

Answer on Question#71913 – Chemistry – General chemistry

Question: 1.) In 5.0 grams of lead (II) chloride how many of the following are present: (10 points)

Moles:

Atoms:

Solution:

$$n(\text{PbCl}_2) = \frac{m(\text{PbCl}_2)}{M(\text{PbCl}_2)} = \frac{5.0 \text{ g}}{278.1 \frac{\text{g}}{\text{mol}}} = 0.018 \text{ mol}$$

$$N(\text{PbCl}_2) = n(\text{PbCl}_2) \times N_A = 0.018 \text{ mol} \times 6.02 \times 10^{23} \text{ mol}^{-1} = 1.08 \times 10^{22} \text{ - molecules of PbCl}_2$$

Each molecule of PbCl_2 comprised of 3 atoms, so

$$N(\text{atoms}) = 3 \times 1.08 \times 10^{22} = 3.24 \times 10^{22}$$

Answer:

0.018 mol

3.24×10^{22} atoms