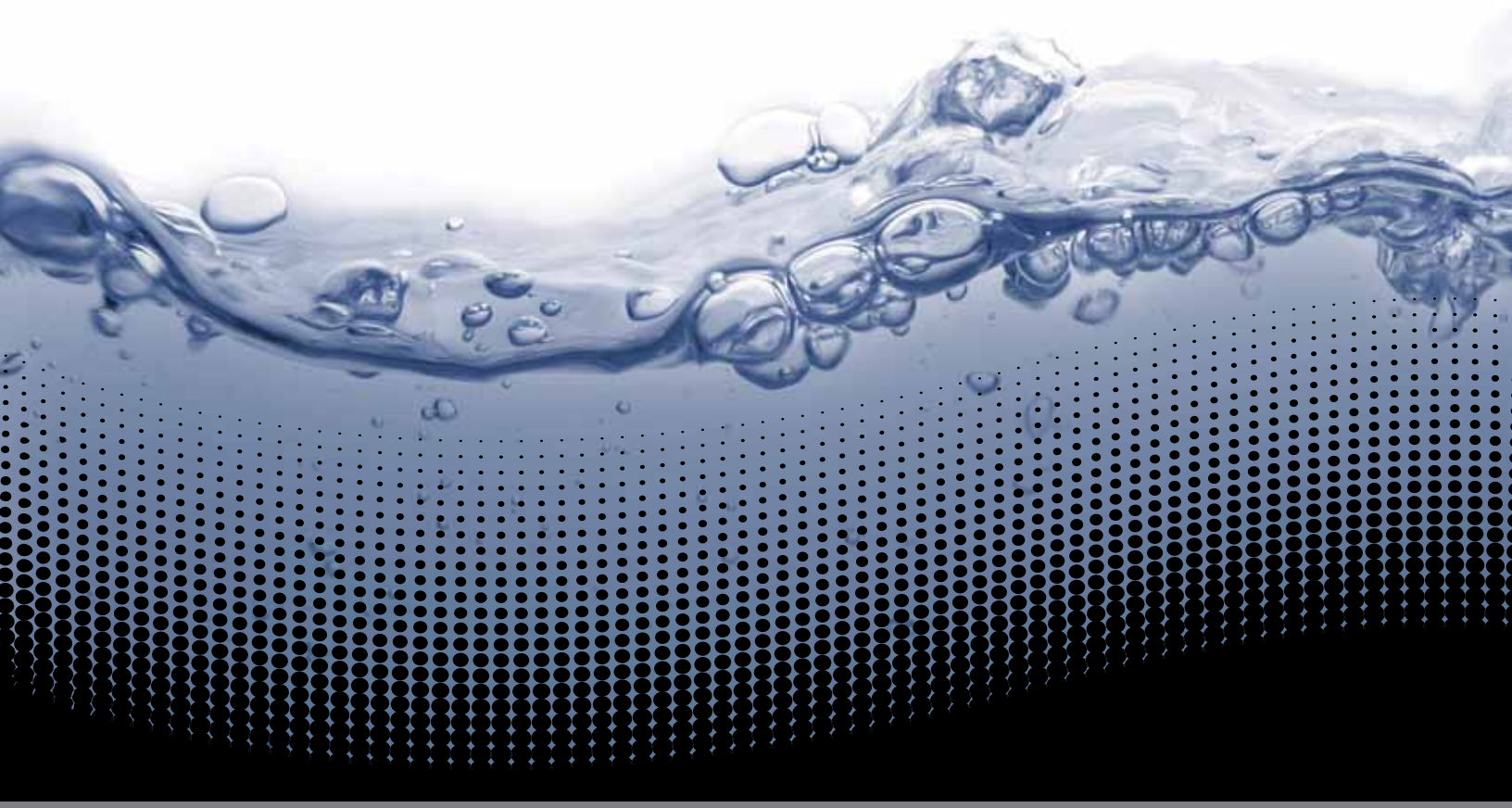
FAIRMOUNT
Water Solutions



ENGINEERED MEDIA FOR MUNICIPAL AND INDUSTRIAL APPLICATIONS

A Higher Level of Filtration Performance

PER

Fairmount Water Solutions Is Raising the Bar on Filtration Media Performance

Fairmount Water Solutions is an organization supplying the media and expertise to help you optimize performance in gravity and pressure water filtration systems. Established in 2010 as the newest subsidiary of Fairmount Minerals Ltd, we focus on engineered media and supporting technology that can help you achieve surprising efficiency and economics in filtration systems for surface water, ground water, and municipal and industrial waste water. Fairmount is perhaps best known as a high quality supplier of filtration sand and gravel. These products have been sold through our Best Sand Corporation and Wedron Silica Company subsidiaries. They have served the water treatment industry for decades. With a strategic focus to expand our presence in the water filtration industry, Fairmount is pleased to introduce Macrolite™ Engineered Ceramic Media, an ultra-performance material with remarkable surface area and particle consistency that dramatically enhances filtering efficiency. This engineered ceramic media is a complementary media to our sand and gravel. Together they form the cornerstone of our newest subsidiary.

These products are supported by industry-leading technical expertise and services that help you optimize operating performance and economics. We can draw on more than 60 years of Fairmount experience in the development of special skills, new technologies, and application knowledge.

FORMANCE

Three Media Product Lines
Our portfolio includes three product lines that give water treatment professionals a full range of media choices, meeting every performance need from the everyday to the exceptional. These include:

- ***Macrolite™ Engineered Ceramic Media:*** Ultra-performance material with remarkable surface area and particle consistency for demanding and small-footprint applications; four media sizes filtering down to 3 microns.

- ***Best Sand filtration sand and gravel:*** Six premium sub-round grain silica sand grades, four gravel grades for municipal and industrial water filtration.

- ***Wedron Silica filtration sand:*** Six round grain silica sand grades for municipal and industrial water filtration.

Filtration Solutions for Municipal and Industrial Applications
