Solution – MS Excel macro for Result Table check

Clarity can automatically export a chromatogram after an analysis or when the reprocessing of the chromatogram is finished. This macro will automatically load the exported chromatogram to MS Excel, subsequently format its Result table and add custom calculations to it, e.g. comparison to defined limits.

The functions are intended to be fine-tuned to a specific type of an analysis; it would have to be further customized to suit other types of data (e.g. PDA, multi-signal chromatograms). It is recommended to set the settings as described below and only after successful macro functioning on your PC start modifying or customizing the macro to meet your own needs.

All files necessary are included in the zip archive xls-export.zip
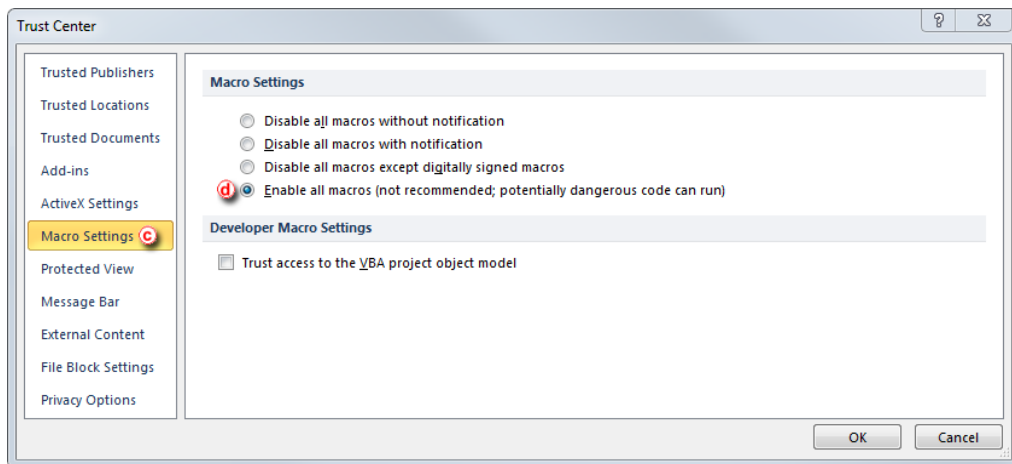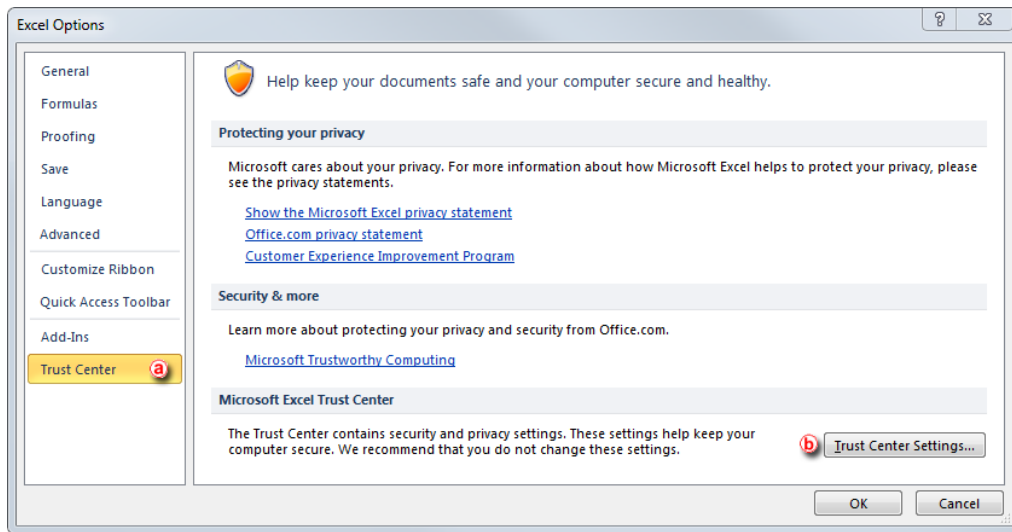
How to set up the macro

