

Panther[®] Garnet

Introduction:

Panther[®] Garnet is a high hardness, high density granular filter media. It is normally used as the lower (final) filtration of a multi-media bed down flow filtration system. The larger grains of media at the top will trap the larger solids. A uniformly

decreasing grain size in direction of flow with small grains at the bottom will do the final polishing. High specific gravity of garnet achieves higher loading and better particle retention.

Advantages:

- High specific gravity allows unique filter design
- In combination with other filter media, higher flow rates, higher loading and better filtration can be achieved
- High hardness reduces attrition and provides for years of reliable service
- An excellent support bed for other high density media
- **Panther[®] Garnet** meets AWWA B100-96 specifications.



Physical Properties:

- **Color:** Light tan to reddish purple
- **Crystal System:** Cubic
- **Bulk Density:**
 - #8 Garnet: 140 lbs./cu. ft. (2.25 Kg/l)
 - #8-12 Garnet: 140 lbs./cu. ft. (2.25 Kg/l)
 - #30-40 Garnet: 130 lbs./cu. Ft (2.1 Kg/l)

- **Type:** Almandite
- **Hardness:** 6.5-7.9 (Mohs Scale)
- **Uniformity Coefficient:**
 - #8 Garnet: 1.2
 - #8-12 Garnet: 1.25
 - #30-40 Garnet: 1.26

- **Effective Size:**
 - #8 Garnet: 2.0 mm (Range: 1.5 mm to 2.7 mm)
 - #8-12 Garnet: 1.8 mm (Range: 1.4mm to 2.4mm)
 - #30-40 Garnet: 0.4 mm (Range: 0.3mm to 0.6mm)

- **Acid Solubility:** Minimal
- **Specific Gravity:** 3.5-4.3 gm/cc

Free Silica: Minimal

Called multi-media or mixed media filtration, the high density, small grain size of **Panther[®] Garnet #30-40** Garnet solves a major filtration problem. In a single media granular filter such as a sand filter, the material will hydraulically classify during backwash according to granule size, the smallest rising to the top.

When water flows downward through the sand, the fine particles at the top of the bed do most of the straining of the sediment. The solids form a cake on the surface with filtration typically taking place in the top few inches. As the cake forms, the filtration becomes finer and the head loss increases exponentially with time.

The ideal situation would be to have the large grains of media at the top to trap the large solids, and a uniformly decreasing grain size in the direction of fluid flow with the small grains at the bottom to do the final polishing.

The penetration of the solids into the entire bed allows for increased solids storage, longer filter runs, and higher filtration rates.

A properly designed multi-media system will maintain its unique grading of large grains on top and small grains on the bottom and provide superior performance even after many backwashings.

This stable condition of large grains above finer ones is achieved by the use of materials of different sizes and specific gravities.

Panther[®] Garnet #30-40 with its high specific gravity of around 4.0 forms the lower fine grain layer, its 0.4 mm effective size can filter down to very low micron range.

Filter Sand, (effective size of 0.5 mm) and Anthracite, (effective size of 0.9 mm) can form the larger, less dense layers.

Multi-media filtration technology is applicable to both water and waste water treatment. Custom designed filters with varying filter bed configurations can be designed to meet specific needs. For the majority of municipal and industrial water supply applications, a filter bed composed of 55% low density material, 30% medium density

material, and 15% high density material is recommended.

Packaging:

25 kg/ bag, 40 bags per Pallet.