Fairmount Water Solutions supplies filtration media for surface water, ground water, ground water under the influence, and municipal and industrial waste water. We can help you maximize performance in:

- Gravity and pressure systems
- Filter upgrade and retrofits
- Iron and manganese removal
- Arsenic removal
- Pre-filtration for membrane systems
- Cost-effective alternative to membrane systems

Step Up to the Ultimate in Filter Media Performance: Macrolite™ Engineered Ceramic Media

For filtration applications that demand high flow rates and increased effluent quality, Macrolite™ Engineered Ceramic Media delivers more performance on a smaller equipment footprint. Available in common filtration sizes, Macrolite media spheres optimize filtration performance with two key features: remarkably uniform physical properties and greater surface area allowing filtration to 3 microns. Macrolite is tough and durable. It's a chemically inert medium that provides excellent resistance to acids, caustics, oxidants, and ferric salts.

Particle Uniformity Boosts Flow, Reduces System Footprint

Compared to aggregates, Macrolite filtration spheres are engineered with extraordinarily uniform composition, shape, size, sphericity, and density. This typically allows you to boost flow rates to 10 gpm/ft^2 (25 m/hr) and can allow surprising improvements in filtration performance and operating efficiency. Compared to traditional filtration media, Macrolite's improved effluent quality along with its enhanced ability to dampen influent changes produce a higher quality effluent, time after time.

Macrolite operates at significantly higher flux compared to traditional media. In new bed installations versus conventional media, Macrolite allows you to minimize bed size, reduce the equipment footprint and lower your capital costs. Backwash energy requirements are lower, too. And because of Macrolite's structure and surface properties, it requires less chemistry. These features lower a plant's operating costs.

Enhanced Surface Area Traps More Solids Down to 3 Microns

Macrolite maximizes total filtering surface area for a given bed size. Macrolite spheres also have a surface composition that promotes colloidal attachment. The remarkable uniformity of Macrolite spheres plays an important role, by enhancing transport mechanisms within the filter bed to increase the probability of colloid-to-granule contact. Together, these effects can allow a bed of Macrolite media to filter down to the 3 micron level, compared to 10 microns for a conventional aggregate bed.

