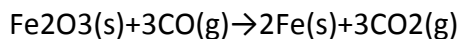


## Answer on Question #63080 - Chemistry - General Chemistry

Question:

Iron(III) oxide reacts with carbon monoxide to produce iron and carbon dioxide.



What is the percent yield of iron if the reaction of 63.4 g of iron(III) oxide produces 15.0 g of iron?

Solution:

We can see from reaction equation that 1 mole of iron oxide yields 2 moles of iron.

Molar mass of iron oxide is  $2 \times 55.85 + 3 \times 16.00 = 159.7$  g/mol; of iron – 55.85 g/mol.

So 159.7 g of iron oxide give 111.7 g of iron.

Then 63.4 g of iron oxide theoretically should produce  $63.4 \text{ g} \times 111.7 \text{ g} / 159.7 \text{ g} = 44.3$  g of iron.

Percent yield is (actual mass of product / theoretical mass of product) \* 100% =  
 $(15.0 \text{ g} / 44.3 \text{ g}) \times 100\% = 33.9\%$ .

**Answer:**

The percent yield of iron in the reaction is **33.9%**