



## **Technical Data and Physical Characteristics**

### **Western Garnet®**

**Garnet Source:** Western Garnet is an almandine garnet product produced from high quality, hard-rock deposits in China.

**General Description:** Almandine garnet is a chemically inert, non-metallic mineral found naturally as thick rock layers, as crystals in other metamorphic rock, and in trace amounts in many river and beach sands. Almandine garnet is known for its hardness, durability, and toughness, which make it preferred for many industrial abrasive applications, including abrasive waterjet cutting. Its high specific gravity, chemical inertness, and insolubility make almandine garnet ideal as a filtration medium for water. In certain forms, garnet is considered a semi-precious gemstone and it is the birthstone for January.

**Processing:** Western Garnet is processed from crude ore by crushing, milling, washing, drying, screening and packaging. As a result of crushing, the garnet grains are angular to sub-angular and provide sharp cutting surfaces in abrasive applications that can result in faster cutting.

**Packaging:** Standard packaging includes 25 kg and 1 metric ton bags. Other packaging is available.

#### **Physical Properties:**

* Color:	Reddish brown
* Hardness:	7.5 – 8.0 per Moh's scale
* Specific Gravity:	4.0 – 4.2
* Grain Shape:	Angular to sub-angular
* Water Solubility:	Insoluble at standard conditions (20° C, distilled)
* Melting Point:	~ 1315° C
* Free Crystalline Silica:	< 1%
* Chloride Content:	Typically < 30 ppm
* Available Sizes:	#5 - #120 mesh (U.S. standard screen)

#### **Typical Chemical Analysis:**

* silicon dioxide	(SiO <sub>2</sub> )	38% (non-crystalline)
* ferric oxide	(Fe <sub>2</sub> O <sub>3</sub> )	29%
* aluminum oxide	(Al <sub>2</sub> O <sub>3</sub> )	23%
* magnesium oxide	(MgO)	5%
* calcium oxide	(CaO)	2%
* manganese oxide	(MnO)	<1%

---

**WGI Heavy Minerals Incorporated**  
+1.208.666.6000 or +1.888.5GARNET  
+1.208.666.4000 (Fax)

Corporate Office

810 Sherman Avenue  
Coeur d'Alene, ID 83814 USA

13-Jan-09

**Available Sizes:**

U.S. Std Sieve	mm	% Retained								
		#5	#8	#8/12	#12/20	#20/40	#30/60	#50	#80	#120
4	4.76	0-10								
6	3.35	70-100	0-10							
8	2.38	0-15	50-95	0-10						
12	1.68		0-20	45-75						
16	1.19			20-45	0-20					
20	0.841				40-60	0-5				
30	0.594				30-50	20-60	0-10			
40	0.417				0-10	30-70	5--40	5-40	0-5	
50	0.297					0-30	40-60	≥40	0-35	
60	0.249						0-40	0-40	10--40	
80	0.178						0-15	0-15	20-60	0-50
100	0.15								0-20	
120	0.124									40-80
<120	Pan								0-10	0-10

Other sizes may be available by request.

The information and data above are believed to be accurate and have been compiled from sources believed to be reliable, including information provided by the raw materials provider.

---

<b>WGI Heavy Minerals Incorporated</b>	Corporate Office	810 Sherman Avenue
+1.208.666.6000 or +1.888.5GARNET		Coeur d'Alene, ID 83814 USA
+1.208.666.4000 (Fax)		



