

CalMedia™ GSR PLUS

For Reducing Iron, Manganese, and Hydrogen Sulfide From Water Supplies



Description

CalMedia™ GSR Plus is a granular manganese dioxide filtering media used for reducing iron, manganese, and hydrogen sulfide from water. Its active surface coating oxidizes and precipitates soluble iron and manganese. Hydrogen sulfide is oxidized to sulfur. The precipitates are filtered out in the granular bed and removed by backwashing.

CalMedia™ GSR Plus consists of a light weight granular core with a coating of manganese dioxide. The coating provides an example of contact filtration where the media itself provides the oxidizing potential. This allows for a much broader range of operation than many other iron removal medias. Water with a pH level as low as 6.2 can be treated. Dissolved oxygen is not essential. The media's light weight reduces backwash water requirements.

When the oxidizing power of CalMedia™ GSR Plus is reduced, the bed has to be regenerated with a weak solution of potassium permanganate (KMnO₄), thus restoring its oxidizing capacity.

A regenerating solution of 1½ to 2 ounces (dry weight) of potassium permanganate per cubic foot is sufficient for normal regeneration. Upon start-up, a new bed should be backwashed and caution taken to insure that the lightweight media is not backwashed to drain. A new bed should be regenerated the evening of installation. Operating the filter after its oxidizing capacity is exhausted will reduce its service life and may cause staining.

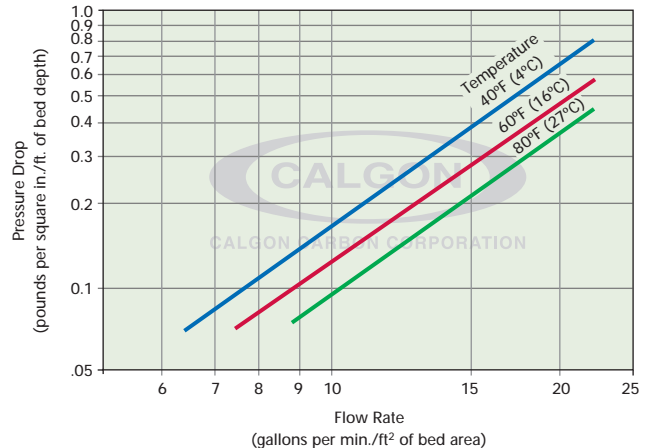
CalMedia™ GSR Plus requires either intermittent or continuous regeneration to maintain its oxidizing capacity. For continuous regeneration, a solution of potassium permanganate (or chlorine then potassium permanganate) can be pre-fed to maintain capacity. The manganese dioxide coating acts as a contact oxidizer to enhance the oxidation reaction and as a buffer to reduce any excess potassium permanganate concentration and prevent it from entering the service lines.

The addition of other chemicals to influent or backwash water which contacts CalMedia™ GSR Plus may inhibit iron, manganese, or hydrogen sulfide removal, or may break down or coat CalMedia™ GSR Plus. Before adding any chemical to the influent or backwash water (other than chlorine or potassium permanganate) the chemical's compatibility with CalMedia™ GSR Plus should be thoroughly tested.

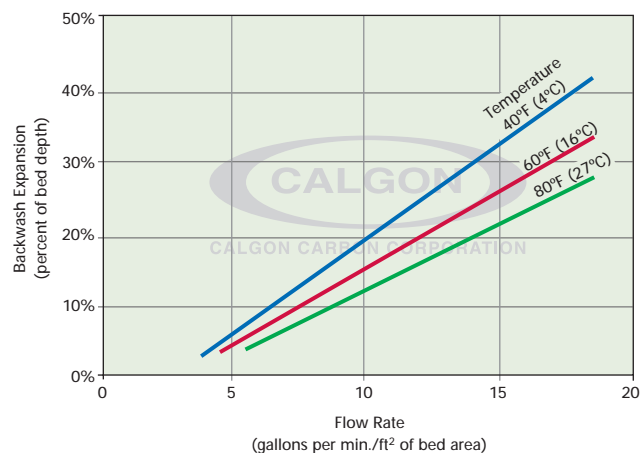
Advantages

- Broad operating range for iron reduction
- Lower pressure loss through the bed with high flock holding capacity
- Effective hydrogen sulfide, iron, and manganese reduction
- Light weight requires lower backwash rates and reduces pumping requirements
- Chlorine can be beneficial in extending filter run times
- Low attrition loss for long bed life
- Lower shipping cost

Service Flow Pressure Drop



Backwash Bed Expansion



Physical Properties

Color	Dark brown
Bulk Density	45 lbs./ft ³
Specific Gravity	2.0 gm/cc
Effective Size	0.43 mm
Uniformity Coefficient	2.0
Mesh Size	14x40

CalMedia™ GSR PLUS

For Reducing Iron, Manganese, and Hydrogen Sulfide From Water Supplies



Conditions for Operation	U.S. Units
Water pH range	6.2–8.5
Water Temp	100°F/38°C (max)
Bed Depth	24–36 in.
Freeboard	50% of bed depth (min)
Service Flow Rate	3–5 gpm/ft ² , 8–10 gpm/ft ² intermittent flow possible
Backwash Flow Rate	8–10 gpm/ft ²
Backwash Expansion Rate	20–40% of bed depth (min)
Regenerant dosage	1½–2 oz. of KMnO ₄ by weight/ft ³

Influent and Backwash Limitations

- Oil: None present
- Polyphosphates: None present

Capacity Per cu. ft.	No. Grains	ppm
Iron (Fe ⁺²) alone	600	(10,000 ppm)
Manganese (Mn ⁺²) alone	300	(5,000 ppm)
Hydrogen Sulfide (H ₂ S) alone	175	(3,000 ppm)

Order Information

Description	ft ³ /bag	wt./ft ³ *	bags/pallet	wt./pallet	Pallet Dimensions
CalMedia™ GSR Plus	1	45 lbs.	40	1,850 lbs.	40" x 48" x 42"

*Weight per cubic foot is approximate.



CALGON CARBON CORPORATION

Calgon Carbon Corporation
P.O. Box 717
Pittsburgh, PA USA 15230-0717
1-800-422-7266
Tel: 412-787-6700
Fx: 412-787-6713

Making Water and Air Safer and Cleaner

Chemviron Carbon
European Operations of
Calgon Carbon Corporation
Zoning Industriel C de Feluy
B-7181 Feluy, Belgium
Tel: + 32 (0) 64 51 18 11
Fx: + 32 (0) 64 54 15 91

Calgon Carbon Asia
65 Chulia Street
#37-03 OCBC Centre
Singapore 049513
Tel: +65 6 221 3500
Fx: +65 6 221 3554

Your local representative