Answer on Question #70279 – Chemistry – General Chemistry

Task

What mass in grams of iron (III) nitrate will supply 0.100g of iron(III) ions?

Solution

$Fe(NO_3)_3 \rightarrow Fe^{3+} + 3NO_3^-$

Molar mass of iron (III) nitrate is 241.86 g/mol.

Molar mass of Fe is 55.847 g/mol.

$$\nu\ (Fe^{3+}) = \frac{m(Fe)}{M(Fe)} = \frac{0.100}{55.847} = 0.00179\ mol = \nu\ (Fe(NO_3)_3).$$

$$m(Fe(NO_3)_3) = \nu\ (Fe(NO_3)_3) \cdot M(Fe(NO_3)_3) = 0.00179 \cdot 241.86 = 0.433\ g.$$

Answer

$0.433\ g$.

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