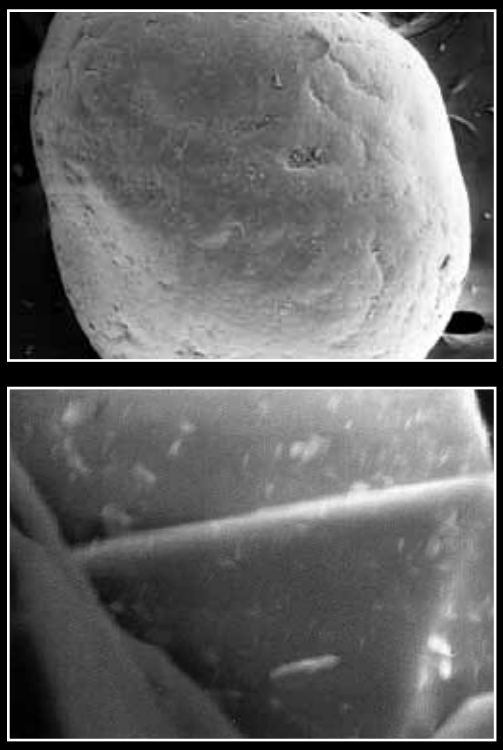
Macrolite also forms a critical barrier to cyst contaminants like *Giardia* and *Cryptosporidium*. It can remove significantly more cyst-based contaminants than other conventional aggregate media.

MACRO

Specifications for Macrolite™ Engineered Ceramic Media

Product	Nominal Micron Rating	Effective Size (mm)	Mesh Size Range	Target Specific Gravity	Uniformity Coefficient
M1	< 3	0.15 - 0.25	70 to 80	2.6 ± 0.2	< 1.3
M2	< 5	0.25 - 0.35	40 to 60	2.6 ± 0.2	< 1.4
M4	< 20	0.50 - 0.60	20 to 50	2.6 ± 0.2	< 1.4
M6	< 30	1.00 - 1.30	14 to 30	1.6 ± 0.2	< 1.4

SAND



MACROLITE™

Macrolite particles are remarkably uniform and have greatly enhanced surface features that significantly enhance filtration contact area

LITE™

MACRO

Waste Water
- Improved flow rates
- Reduced headloss
- Higher UFRVs
- Enhanced phosphorus and TSS removal

Applications:
- Tertiary filtration
- Denitrification
- Ultra-low phosphorus

Drinking Water
- Improved flow rates
- Reduced headloss
- Enhanced particle removal

