How many molecules are in 71.9 grams of Cl2?

Solution:

One mole of any substance contain $6{,}02 \cdot 10^{23}$ molecules.

The molar mass of Cl_2 is $M(Cl_2)=35.45 \cdot 2=70.9$ g/mol.

So that, 70.9 g of Cl_2 contain $6{,}02 \cdot 10^{23}$ molecules, and

71.9 g of Cl_2 contain n molecules.

So, $n(Cl_2)=\frac{71.9 \cdot 6.02 \cdot 10^{23}}{70.9}=6.105 \cdot 10^{23}$ molecule.

Answer: The number of molecules in 71.9 grams of Cl_2 there are $6.105 \cdot 10^{23}$.