Answer on Question #56880 – Chemistry – General Chemistry

Question:

Sodium chlorate (NaClO3(s)) dissociates, during moderate heating to produce solid sodium chloride (NaCl(s)) and gaseous oxygen (O2 (g)). A 3.4671 g of impure sodium chlorate was heated until the evolution of oxygen stopped. The mass of sample residue was subsequently found to be 2.9073 g. What wt% of the original impure sample was really sodium chlorate? Assume that no gases will be evolved from the impurities.

Solution:

$$2NaClO_3 = 2NaCl + 3O_2$$

$m(O_2) = 3.4671 - 2.9073 = 0.5598$ (g);

$m(NaClO_3) = 2 * 106.44 * 0.5598 / 32 * 3 = 1.2413$ (g);

$w(NaClO_3) = 1.2413 / 3.4671 = 35.8$ (%);

Answer: 35.8 %