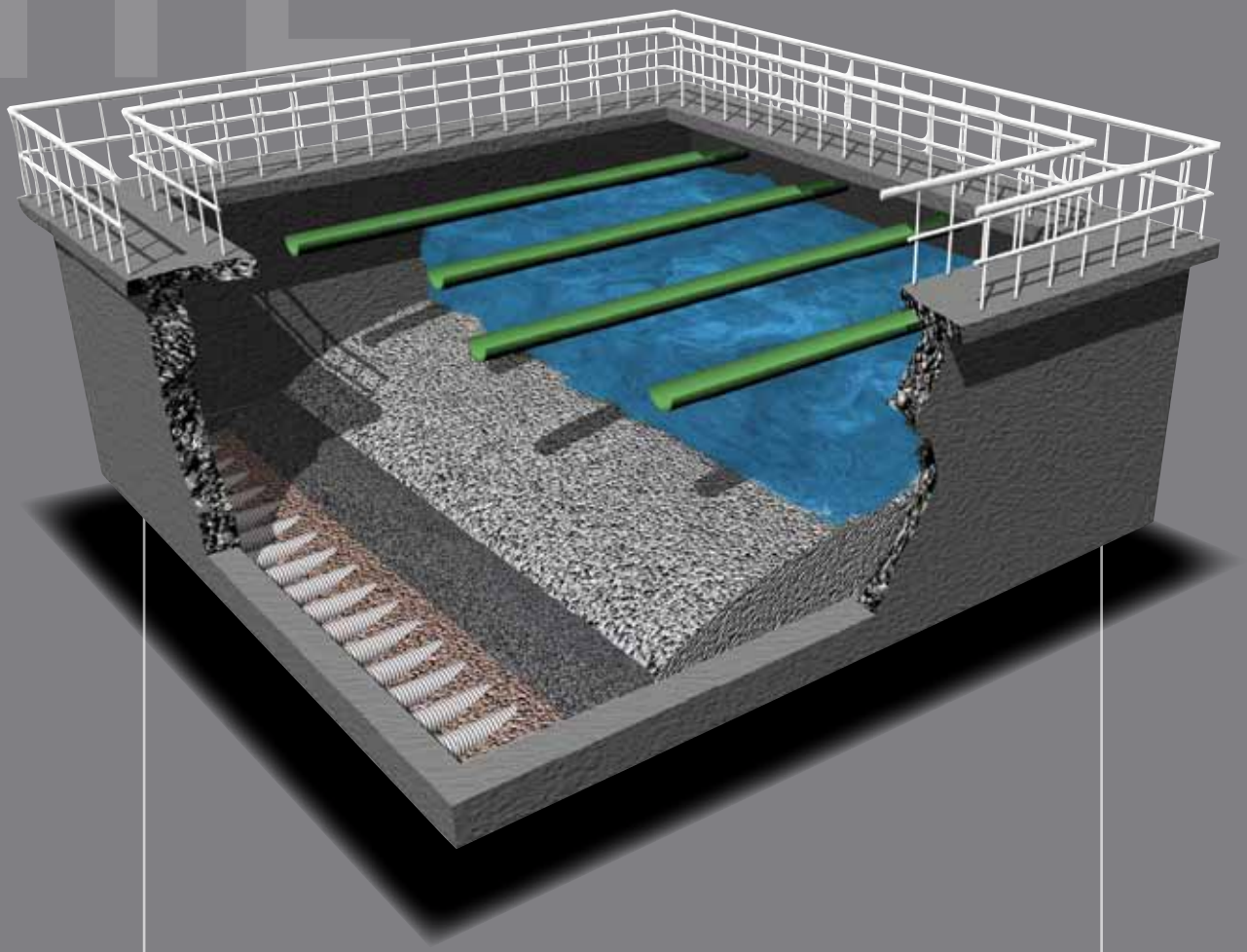
Applications:
- Gravity filtration
- Arsenic
- Iron and manganese
- Direct filtration
- Biologically active filtration
- Membrane pre-treatment

Site	Oxidant	Fe In (mg/l)	Fe Out (mg/l)	Mn In (mg/l)	Mn Out (mg/l)	Color In	Color Out
A	Chlorine	0.11	0.00	0.08	0.03	4	2
B	Chlorine	3.40	0.03	n/a	n/a	82	7
C	Mixed	0.07	0.02	1.38	0.00	7	0
D	Mixed	0.51	0.02	0.46	0.01	20	2
E	Ozone	0.03	0.00	0.50	0.00	227	1

Note: The secondary (aesthetic) maximum contaminant levels for iron and manganese are 0.3 mg/l and 0.05 mg/l, respectively. Iron and manganese in excess of the suggested maximum contaminant levels (MCL) usually results in discolored water, laundry, and plumbing fixtures.

When the Sugarloaf Water Association needed to increase potable water capacity to serve the growing Sugarloaf USA ski resort community, Macrolite Engineered Ceramic Media helped them double capacity while keeping the mountainside facility small and unobtrusive.

LITE™



Filter Upgrades and Retrofits

In cases where finer particulate filtration and/or greater capacity are required, Macrolite Engineered Ceramic Media is an excellent replacement media. Macrolite has superior filtration efficiency and can handle 6 to 10 gpm/ft^2 flux. Even with weather-induced influent disturbances, Macrolite can consistently maintain turbidity readings under 0.1 NTU.

Retrofitting your gravity system is often easy. Macrolite can be used with many of the current underdrains and porous plates used today. In many cases, the backwash rate can be lowered, reducing plumbing and energy requirements. And since Macrolite media does not abrade like anthracite, it can continue to perform for more than 20 years with virtually no losses.

Taking Conventional Sand and Gravel Filtration to the Next Level

Sand and gravel filtration continues to make good sense: Its cost-to-benefit ratio is very high, and effluent water quality is often very good. Sand and gravel systems can filter to a 10 micron level, yet they are simple in design and operation.

