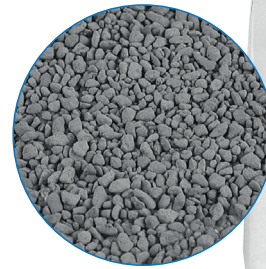




BIRM®

Clack Birm® is a granular filter media commonly used for the reduction of iron and/or manganese from water supplies.



ADVANTAGES

- No chemicals to purchase for maintenance, regenerant not required.
- Iron removal efficiency is extremely high.
- Negligible labor cost.
- Durable material with a long life and wide temperature range.
- Certified to NSF/ANSI/CAN Standard 61.

Birm® is an efficient and economical media for the reduction of dissolved iron and manganese compounds from raw water supplies. It may be used in either gravity fed or pressurized water treatment systems. Birm is not consumed in the iron removal operation and therefore offers a tremendous economic advantage over many other iron removal methods.

Other advantages of Birm include: long material life with relatively low attrition loss, a wide temperature performance range and extremely high removal efficiency. Negligible labor costs are involved because Birm does not require chemicals for regeneration, only periodic backwashing is required.

When using Birm for iron removal, it is necessary that the water: contains no oil or hydrogen sulfide, organic matter not to exceed 4–5 ppm, the dissolved oxygen (D.O.) 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 Clack Corosex®, Calcite or soda ash may be used prior to the Birm filter to raise the pH. A water having a low D.O. level may be pretreated by aeration.

Untreated water should periodically be monitored for raw water parameters. Treated water should periodically be monitored for manganese and if present iron shortly before regeneration and immediately after regeneration to monitor how the filter system is functioning. Elevated treated water manganese concentrations before regeneration may mean that the filter media is being destroyed or bed reduction capacity has been exceeded. Take corrective actions 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.

Clack 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 8.0–9.0 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.

PHYSICAL PROPERTIES

Color	Black
Bulk Density, g/cc	0.58–0.61
Size, mm mesh	0.51–2.12 12 × 50
Specific Gravity, g/cc	2.0
Effective Size, mm	0.48
Uniformity Coefficient	2.7

INFLUENT AND BACKWASH LIMITATIONS

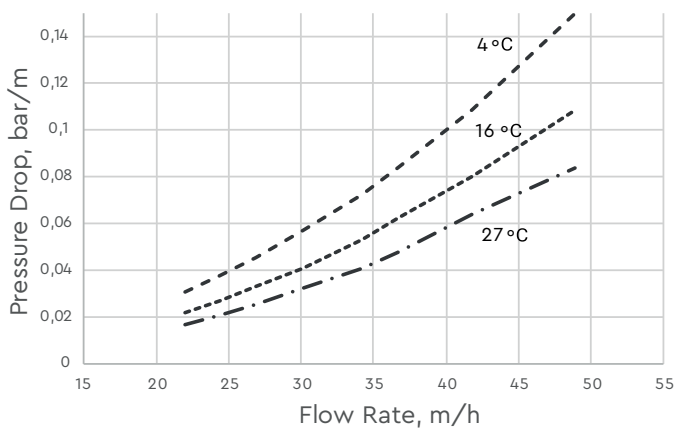
Free chlorine, ppm (max.)	0.5
Hydrogen Sulfide should be removed prior to contact with Birm media	
Organic Matter, ppm TOC (max.)	5
Oil, Polyphosphates	None Present

CONDITIONS FOR OPERATION

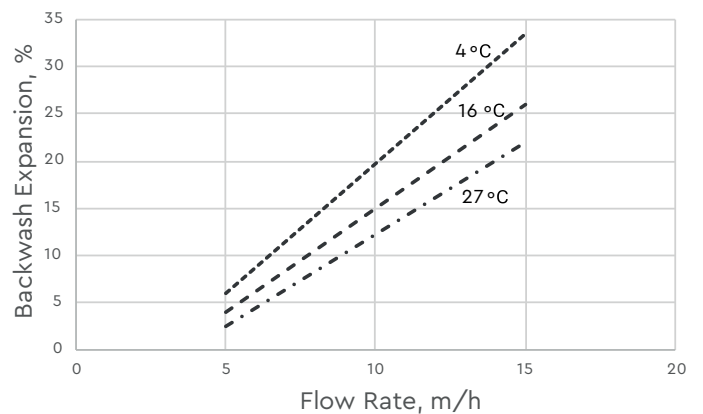
Temperature Range, °C	2–38
Water pH range	6.8–9.0
Maximum Pressure Drop, bar (Δp increase from clean bed)	0.14–0.28
Bed depth, m	0.76–0.9
Freeboard, % of bed depth (min.)	50
Backwash rate, m/h	24–29
Rinse Rate, m/h	At service flow rate
Backwash Bed Expansion, % of bed depth (min.)	20–40
Service flow rate, m/h	8.5–12

Alkalinity should be greater than two times the combined sulfate and chloride concentration.
Dissolved Oxygen (D.O.) content must be equal to at least 15% of the iron and 29% of the manganese content.

Service Flow Pressure Drop



Backwash Bed Expansion



Code	Description	Bag Volume, l	Bag Weight, kg
A8006	Birm® filter media	28.3	≈16.8

The information and recommendations in this publication are based on data we believe to be reliable. They are offered in good faith, but do not imply any warranty or performance guarantee, as conditions and methods of use of our products are beyond our control. The filter medias listed in this brochure do not remove or kill bacteria. Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.