

how many atoms there are in 54.9 grams of water?

In order to calculate amount of atoms we need to know the amount of water (mol). To have it we can use next formula:

$$\nu = \frac{m(H_2O)}{2M(H) + M(O)};$$

$$\nu = \frac{54.9}{18} = 3.05 \text{ mol}$$

For number of water atoms we have to use Avogadro constant ( $N_A=6.02 \times 10^{23} \text{ mol}^{-1}$ )

$$N = \nu \times N_A;$$

$$N = 3.05 \times 6.02 \times 10^{23} = 1.84 \times 10^{24}$$

**There are  $1.84 \times 10^{24}$  atoms in 54.9 g of water**