Dinitrogen momoxide(also called nitrogen oxide) is also called"laughing gas." It can be prepared by the thermal decomposition of ammonium nitrate. The other product is water. (a) Write a balanced equation for this reaction. (b) How many grams of dinitrogen monoxide are formed if .46 moles of ammonium nitrate is used in the reaction?

Solution:

(a) $NH_4NO_3 = N_2O + 2H_2O$

Mr (N_20) = 14*2 + 16 =44

(b) m(N_2O) (g) = 0.46*44 = 20.24

Answer: 20.24 g