwash at least three times per week. Adjust frequency based on water supply quality.
- For additional cleaning, repeat the entire cycle as needed.

Flow Rate Considerations
Backwash Flow Rates:
- KDF® media require 1222.37 lpm per square meter of bed surface area.

Flow rates vary with water temperature:
- Cold water: Lower flow rates may be sufficient.
- Warm water: Higher flow rates are required.

Density:
- KDF® media have a high density of 2739.2 kg/cu m, requiring backwash flow rates approximately twice the service flow.

General Guidelines
Remove any backwash flow restrictors to ensure optimal flow.
Do not restrict pipe size leading to the drain, as unrestricted flow is critical for effective backwashing.

Note: *If backwashing procedures are not properly followed, KDF® Process Media may become fouled. For proper cleaning techniques, contact KDF®'s Technical Department.*

Engineering Guidelines for KDF® Media

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Maximum Service Flow *(lpm)*	Tank Size Diameter *(cm)*	Backwash Valve Required	Distributor	Minimum Backwash Rate *(lpm)*	Pipe Size Diameter *(cm)*	KDF® Process Media			
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