SOLUBLE NITROGEN – WISE BURROUGHS METHOD
Updated September 2013

I. Reference:

II. Personal Protective Equipment:
A. Lab coat
B. Safety glasses/goggles
C. Latex gloves

III. Reagents:
A. Stock Mineral Buffer:
1. Sodium phosphate monobasic \( (\text{H}_2\text{NaPO}_4) \) 52.50
2. Sodium bicarbonate \( (\text{CHNaO}_3) \) 52.50
3. Ammonium sulfate \( (\text{H}_8\text{N}_2\text{O}_4\text{S}) \) 37.50
4. Potassium chloride \( (\text{KCl}) \) 7.50
5. Sodium chloride \( (\text{NaCl}) \) 7.50
6. Magnesium sulfate \( (\text{MgSO}_4) \) 2.25
7. Ferrous sulfate \( (\text{FeSO}_4) \) 0.15
8. Manganese sulfate \( (\text{MnSO}_4) \) 0.08
9. Zinc sulfate \( (\text{ZnSO}_4) \) 0.08
10. Copper sulfate \( (\text{CuSO}_4) \) 0.04
11. Cobalt chloride \( (\text{CoCl}_2) \) 0.02
12. Calcium chloride \( (\text{CaCl}_2) \) 0.75
   a. Add to 1800 ml double distilled water (DDW).
   b. Add Ca\text{Cl}_2 last when all other reagents are in solution.
   c. q.s. to 2000 ml
B. Working Solvent
1. 100 ml Buffer from above and dilute to approximately 950 ml with DDW.
2. Adjust pH to 6.5 with ortho-Phosphoric Acid \( (\text{H}_3\text{PO}_4) \) and make up 1 liter.

III. Procedure:
1. Weigh between 2-5 g of sample into a 250 ml Erlenmeyer flask. Run in duplicate or triplicate and run blanks.
2. Add 100-200 ml of mineral solvent.
3. Place on shaker hot plate. Heat to 40°C and shake for 1 hour.
4. Filter into #541 filter paper and rinse several times with hot water. \textbf{Note: The buffer solution has ammonium sulfate. Thorough washing is essential for good nitrogen analysis in Step 5.}
5. Save filter paper and run Kjeldahls on them.
6. Calculate %N as with regular Kjeldahls. This gives % insoluble N.

IV. Calculations:
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\frac{\% \text{ Total N in Sample} - \% \text{ Insoluble N}}{\% \text{ Total N in Sample}} = \% \text{ Soluble N as a } \% \text{ of Total N}
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