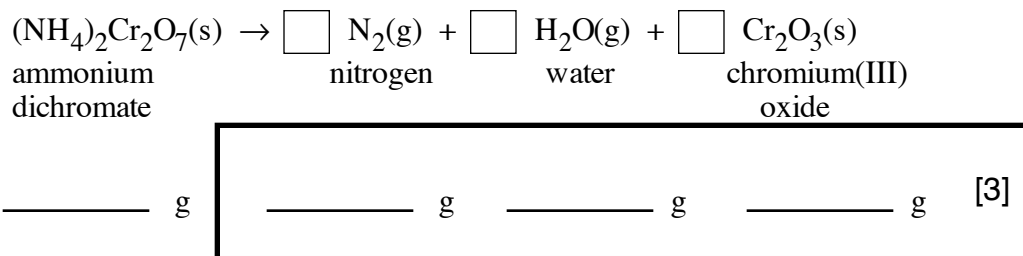
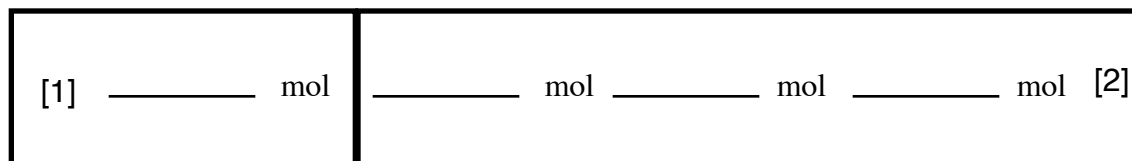


# Stoichiometry of Ammonium Dichromate Decomposition

Ammonium dichromate decomposes on heating to produce nitrogen gas, water vapor (gaseous due to the temperature of the reaction), and solid chromium(III) oxide. The skeletal net reaction is shown below, unbalanced, along with the molecular weights of the compounds involved in the decomposition. We will weigh an amount of ammonium dichromate, decompose it, then calculate the mass of chromium(III) oxide that should remain. We'll weigh the reaction product at the end of the reaction and see how well our calculated value agrees with experiment.



252.065 g mol<sup>-1</sup>    28.013 g mol<sup>-1</sup>    18.015 g mol<sup>-1</sup>    151.990 g mol<sup>-1</sup>



Note the logical sequence of the calculations: step 1 tells us the number of moles of ammonium dichromate, step 2 uses the balanced stoichiometric coefficients to tell us the number of moles of each product, and step 3 tells us the final mass of chromium(III) oxide.