

### Answer on Question #70557 - Chemistry - General Chemistry:

If a 333mL can of soda has a density of 1.21g/mL and is 2.00% NaCl by mass. How many mol of chlorine from the salt does the can contain?

#### Solution.

$$V = 333\text{ml}$$

$$\rho = 1,21\text{g/ml}$$

$$w(\text{NaCl}) = 2,00\%$$

$$v(\text{Cl}_2) - ?$$

Solution weight:

$$m = \rho \cdot V = 333 \cdot 1,21 = 402,93\text{g}$$

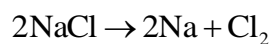
Weight NaCl:

$$m(\text{NaCl}) = m \cdot \frac{w(\text{NaCl})}{100\%} = \frac{402,93\text{g} \cdot 2,00\%}{100\%} = 8,06\text{g}$$

And:

$$v(\text{NaCl}) = \frac{m(\text{NaCl})}{M(\text{NaCl})} = \frac{8,06\text{g}}{58,44\text{g/mol}} = 0,138\text{mol}$$

Chlorine reaction equation:



And:

$$v(\text{Cl}_2) = \frac{v(\text{NaCl})}{2} = \frac{0,138\text{mol}}{2} = 0,069\text{mol}$$

$$v(\text{Cl}_2) = 0,069\text{mol}$$

**Answer:**  $v(\text{Cl}_2) = 0,069\text{mol}$