FILTRATION MEDIA

GREENSANDPLUS™

GreensandPlus is a black filter media used for removing soluble iron, manganese, hydrogen sulfide, arsenic, and radium from water supplies.

The manganese dioxide coated surface of GreensandPlus acts as a catalyst in the oxidation reduction reaction of iron and manganese.

The silica sand core of GreensandPlus allows it to withstand operating conditions in waters that are low in silica, TDS, and hardness. When using GreensandPlus, you can eliminate the aluminate feed.

GreensandPlus is effective at higher operating temperatures and higher differential pressures than ordinary manganese greensand. Tolerance to higher differential pressure can provide for longer run times between backwashes and a greater margin of safety.

Systems may be designed using either vertical or horizontal pressure filters, as well as open gravity filters.

GreensandPlus is a proven technology for iron, manganese, arsenic, radium, and hydrogen sulfide removal. Unlike in-situ treated media, there is no need for extensive preconditioning of filter media or lengthy startup periods, during which required water quality may not be met.

GreensandPlus is an exact replacement for manganese greensand. It can be used in CR or IR applications and requires no changes in backwash rate or times or chemical feeds.

GreensandPlus has the WQA Gold Seal Certification for compliance with NSF/ANSI 61.

FEATURES

- Concurrent treatment of iron, manganese, and hydrogen sulfide
- Effective over wide pH range
- High tolerance of oxidizers such as chlorine
- Low attrition for long bed life
- Certified to NSF/ANSI Standard 61

Physical Properties

Physical Form	Black, nodular granules (shipped in a dry form)
Apparent Density	85 lb/cu.ft.
Specific Gravity	2.4 approx.
Porosity	0.45 approx.
Screen Grading (Dry)	18 x 60 mesh
Effective Size	0.30 to 0.35 mm
Uniformity Coefficient	< 1.60
pH Range	6.2 to 8.5
Maximum Temperature	No limit
Minimum Backwash Rate	12 gpm/sq.ft. @ 55°F
Service Flow Rate	2 to 5 gpm/sq.ft.
Minimum Bed Depth	24 in. (15 to 18 in. of each media for dual media beds)

Suggested Operating Conditions

Bed Type – Dual media: Anthracite 15 to 36 in. and GreensandPlus 15 to 24 in.

Capacity – 700 to 1200 grains of oxidized iron and manganese/sq.ft. of bed area based on oxidant demand and operation to iron break through

Backwash – Sufficient rate using treated water to produce 40% bed expansion

Air/Water Scour – Optional using 0.8 to 2.0 cfm/sq. ft. with a simultaneous treated water backwash at 4.0 to 4.5 gpm/sq. ft.

Raw Water Rinse – At normal service flow rate for 3 to 5 minutes or until effluent is acceptable.

Flow Rate – Recommended flow rates with CR operation are 2 to 5 gpm/sq. ft. Extremely high concentrations of iron and manganese usually require lower flow rates for equivalent run lengths. Higher flow rates can be considered with very low concentrations of iron and manganese. For optimum design parameters, pilot plant testing in recommended.

Packaging

1/2 cu.ft. bag (44.5 lb) or 1 metric ton (2,205 lb)

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MEMBER Water Quality ASSOCIATION

