

BCA Table: Used for Stoichiometry and LR/ER:

Example Practice Problem:

If 15.0 grams of copper (II) chloride react with 10.0 grams of silver nitrate, how many grams of silver chloride can be formed? Also determine the LR, ER, and excess ER remaining in grams.

- a. Place balanced equation in BCA table with each reactant and product as a column heading in the “reaction” row:

Moles of rxn “cloud”				
reaction				
Before				
Change				
After				

- b. Convert all grams to moles (**only moles can go in the table**—or *molarity for solutions*) and place value of reactants in moles on the **BEFORE** line. Write “0” for products because there aren’t any yet. *FYI: If no value was given for the other reactants then they are considered in excess so we denote that in the table as “excess”.*
- c. Determine the **moles of reaction** “cloud” amount for each reactant: divide moles of each reactant by its coefficient in balanced equation. Write the amount in a “cloud” above the formula. (keep 3 or MORE sig figs to reduce rounding error). Compare the “clouds” to determine the LR and ER: whichever “cloud” has the smaller value is the LR, so cross out the other “cloud” and only use the smaller “LR cloud” amount. (*Note: the moles of reaction “cloud” is the number of moles per “1” coefficient in the balanced equation; remember—stoichiometry is based on RATIOS.*)
- d. Determine **CHANGE** amount: for each species, multiply the “LR cloud” value by the coefficient and place value on “change” line. We are using up the reactants so they will get subtracted and creating the products so they get added.
- e. The **AFTER** is calculated using the before and change lines. Subtract reactants and add products.
- f. The amounts in the table are moles, so convert the moles to grams for final answer.

Summary:

LR is _____

ER is _____. There are _____ moles remaining = _____ grams.

Max quantity of AgCl which can be made is _____ moles = _____ grams.