Answer on the question #59897, Chemistry / Other

Question:
calculate the titer in mg $CaCO_3$/mL of an edta solution with molar concentration 0,0100 M.

Solution:
Molar mass of $CaCO_3$ is:

$$M(CaCO_3) = 100.0869\ g\ mol^{-1}$$

$CaCO_3$ reacts with edta with 1:1 molar ratio:

$$CaCO_3 + Y^{4-} \rightarrow CaY^{2-} + CO_3^{2-}$$

Then, to calculate the titer of edta solution in mg $CaCO_3$/mL, we just calculate what would be concentration of CaCO3 in mg/mL, if molar concentration is 0.0100 mol/L:

$$t = c \cdot M = 0.0100\ (mol\ L^{-1}) \cdot 100.0869(g\ mol^{-1}) = 1.001\ g\ L^{-1}, or\ 1.001\ mg/mL$$

Answer: 1.001 mg/mL