

Name:

Class:



The formula of iron oxide is Fe_2O_3 . Calculate the relative formula mass (M_r) of Fe_2O_3 .
(Relative atomic masses: Fe = 56, O = 16)

$$\text{Mass of 2 Fe atoms} = 2 \times 56 = 112$$

$$\text{Mass of 3 O atoms} = 3 \times 16 = 48$$

$$\text{relative formula mass (Mr)} = 112 + 48 = 160$$

Calculate the percentage by mass of iron in iron oxide.

(Relative atomic masses: Fe = 56, O = 16)

$$\text{Total mass of iron (Fe) in the formula} = 2 \times 56 = 112$$

$$\text{Relative formula mass (Mr) of Fe}_2\text{O}_3 = 160 \text{ (calculated above)}$$

$$\text{Percentage by mass of iron} = (112 \div 160) \times 100 = 0.7 \times 100 = 70\%$$

Give the names of the elements combined in barium sulfide.

Barium and sulfur

Describe the test to show that a gas is carbon dioxide.

Test: bubble the gas through limewater.

Positive result: the limewater will go cloudy.

The formula of the iron oxide is Fe_2O_3 . Calculate the maximum mass of iron that can be obtained from 60 tonnes of iron oxide, Fe_2O_3 .

$$160 \text{ g} = 1 \text{ mole}$$

$$1 \text{ mole of Fe}_2\text{O}_3 \text{ give 2 moles of Fe.}$$

$$\text{Mass} = \text{mol} \times \text{Mr}$$

$$1 \text{ g} = \frac{1}{160}$$

$$0.375 \times 2 = 0.75 \text{ mol}$$

$$\text{Mass} = 0.75 \times 56$$

$$60 \text{ g} = 0.375 \text{ mol}$$

$$\text{Mass} = 42 \text{ tonnes.}$$

State the meaning of this hazard symbol.



Flammable

Sodium sulfate contains sodium, Na^+ ions and sulfate, SO_4^{2-} ions.

What is the formula of sodium sulfate?



What are the electronic configurations of the following ions?

K^+	2, 8, 8
Mg^{2+}	2, 8
S^{2-}	2, 8, 8

Calculate the relative formula of $\text{Al}(\text{NO}_3)_3$.

$$27 + 3(14) + 9(16) = 213$$