Meeting with Manchester group (Skype)

22.08.13

Recap:

1. Go through results
2. High Temperatures are problematic for the functional-group activity calculation

Mixture viscosity predictions:

1. UNIFAC people developed one for multicomponent (Gigli?)
2. One for single component exists (Nununal method)

ToDo:

1. Activity predictions: AIOMFAC. Do it online.
2. Pull out component activities
3. Run DSC model (use thermodenuder code).

* Need: T ramp. Gas volume/conditions

Down the road:

1. More complex mixtures? Alpha-pinene?

Experimental Setup Questions:

1. Viscometer

* Is it open to air? Yes.
* When compounds evaporate, will they never come back during cooling?
* Comment M4 – Says there is less material on the rheomoter.
* Would expect some evaporation.
* Load melt onto a disk that is open to air
* Experiment takes 30 mins

1. DSC

* 5 C min-1 T ramp seems reasonable, but perhaps fast depending on the temperature.
* Comment M12: hysteresis is from thermal lag of the sample. Is this the organic sample, or the apparatus?
* Volume of air = 10x volume of sample
* Water samples are taken from DSC. They have been melted at 80-90 C as well.
* 4-15 micrograms.

Papers:

Viscosity Predictions, Evaporation Model

Tweezers and Single Particle Model

Diffusivity in HPLC – Link to viscosity through Stokes-Einstein

Measurement update:

Simple systems – sugars of varying chain length; simple salts. Not very complex, but nice to explain.

Atmospherically relevant systems – alpha-pinene SOA (trying to come up with a recipe for it right now). Three aromatic compound system to bridge the gap between relevant and simple. Mix of diacid, sugar, and humic acid as a proxy of various types of SOA. Sending compound list of these mixtures.