

How many moles of S are present in 15.00616 mg of SO<sub>2</sub> (sulfur dioxide).

**Solution:**

As far as the number mole of SO<sub>2</sub> equal the number mole of S, we find how many moles there are in 15.00616 mg of SO<sub>2</sub>:

$$n(\text{SO}_2) = \frac{m(\text{SO}_2)}{M(\text{SO}_2)} = \frac{15.00616}{64.0638} = 0.2342 \text{ mole}$$

The molar mass of SO<sub>2</sub> is:

$$M(\text{SO}_2) = 32.065 + 15.9994 \cdot 2 = 64.0638 \text{ g/mol.}$$

So,  $n(\text{S}) = n(\text{SO}_2) = 0.2342 \text{ mole.}$

**Answer:**

The number mole of S is 0.2342.