Analysis of Raw Beckman Data

This tool is designed to take raw Beckman .csv "Index" files and convert the data into usable files for both plotting progress curves (color development over time) as well as individual run results.

The tool will generate 3 tables from the files opened: Beckman Data_, _progCurves, & _justResults. The Beckman Data_ file represents a file that is closest to the raw data but cleaned up into a manageable form. The _progCurves file allows for mining the results as well as the color development per run. The _justResults files represents a single row of information for each run and contains both the color and blank portion of the reaction.

Currently no naming convention is required for the files other than being unique. The tool can pull out an Index file name as well as determine the model family of the instrument. Note: The 680 family outputs the Index file name directly as well as the date the index file was output. The 5800s only output the date the index file was output – this value is being treated as the 'Index File' for 5800 analyzers.

Running the tool:

When the tool is clicked the user is prompted to navigate to and select which files are to be analyzed. Untouched CSV files are preferred but the tool does have some tolerance for XLSX support. The tool will track and notify the user of files that cannot be imported and the JMP Log will display filenames that gave the tool trouble and were not imported.

(Untouched CSV files maintain the timestamp down to seconds. Opening in Excel and saving as a CSV breaks that unless the user specifically changes the timestamp to be **m/d/yyyy h:mm:ss AM/PM** format)

Each file will be cleaned up, based on the model family, and then the files concatenated into the Beckman Data_ file. This file then has all of the read stacked to make a progress curve file. (_progCurves)

One color and one blank row is subsetted out for each run, and that table is split to one row per run containing the AR of the run along with the specific Color and Blank reaction result (_justResults).

Tool Columns: A breakdown of columns made by the tool and what they mean

In the _justResults file, the columns created by the tool are colored.

UniqueRunID – A completely unique identifier (which should be unique across usages of this tool) comprised of the following:

- Lab
- Index File
- Unit No.
- Program
- Run ID

Index File – The name of the index file containing the data in the file. It's the true index name in 680 analyzers and created in 5800 analyzers from the date the file was created

Lab – The lab that ran the data

Model Family – Currently supports either 680 or 5800 series analyzers

Serial Number – Pulled from the index file of 5800 series analyzers. Does not seem to be available in 680 series analyzers.

Date – A short data of the Measured Date/Time

Sample – A demographic 'bucket' separating runs into 4 groups: QC runs, Calibration runs, Reagent Blank runs, & Patient runs

Program – The "Test Name" program for the run. It is comprised of the Color program of the color/blank pair without the Beckman's program numbering scheme.

Run ID – Splits runs into their batch Sample Number (or anything manually entered as well as separates calibration runs and reagent blank runs by their counts

Reaction ID – Combines the Run ID along with the reaction (Color or Blank)

Unit No. – Automatically present for 5800 runs but added for 680 runs and is the module number of the machine

Cal ID – A unique identifier for an instrument calibration composed of the time of the first row in the calibration event along with the program being run

Cal Used – For any non-calibration run, this references the Cal ID of the calibration event used to calculate the concentration of the non-calibration run. Note that if any given file has no calibration even preceding samples, the values will be blank and Cal Used will need to be inferred from compiled data or with the Calibration column supplied by 5800 analyzers

Cal Info – A column so that has common Cal ID/Cal Used is consistent for calibration/runs

AR-Rxn – The "AR" for the reaction which is comprised of the color reaction (pt 16 – pt 12) subtracting the blank reaction (pt 16 – pt 12)

Flag Desc – Descriptions of any flags that occurred

Cal ID_DataFlag – Column combining Cal ID and DataFlag to see if any calibrations had specific flags.

Curve Source – Left over from the _progCurves table. Identifies reagent curves (color) from blank or reagent blank curves.

TimePoint – Also left over from the _progCurves table. Represents the continuous timepoint of the read.

Blank – The blank reaction (pt 16 – pt 12)..

Color – The color reaction (pt 16 – pt 12).