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Subject	Turbidity probe information
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Turbidity Information

The most important thing to remember when using the turbidity probes is that you are not looking for a definitive value of the refractive index, and values below 0% and above 100% are normal.

Generally, you are looking for more of a trend, and it is very obvious when crystallisation occurs.

As the temperature of the reaction changes the values shown by the turbidity probe will drift, this is normal. See Fig 1.

As it is not a quantitative value, it can drift. Therefore the calibration step is very important and I would recommend that the 0% calibration is carried out under the same light conditions as the reaction will be carried out.

Calibration

The 0%/100% calibration can be carried out in air or in the reaction solvent.

- A good way of ensuring the best calibration possible is to do the 0% in the normal way, and for the 100% place the turbidity probe tip in a small box (the node box), place the rubber strip across the top of the mirror, close the box and then perform the 100% calibration.

But do bear in mind that stray light, reflections from the rubber strip etc can cause discrepancies.

You can still get a -2.5% to -10% value when going from air to water due to the refractive index of water.

There can also be a discrepancy between the calibrated 0% value and the reaction value due to the glass of the vessel, and shadows from the Atlas system itself, so it is advisable to rotate the turbidity probe mirror away from the fume-cupboard sash.

As a caveat, the value can still spike by several %age points if the light sources around the vessel vary. See Fig 1 and 2

Also vibration from the stirrer, or via the vortex can cause the messy signal as observed in Fig 3

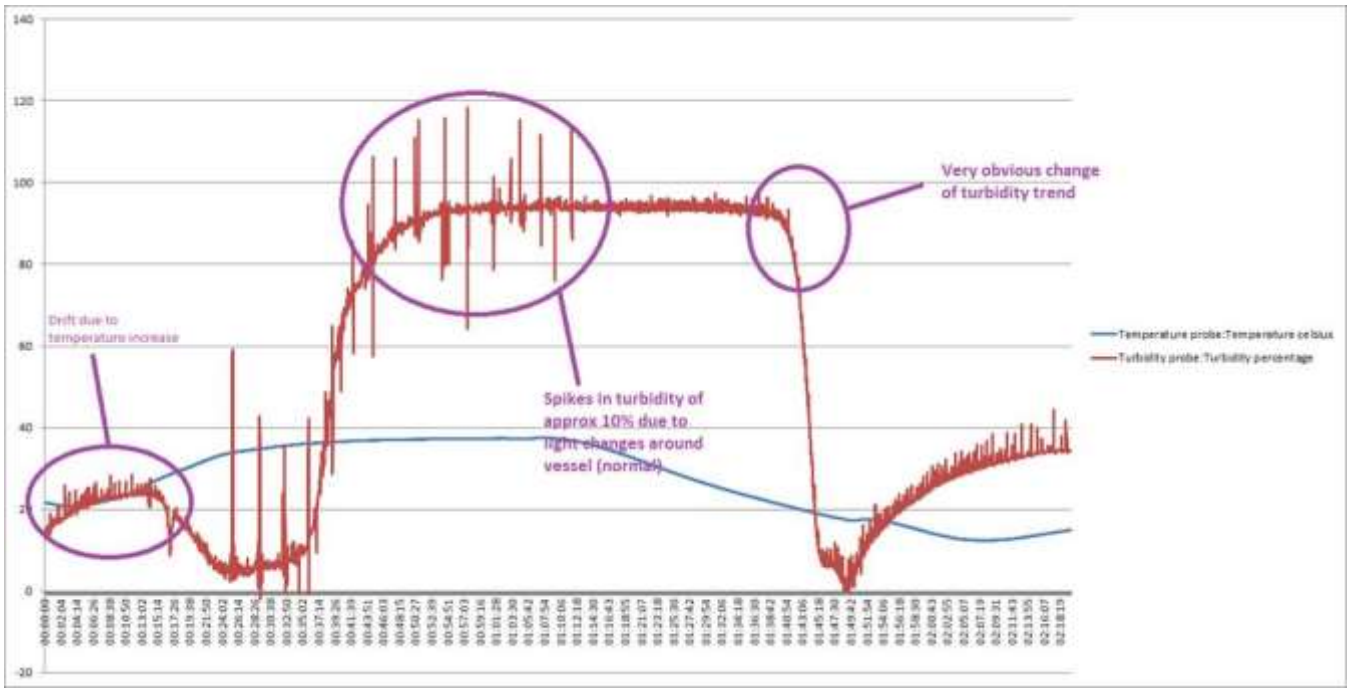

Fig 1: Graph to show temperature drift, light changes around vessel and obvious turbidity shift

