Answer on Question #75149, Chemistry / Inorganic Chemistry

I have an icp-ms result of 5.6 ug/g scandium. I want to back calculate to how much scandium oxide I initially had in ug/g and kg/ton.

Answer:

$$2Sc_2O_3 = 4Sc + 3O_2$$

$$\text{x ug/g } Sc_2O_3 = \frac{5.9\frac{\text{ug}}{\text{g}} \times 137.9\frac{\text{g}}{\text{mol}} \times 2}{44.9\frac{\text{g}}{\text{mol}} \times 4} = 9.3\frac{\text{ug}}{\text{g}}$$

Convert ug/g to kg/ton

$$\frac{9.3\frac{\text{ug}}{\text{g}}}{x\ \frac{\text{kg}}{\text{ton}}} = \frac{1\frac{\text{ug}}{\text{g}}}{0.000907185\ \frac{\text{kg}}{\text{ton}}}$$

$$x\frac{\text{kg}}{\text{ton}} = \frac{9.3\frac{\text{ug}}{\text{g}} \times 0.0009\ \frac{\text{kg}}{\text{ton}}}{1\frac{\text{ug}}{\text{g}}} = 0{,}008\ \frac{\text{kg}}{\text{ton}}$$