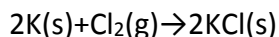
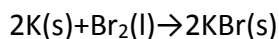


## Answer on question #62247, Chemistry / General Chemistry

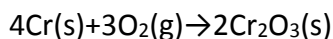
For each reaction, calculate the mass of the product that forms when 14.4 g of the reactant in red completely reacts. Assume that there is more than enough of the other reactant.



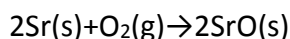
Express your answer in grams to three significant figures.



Express your answer in grams to three significant figures.

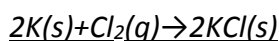


Express your answer in grams to three significant figures.



Express your answer in grams to three significant figures.

### Solution:

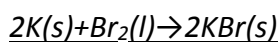


$$\text{moles Cl}_2 = 14.4 \text{ g} / 70.906 \text{ g/mol} = 0.203 \text{ mol}$$

$$\text{moles KCl produced} = 2 \times 0.203 \text{ mol} = 0.406 \text{ mol}$$

$$\text{mass KCl} = 0.406 \text{ mol} \times 78.196 \text{ g/mol} = 31.7 \text{ g}$$

**Answer: 31.7 g**

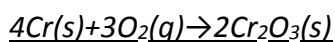


$$\text{moles Br}_2 = 14.4 \text{ g} / 159.808 \text{ g/mol} = 0.0901$$

$$\text{moles KBr} = 2 \times 0.0901 = 0.180$$

$$\text{mass KBr} = 0.180 \text{ mol} \times 119.0 \text{ g/mol} = 21.4 \text{ g}$$

**Answer: 21.4 g**

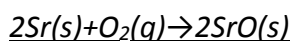


$$\text{moles O}_2 = 14.4 \text{ g} / 32 \text{ g/mol} = 0.450$$

$$\text{moles Cr}_2\text{O}_3 = 0.450 \times 2/3 = 0.300$$

$$\text{mass Cr}_2\text{O}_3 = 0.300 \text{ mol} \times 151.99 \text{ g/mol} = 45.6 \text{ g}$$

**Answer: 45.6 g**



$$\text{moles Sr} = 14.4 \text{ g} / 175.24 \text{ g/mol} = 0.0822$$

$$\text{moles SrO} = 2 \times 0.0822 = 0.1644$$

$$\text{mass SrO} = 0.1644 \text{ mol} \times 103.62 \text{ g/mol} = 17.0 \text{ g}$$

**Answer: 17.0 g**