

## Answer on the question #63263, Chemistry / Physical Chemistry

### Question:

How many formula units make up 24.6 g of magnesium chloride ( $MgCl_2$ )?

### Solution:

Let's calculate the number of the moles of  $MgCl_2$  :

$$n(MgCl_2) = \frac{m(MgCl_2)}{M(MgCl_2)} = \frac{24.6 \text{ (g)}}{95.211(\text{g mol}^{-1})} = 0.258 \text{ (mol)}$$

One mole of the substance contains the number of the formulae units equal to Avogadro's number ( $N_A$ ). As we calculated the number of the moles of magnesium chloride, then we can calculate the number of formulae units:

$$N(MgCl_2) = n(MgCl_2) \cdot N_A = 0.258 \text{ (mol)} \cdot 6.022 \cdot 10^{23}(\text{mol}^{-1}) = 1.556 \cdot 10^{23}$$

**Answer :** 24.6g of magnesium chloride contains  $1.556 \cdot 10^{23}$  formulae units.