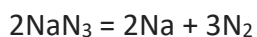


Question #83262, Chemistry / General chemistry

The first reaction in the deployment of an automobile airbag is the decomposition of the solid binary ionic compound, sodium azide, into two products: nitrogen gas and sodium metal. What mass of sodium metal will form from the complete decomposition of 130 grams of sodium azide? Steps: (a) Write a balanced equation

(b) Use a conversion pathway calculation, starting with mass (g) of sodium azide ... \diamond #moles sodium azide \diamond #moles sodium metal product \diamond mass (g) sodium metal product.

Solution



$$M(\text{NaN}_3) = 23 + 14 \cdot 3 = 65 \text{ (g/mol)}$$

$$n(\text{NaN}_3) = m/M = 130 / 65 = 2 \text{ (mol)}$$

$$n(\text{Na}) = n(\text{NaN}_3) = 2 \text{ mol}$$

$$m(\text{Na}) = n \cdot M = 23 \cdot 2 = 46 \text{ (g)}$$

Answer

$$m(\text{Na}) = 46 \text{ g}$$

Answer provided by www.AssignmentExpert.com