Fairmount Water Solutions helps you get the highest efficiency and operating economics from sand filtration with products, certifications, and technical support that make a difference. We have been providing water filtration sand and gravel for decades through our subsidiaries Best Sand Corporation and Wedron Silica Company. Municipalities and Companies across North America have counted on Fairmount sand and gravel to filter their water affordably and effectively.

Consistent, High-Purity Media

Our filtration sand and gravel is among the highest purity and quality available. All Best Sand and Wedron Silica media are washed, dried and sized using PLC controls for consistency. Our delivered product is 99%-plus pure $Si0_2$. This assures you of the durability and performance you've come to expect.

Washed and Dried Silica Sand Properties

EFFECTIVE SIZE/UNIFORMITY COEFFICIENT

Best Sand Corp.		**Wedron Silica Co.**	
Effective Size	Standard uc	Effective Size	Standard uc
.40 - .50 mm	uc < 1.5	.15 - .25 mm	uc < 1.7
.45 - .55 mm	uc < 1.4	.25 - .35 mm	uc < 1.5
.55 - .65 mm	uc < 1.5	.35 - .45 mm	uc < 1.5
.60 - .80 mm	uc < 1.7	.45 - .55 mm	uc < 1.6
.80 - 1.20 mm	uc < 1.7	.50 - .60 mm	uc < 1.5
1.55 - 1.65 mm	uc < 1.6	.55 - .65 mm	uc < 1.5
1.80 - 2.20 mm	uc < 1.35		
2.00 - 3.00 mm	uc < 1.4		
Silicon Dioxide (SiO_2): 99.56%		Silicon Dioxide (SiO_2): 99.88%	

SAND &

Best Sand Filter Gravel Grades

- 1/8 x #12
- 3/16 x #10
- 1/4 x 1/8
- 3/8 x 3/16
- 1/2 x 1/4
- 3/4 x 1/2
- 1 x 5/8
- 1-1/2 x 3/4

Custom sizes available upon request

GRAVEL

Filtration Media Evaluations and Certifications

Our sand, gravel, and engineered ceramic media have been evaluated, and where required, have been certified. Third-party evaluations have been completed by:

American Water Works Association Research Foundation (AWWARF)

- Studies: #2730-Adsorptive Media, #2761-POU for Compliance, #2661-Macrolite Coagulation Filtration
- Adhere to AWWA B100 recommendations

National Sanitation Foundation

- NSF Standard 61 Certification
- NSF Environmental Technology Verification (NSF ETV)
- Macrolite Coagulation Filtration, Adsorptive Media, Arsenic Removal

Ontario Ministry of the Environment

- New Environmental Technology Evaluation Program
- Macrolite Filtration Process: Approvable chemically assisted filtration process

On-Site Piloting for Sand, Gravel and Macrolite™ Systems
For customers who are considering our media technologies, we offer sophisticated on-site modeling capability that can quantify your desired water quality and operating economics. Our packaged pilot system easily integrates with your plant and allows real-time studies of key parameters such as turbidity reduction, pressure differential, backwash efficiency, and effluent quality. Our technical staff provides pilot study design and delivers a comprehensive report that shows how your investment can pay off.

LOTING

Fairmount Water Solutions is your source for filtration media and technology solutions, from the highest quality sand and gravel to high-performance, engineered ceramic media.

Fairmount Water Solutions is a subsidiary of Fairmount Minerals Ltd. headquartered in Chardon, Ohio. Fairmount Minerals is North America's largest producer of industrial quartz sand and coated quartz products. Our mission is to deliver superior products and services, while working to ensure the preservation of the environment and the responsible use of our natural resources.

Fairmount Minerals places great emphasis on its social responsibilities, and strives to always exceed our Sustainable Development practices and expectations. We work to ensure that our actions positively meet our social responsibility, environmental stewardship, and economic prosperity goals for stakeholders and for the world community.

Fairmount Minerals Ltd. supports and adheres to the UN Global Compact principles — making us accountable to ourselves, and more importantly, to the rest of the planet.

DoGood.dowell.

FAIRMOUNT
Water Solutions

Water Innovations Authorized Dealer | Find out more about Fairmont Water Solutions at www.waterinnovations.net | Email sales@waterinnovations.net | Call 1-760-294-1888

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