

## 27175, Chemistry, Other | Completed

rust contains iron(III) oxide .how many moles of iron (III) ions are present in 4.0 g of rust?

### Solution:

Firstly, we determine the molar mass of iron(III) oxide:

$$M(Fe_2O_3)=56\cdot2+16\cdot3=160 \text{ g/mol.}$$

Then, we calculate the amount of moles of iron(III) oxide, which it's included in 4.0 g of rust:

$$n(Fe_2O_3)=\frac{m(Fe_2O_3)}{M(Fe_2O_3)}=\frac{4.0}{160}=0.025 \text{ mole.}$$

One mole of  $Fe_2O_3$  includes two moles of iron(III), so 0.025 moles of  $Fe_2O_3$  include  $0.025 \cdot 2 = 0.05$  moles.

### Answer:

The amount of  $Fe_2O_3$  is 0.05 moles.