1. **Unblock macros in MS Excel**
   It is necessary to enable macros in MS Excel so the prepared macro can be run. The easiest way to enable macros is to set the Security level to Low. Please consult with your IT Administrator whether such operation is allowed in your environment.
   a) Open MS Excel
   b) Setting the security level to low
      - In MS Excel 2003 invoke *Security* dialog by clicking *Tools – Macro – Security* and set the level to Low
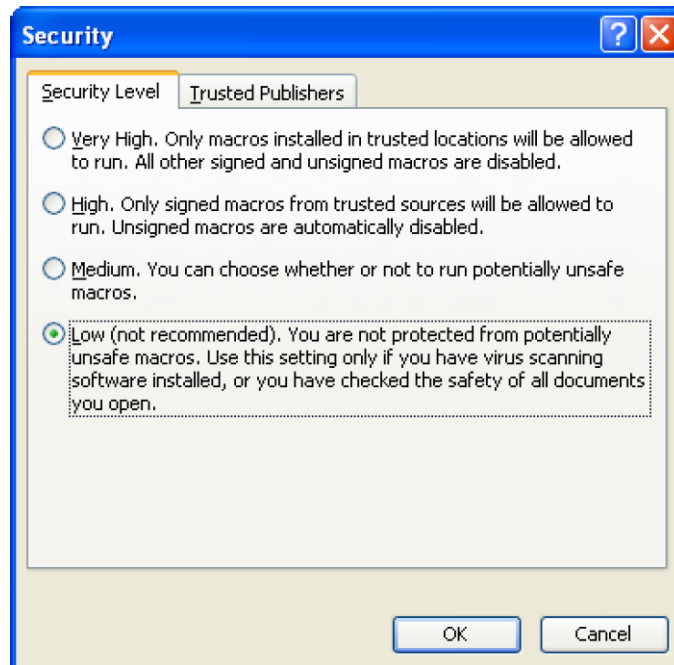
   - In MS Excel 2010 at first invoke *Excel options* dialog by clicking *File – Settings*, click on Trust Center ⓐ and invoke *Trust Center* dialog by clicking Trust Center Settings… ⓑ In the *Trust Center* dialog click on Macro Settings ⓒ and Enable all macros ⓓ

c) Close MS Excel

## 2. Copy the macro to your PC

a) Unzip the files within the archive xls-export.zip to *C:\xls-export* folder (given that the C:\ is your main local disc where the Clarity is installed)

3. Setup the macro in Clarity

a) Open Clarity

b) Open the *Instrument* window with the DEMO4 project

c) In the *Instrument* window invoke the *Export Data* dialog by clicking on menu *Setting – Export Data…*

d) Make sure only following checkboxes are checked: Result Table, In Fixed Format, Table Headers, Delimited By: <TAB> and Export to: Text File
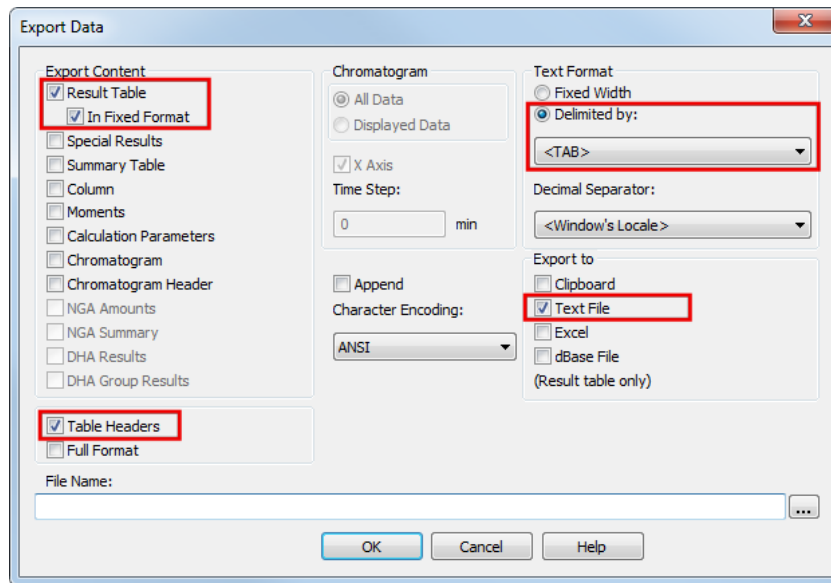
e) In the *Instrument* window invoke the *Batch* dialog by clicking on menu *Analysis – Batch…*

