Question #48492, Chemistry, Other

1) Calculate mass of oxygen lost as gas

$$m(O_2) = 24.62 - 22.83 = 1.79 \; g$$

2) Calculate mass percent of oxygen in original compound, based on experimental data

$$\omega(O_2) = \frac{m(O_2)}{m_{sample}} = \frac{1.79}{24.62 - 19.85} = 0.375$$

3) Determine whether or not your compound contains 1,2,3, or4 oxygen atoms by calculating mass percent of oxygen for each possible compounds

Salts of chlorous and hypoclorous acid don't decompose under heating. Only salts of chloric and perchloric acid decay by heating.

$$\omega(O_2) = \frac{3 * A_r(O_2)}{M(KClO_3)} = \frac{3 * 16}{122.6} = 0.39$$

$$\omega(O_2) = \frac{4 * A_r(O_2)}{M(KClO_4)} = \frac{4 * 16}{138.6} = 0.46$$

So, given compound is potassium chlorate.