

Garnet

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Date



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General Mineral Formula: $X_3^{2+}Y_2^{3+}(SiO_4)_3$

Mineral Chemical Class: Nesosilicates

Specific Gravity: 3.5-4.3

Hardness: 6.5-8.0¹

Cleavage: None. May exhibit parting

Luster: Vitreous, adamantine, dull

Streak: Colorless

Characteristic Color(s): Red, brown, black, green, yellow, orange, pink, white.

Crystal System: Isometric

Crystal Class: 4/m $\bar{3}$ 2/m

Crystal Description (common forms, habit, etc.): Well-formed, distinct, dodecahedral and trapexohedral crystals. Also in compact crystal groupings, grainy, massive, and rounded crystals and groups of small crystals.

Environment (where you find the material): Metamorphic (Al). Can get garnet when metamorphize Pelite (sedimentary rock) or Mafic rock. If you metamorphise mafic you get (eclogite, blueschist). Mafic like the ocean floor. Can also get it in sediment. When metamorphic rock

¹Dodecahedral shape, brown/red color.

²Up to 8 Hardness. Looks like a prismatic ball.

weathers. Can be found in the mantle. Garnet can be an igneous mineral, but it's uncommon.

Common Mineral Associations (in samples, also consult text, notes: Muscovite, biotite (from pelite). Other individual garnets.

Scientific Usage/Significance: None

Industrial or Social Use/Significance: Semiprecious gemstone. Valuable abrasive for sandpaper. Used in filters to help purify water in sanitation plants.

Environmental Significance: None