f) Check the Export Data and Only with Export checkboxes. In the Program to Run navigate to *C:\xls-export\OpenChromInExcel.bat* using the three-dot button. As a Parameters set %e so the exported file name will be the same as the name of the chromatogram.
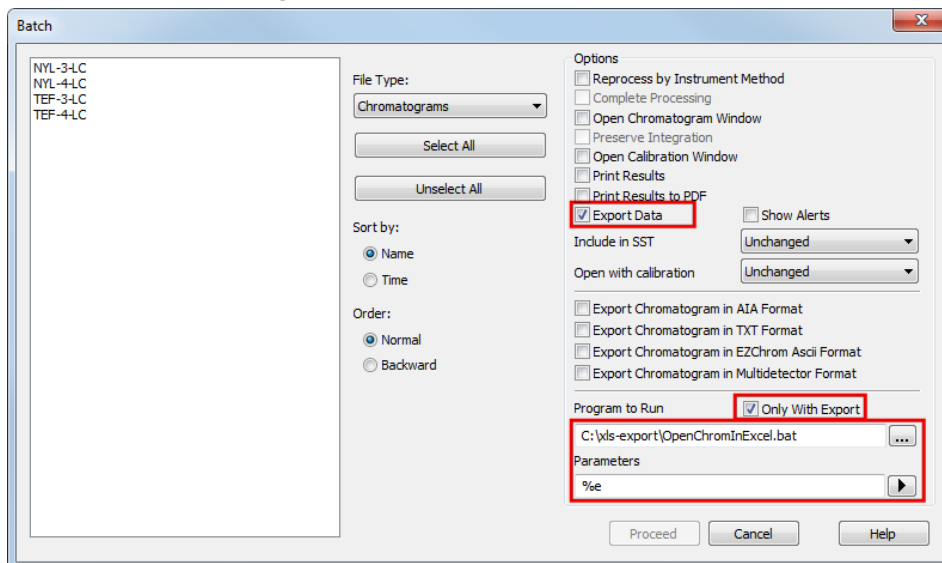
4. Result

The MS Excel should be opened with the exported chromatogram, where the Result Table is compared with Limits Table. It may look simple, but it is more complex. Here is what exactly happened:

a) Clarity exports the chromatogram to *.txt file

b) Program OpenChromInExcel.bat runs the Visual Basic OpenChrom.vbs script which will open the MS Excel file chromatogram-export.xls and pass the %e parameter (= the file name of the exported chromatogram) to the macros included in this excel file

c) The macro will import the text file to the chromatogram worksheet and add custom calculations (see the %Amount in column L, or the Average function in the cell G4)