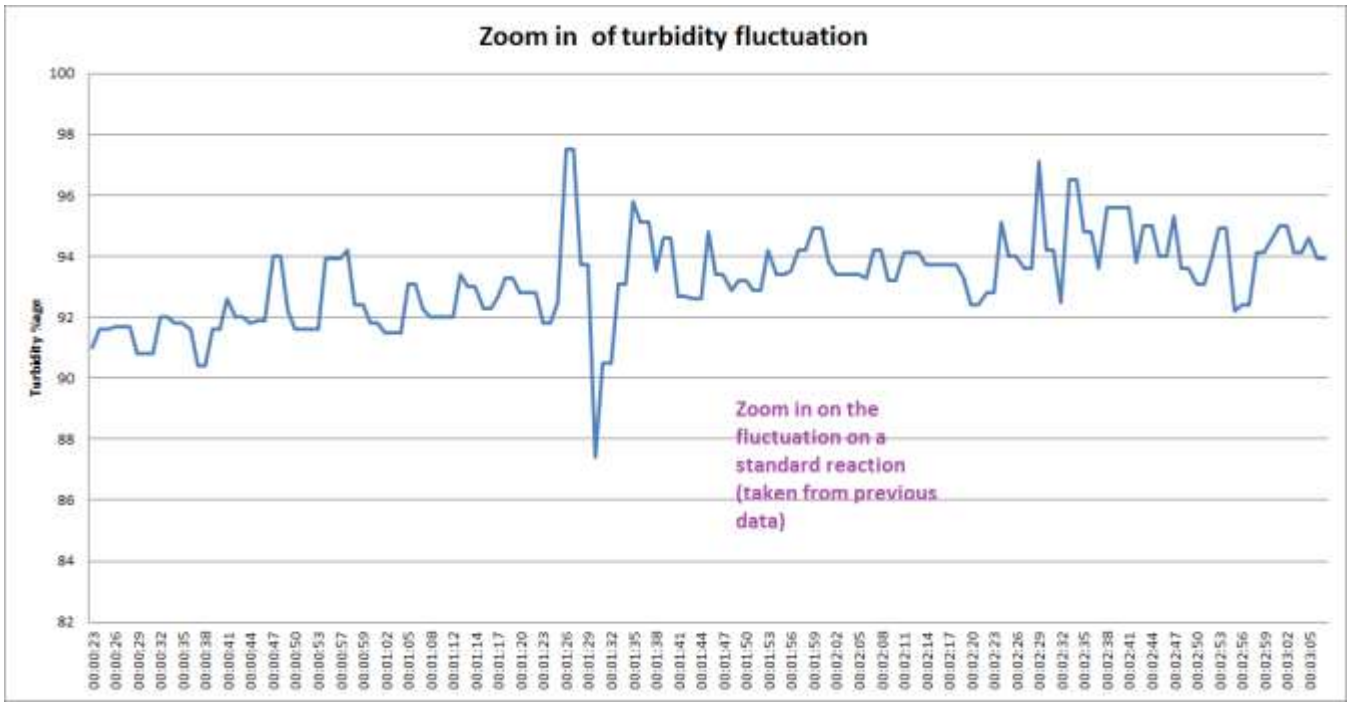

Fig 2: Expanded view of Fig 1

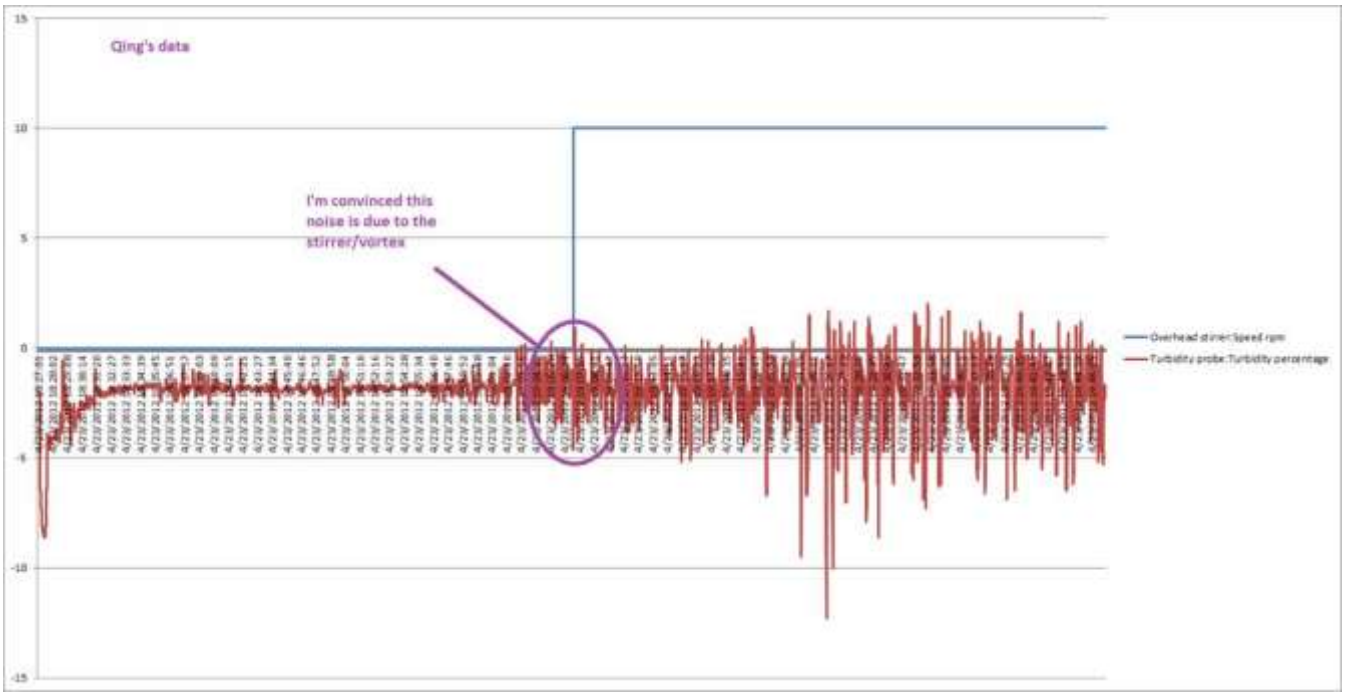

Fig 3: Graph to show effect of stirrer/vortex vibration on turbidity data