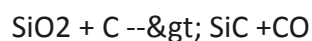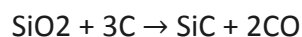# Answer on the Question #41033 – Chemistry – Other

Question: if 50.0 g of silicon dioxide is heated with 25.0 g of C, 28.0 g of silicon carbide and

30.0 g of CO is produced.

SiO2 + C --> SiC +CO

what is the theoretical yield and % yield for each product of this reactant?

Answer: The equation of reaction is:

SiO2 + 3C → SiC + 2CO

Now we can find theoretical yield of SiC. From the reaction we see that n (SiO2) = n (SiC);

So, n (SiO2) = 50g/60 = 0.833mole

Then m (SiC) = 0.833*M (SiC) = 0.833*40 = 33.32g

% yield of SiC = (28/33.32)*100% = 84%

Theoretical yield of CO: n (SiO2)/n (CO) = 1/2

So, n (CO) = 0.833*2 = 1.666mole; m (CO) = 1.666* M (CO) = 1.666*28 = 46.648g

% yield of CO = (30/46.648)*100% = 64.31%