d) Another macro will add a table with limits for the selected compounds and will indicate if the compound fits these limits (Passed) or exceeds the limits (Failed). Such limits can be specified in the "Limits" worksheet, the limits are linked using the name of the compound (compounds from DEMO4 project are prefilled).
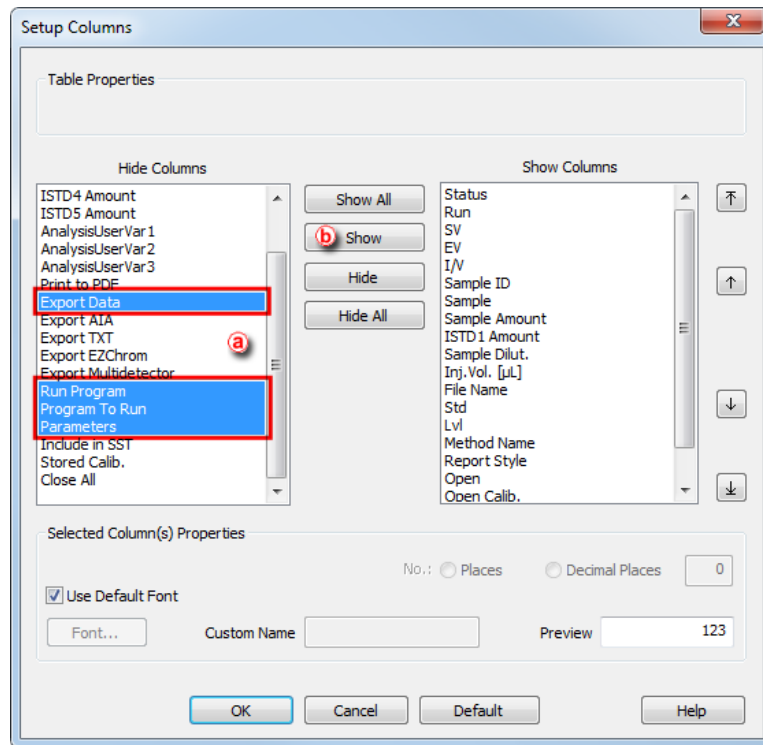
5. **Limitations**
   a) The macro currently works only with chromatograms containing one signal only (multi signal chromatograms would provide incorrect calculations of the average amount (cell G4) and the Amount% column).
   b) The macro will always open the chromatogram in the same excel file. To use it in an automatic environment, including a saving function would be useful to automatically save each MS Excel file under new name. Default behavior is that the MS Excel file will stay opened and can be saved manually.

6. **Automatization in real cases**
   a) Single Analysis – this macro can be run after each Single Analysis is done.
      - Invoke *PostRun Setting* dialog by clicking on menu *Setting – PostRun…* in the *Instrument* window. The setting is similar to point 3f) of this document.
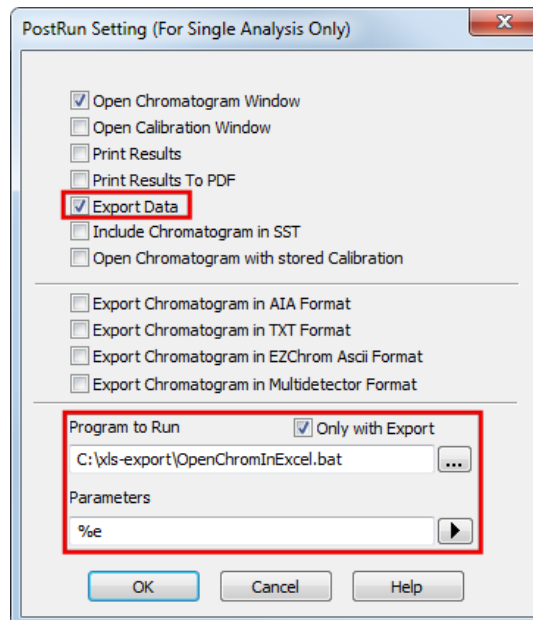
   b) Sequence – the Sequence Table enables to specify postrun settings for each row separately.
      - At first certain columns have to be set up in the Sequence Table. These columns are hidden by default. To do so, click the right mouse button in the Sequence Table and select the Setup Columns command. In the invoked *Setup Columns* dialog select the Export Data, Run Program, Program to Run and Parameters in the Hide Columns ⓐ and then click on the Show button ⓑ
      - In the Sequence Table check the Export Data and Run Program columns, specify path to OpenChromInExcel.bat file in the Program to Run column and fill in the %e parameter to Parameters column.

7. Additional information

- This macro has been tested on MS Excel 2013 and Clarity version 8.1.0.77.
- This macro serves only as an example of the possibilities of data exchange between Clarity and MS Excel; it is not a fully tested and supported application.

Send your comments, suggestions or questions to kohutek@dataapex.com or visit the Clarity forum at http://forum.dataapex.com where your can share your experience, wishes and more.