**Creating Concentrated Stimulation Solution**

Materials Needed:

* Scale
* Lab Grade Urea
* Ammonium Chloride
* Sodium Acetate
* Yeast Extract
* Calcium Chloride
* ½ teaspoon
* Weigh paper- fold a sheet in quarters to weigh the yeast extract and ammonium chloride
* Metal spatulas
* Small measuring cup to measure 60ml of water
* 50 mL tube
* Distilled water
* pH strips
* Container to collect column drainage
* Small container to collect small amount of drainage to measure the pH (a plastic weighing boat works well for this)

Checklist:

This step is important and different from when you made the stimulation solution. With one of your empty bottles that held sand, add 200 mls of distilled water and place a piece of labeling tape just underneath the meniscus to indicate the 200 ml mark. Empty the bottle.

* Measure ~60 ml distilled water and place in this square screw cap bottle (that once held sand).
* Add (in order) and shake to dissolve before adding the next chemical (except as noted under calcium chloride):
  + 0.1 gm yeast extract (solution is golden & foamy)
  + 5.35 gm ammonium chloride (endothermic reaction, the solution gets cold)
  + 3.48 gm sodium acetate
  + 36.76 gm calcium chloride (exothermic reaction, the solution gets HOT – really! It also seems to produce some gas, so periodically crack the top to release the gas)
    - * Add about 1/3 of the calcium chloride and 1/3 of the urea to use the heat to help the urea go into solution; repeat until all the CaCl2 and urea are added and in solution
  + 21.02 gm urea (see above)
    - [this takes time – 10 to 15 minutes]
    - pH of this solution is ~6.5
* Add distilled water to hit the 200 ml mark.
* Create a label for the bottle "5 X concentrated cementation solution" with the date of production.
* Store in your refrigerator.