

BIRM

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



ADVANTAGES

- Under the proper conditions, no chemicals to purchase for maintenance. Regeneration not required.
- Iron removal efficiency is extremely high.
- Negligible labor cost: only periodic backwashing required.
- Durable material with a long life and wide temperature range.
- Weighs only 0,56 - 0,64 kg/l

PHYSICAL PROPERTIES

- Color: Black
- Bulk Density: 0,56 - 0,64 kg/l
- Mesh Size: 10 x 40
- Specific Gravity: 2000 kg/m²
- Effective Size: 0.48 mm
- Uniformity Coefficient: 2.7

INFLUENT AND BACKWASH LIMITATIONS

- Free chlorine concentration less than 0.5 ppm
- Hydrogen Sulfide should be removed prior to contact with Birm media
- Oil: None Present
- Polyphosphates: None present

CONDITIONS FOR OPERATION

- Alkalinity should be greater than two times the combined sulfate and chloride concentration.
- Maximum water temp: 100oF/38oC
- Water pH range: 6.8-9.0
- Dissolved Oxygen (D.O.) content must be equal to at least 15% of the iron (or iron and manganese) content.
- Bed depth: 762 - 914 mm.
- Freeboard: 50% of bed depth (min.)
- Backwash rate: 24,4 - 29,3 m/h
- Backwash Bed Expansion: 20-40% of bed depth (min.)
- Service flow rate: 8,56 - 12,2 m/h intermittent flow rates and/or favorable local conditions may allow higher flow rates



BIRM

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 acts as an insoluble catalyst to enhance the reaction between dissolved oxygen (D.O.) 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 reaction 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.

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: contain no oil or hydrogen sulfide, organic matter not to exceed 4-5 ppm, the 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 a regeneration and immediately after a 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 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.

We recommend you to use birm with an Evolve Air Filter System

Reference	0906015190
Search name	A8006
Item name	Birm 1 CFT Bags
Packaging	1 CuFt
Service flow	12 m/hr
Backwash Rate	24 m/hr
Freeboard	30%
pH Range	6,8 - 9
Density	1,2 kg / liter

General Technical Data

Alkalinity greater than twice the combined sulphate and chloride
 Dissolved oxygen: at least 15% of the iron and manganese content
 Less than 0,5% chlorine, no H₂S, oil or polyphosphates