Answer on Question #58834 - Chemistry – Other

Task:

What is the molarity of a 500 mL solution containing 249 g of KI?

Solution:

The molarity of a solution is calculated by taking the moles of solute and dividing by the liters of solution:

$$Molarity = \frac{moles\ of\ solute}{liters\ of\ solution}.$$

Then,
M (KI) = 39+127 = 166 (g/mol);
n (KI)= m(KI) / M(KI) = 249 / (39+127) = 249 / 166 = 1.50 (mol);

V (solution) = 500 ml = 0.5 l;

Then,

C (KI) = n (KI) / V (solution) = 1.50 mol / 0.5 l = 3.00 mol/l;

Answer:

Molarity (KI) = C (KI) = 3 mol/l.