

The Molarity Limiter

1 Introduction and Abstract

When doing stoichiometric calculations, there is a point where you can determine the limiting reactant without completely calculating the mass of the products. This document is about documenting that point and resultant value (which we will call the “Molarity Limiter”) and its applications to CHEM 40 (Chapter 8). Said Molarity Limiter, denoted ML , can be found with the following equation, for the mass m^1 of a chemical J with stoichiometric coefficient c .

$$ML = m * \frac{1}{MM(J)} * \frac{1}{c} \quad (1)$$

2 Derivation

Suppose a chemical reaction with the following general formula:



Suppose A has a limited total mass m_A and B has a limited total mass m_B .

¹ $MM(J)$ denotes the molar mass of J