FORM 1479
EFFECTIVE
OCTOBER 2022

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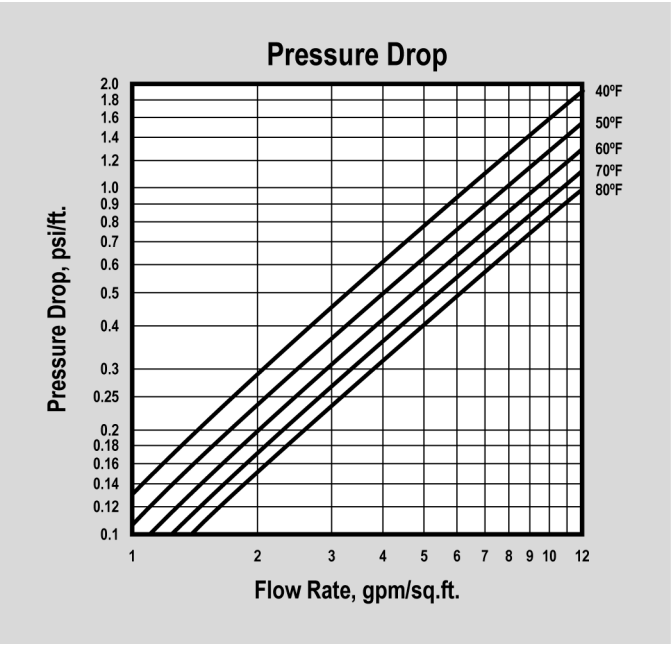

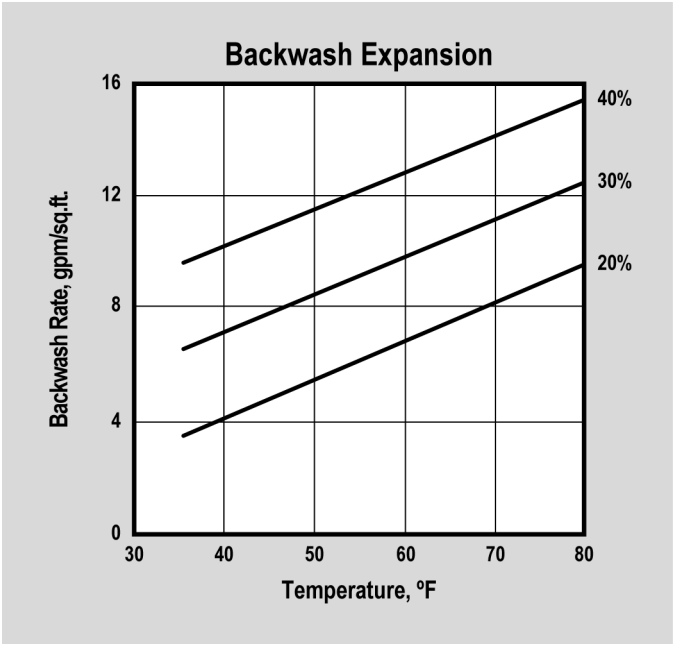

GENERAL NOTES

pH
Raw waters having natural pH of 6.2 or above can be filtered through GreensandPlus without pH correction. Raw waters with a pH lower than 6.2 should be pH-corrected to 6.5 to 6.8 before filtration. Additional alkali should be added following the filters if a pH higher than 6.5 to 6.8 is desired in the treated water. This prevents the possible adverse reaction and formation of a colloidal precipitate that sometimes occurs with iron and alkali at a pH above 6.8.

Radium and Arsenic Removal Using GreensandPlus
The GreensandPlus CR process has been found to be successful in removing radium and arsenic from well water. This occurs via adsorption onto the manganese and/or iron precipitates that are formed. For radium removal, soluble manganese must be present in or added to the raw water for removal to occur. Arsenic removal requires iron to be present in or added to the raw water to accomplish removal. Pilot plant testing is recommended in either case.

Removing Fines and Initial Conditioning
Prior to placing the anthracite in the filter or placing the filter into service, GreensandPlus should be thoroughly backwashed and the top layer of fine material removed by undercutting in accordance with AWWA B 100, paragraph 4.5.2. This is especially important if anthracite is placed on top of the GreensandPlus bed. Each cubic foot of GreensandPlus shipped contains sufficient material to compensate for the removal of this final material.

GreensandPlus is NOT shipped in a regenerated form; therefore it is necessary, prior to use, to regenerate it contacting the bed for a minimum of 4 hours. A regeneration level of 4 ounces of KMn0 or chlorine per cubic foot of GreensandPlus is recommended. Before placing into service, the filter must be rinsed of all remaining traces of potassium permanganate.

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