FILTRATION MEDIA

BIRM® FILTRATION MEDIA

Birm (P/N LC10001) is an efficient and economical method of removing dissolved iron and manganese compounds from raw water supplies. It may be used in either gravity fed or pressurized water treatment systems. Birm acts as an insoluble catalyst to enhance the reaction between dissolved oxygen and the iron compounds. In ground waters, the dissolved iron is usually in the ferrous bicarbonate state—due to the excess of free carbon dioxide—and is not filterable. Birm, acting as a catalyst between the oxygen and the soluble iron compounds, enhances the oxidation rate of Fe++ to Fe+++ and produces ferric hydroxide which precipitates and may be easily filtered.

The physical characteristics of Birm provide an excellent filter media which is easily cleaned by backwashing to remove the precipitant. Birm is not consumed in the iron removal operation and therefore offers a tremendous economic advantage over many other iron removal methods.

FEATURES

- No chemicals needed for maintenance when used under proper conditions. Regeneration is not required.
- Iron removal efficiency is extremely high.
- Negligible labor cost: only periodic backwashing is required.
- Durable material with a long life and a wide temperature range.
- Certified to NSF/ANSI/CAN 61.

Physical Properties

Color	Black
Bulk Density	36 to 38 lb per cu.ft.
Mesh Size	12 x 50
Specific Gravity	2.0 gm/cc
Effective Size	0.48 mm
Uniform Coefficient	2.7

Influent and Backwash Limitations

Free Chlorine Concentration	0.5 ppm maximum
Hydrogen Sulfide	Remove prior to contact with Birm
Oil	None present
Polyphosphates	None present
Organic Matter	Less than 5 ppm TOC

Suggested Operating Conditions

Service Flow Rate	3.5 to 5 gpm per sq.ft.
Temperature Range	35°F to 100°F (38°C)
Alkalinity	Greater than two times the combined sulfate and chloride concentration
pH	6.8 to 9.0
Dissolved Oxygen	Equal to at least 15% of the iron and 29% of the manganese content
Bed Depth	30 to 36 inches
Maximum Pressure Drop (Δp increase from clean bed)	2 to 4 psi (14 to 28 kPa)
Backwash Bed Expansion	20 to 40% of bed depth minimum
Backwash Rate	10 to 12 gpm per sq.ft. (See graph on next page)
Freeboard	50% of bed depth minimum
Rinse Rate	At service flow rate

Packaging

Woven polypropylene bag. Each bag contains 1 cu.ft. (36 to 38 lb net weight).(35 to 40 lb net weight).

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MEMBER Water Quality ASSOCIATION

FORM 1180
EFFECTIVE
JANUARY 2010

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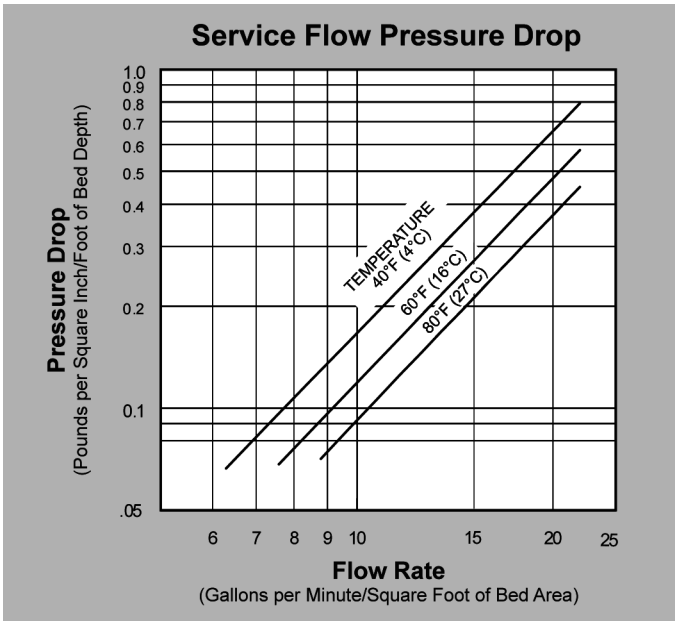

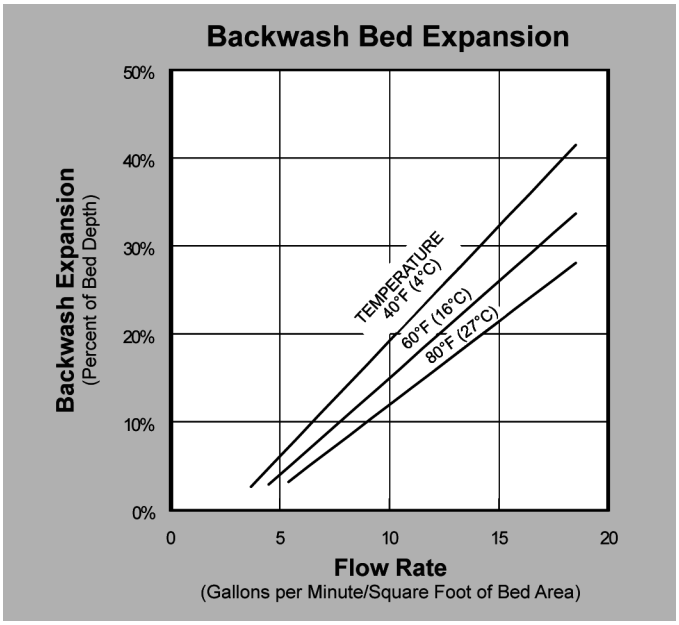

PRESSURE DROP — The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate at various temperatures.

BACKWASH — After each cycle the media bed should be backwashed at a rate that expands the bed 20 to 40 percent.

NOTES ON USING BIRM

When using Birm for iron removal, it is necessary that the water: contain no oil or hydrogen sulfide, organic matter not to exceed 4 to 5 ppm, the dissolved oxygen content equal at least 15% of the iron content with a pH of 6.8 or more. If the influent water has a pH of less than 6.8, neutralizing additives such as SWT Neutralizing Medias (P/N PH10001 or P/N PH10003) or soda ash may be used prior to the Birm filter to raise the pH. A water having a low dissolved oxygen level may be pretreated by aeration.

Untreated water should periodically be monitored for raw water parameters. Treated water should be monitored for manganese and, if present, iron before and after backwash to confirm proper system performance. Elevated treated water manganese may indicate media destruction or that bed capacity has been exceeded. Take corrective action as necessary. If chlorine and hydrogen sulfide are not present, low pH or lack of oxygen are the most likely conditions leading to media destruction.

Additions of chemicals to influent or backwash water which contacts Birm media may inhibit iron or manganese removal or may break down or coat Birm media. Chlorination greatly reduces Birm's activity. High concentrations of chlorine compounds may deplete the catalytic coating. Polyphosphates are known to coat Birm and reduce Birm's ability to remove iron or manganese. Before adding any chemical to the influent or backwash water, the chemical's compatibility with Birm should be thoroughly tested.

Birm may also be used for manganese reduction with the same dependability as iron removal. In these applications the water to be treated should have a pH of 8.0 to 9.0 for best results. If the water also contains iron, the pH should be below 8.5. High pH conditions may cause the formulation of colloidal iron which is very difficult to filter out. All other conditions remain the same for either manganese or iron removal.

NOTE: NOT FOR INSTALLATION IN CALIFORNIA.

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