

**Answer on Question #60911, Chemistry / General Chemistry**

**CH<sub>3</sub>CH<sub>2</sub>COOH is prepared in the lab by dissolving 3.6 g in 1 L of the solution. In a titration of this acid with an aqueous solution of NaOH, 25 mL of the acid required 12.15 mL of a 0.100 M aqueous NaOH solution for complete neutralization. What are the moles of NaOH required to completely react with 25 ML of CH<sub>3</sub>CH<sub>2</sub>COOH?**

**Solution:**

The molar mass of CH<sub>3</sub>CH<sub>2</sub>COOH is equal to 74,08 g/mol. 1 l of solution contains 3,6 g of CH<sub>3</sub>CH<sub>2</sub>COOH that there correspond  $3,6/74,08 = 0,0486$  mol of acid. Then in 25 ml of solution 0,001215 mol of CH<sub>3</sub>CH<sub>2</sub>COOH contain  $0,0486 \cdot 25/1000 =$ .

At titration of CH<sub>3</sub>CH<sub>2</sub>COOH reaction happens NaOH solution:



According to the equation of reaction, 1 mol of acid reacts with 1 mol of NaOH. Then neutralization of 0,001215 mol of CH<sub>3</sub>CH<sub>2</sub>COOH requires 0,001215 mol of NaOH.

In 12:15 ml 0.100 M NaOH solutions contain

$$12,15 \cdot 0,100/1000 = 0,001215 \text{ mol of NaOH}$$

**Answer:** 0,001215 moles of NaOH.