Answer on Question #41647 - Chemistry – Other

Question

Which is a pair of allotropes?

a) carbon-14 and carbon-12

b) iron(lll) oxide and iron(ll) oxide

c) diamond and carbon dioxide

d) molecular oxygen and ozone

Answer:

Allotropes are different structural modifications of an element; the atoms of the element are bonded together in a different manner. Allotropy is the property of some chemical elements to exist in two or more different forms. The term allotropy is used for elements only, not for compounds.

That's why: a) carbon-14 and carbon-12 are not a pair of allotropes as they are isotopes; b) iron(lll) oxide and iron(ll) oxide are not a pair of allotropes as they are compounds; c) diamond and carbon dioxide are not a pair of allotropes as one of them (carbon dioxide) is a compound; d) molecular oxygen and ozone are the pair of allotropes as they are different forms of oxygen within the same phase.

Answer: d) molecular oxygen and ozone.