Module B. Colour from the Cosmos

Lesson 9 - Diamond Mineralogy and Gemology

Learning Objectives

* List the physical properties, composition, and crystal structure of diamond
* Describe the importance of electrical and thermal conductivity of diamond
* Describe the cleavage of diamond and its importance for diamond cutters
* Compare the composition, crystal structure, and bonding of graphite and diamond
* Differentiate between Type Ia, Ib, IIa, IIb diamonds in terms of composition and colour
* Identify the cause(s) of different colours of diamond
* Describe the primary morphology of diamonds and secondary modifications of uncut diamond
* Identify common diamond treatments and methods of creating synthetic diamonds

Check Your Understanding

* What differentiates Type I from Type II diamond? Why are Type IIa diamonds so rare?
* Which of the following are common crystal habits of rough diamond?
  + octahedral
  + cubic
  + prismatic
  + dodecahedral
* Regarding the physical properties of diamonds:
  + What are some of the diagnostic properties (physical and chemical) of diamonds?
  + Which of these properties might a geologist use to identify a rough diamond in the field?
  + Which of the properties might a gemologist used to distinguish a cut diamond from some of its imitators, like cubic zirconia, glass, moissanite?