Technical Note No. 2031 Rev. 1.2

NucleoCounter® NC-202™ CSV File Output Documentation

The NucleoCounter® NC-202™ is a high-precision automated cell counter, using Via2-Cassettes™ for sample loading, staining and cell counting. The resulting data can be automatically exported as PDF or CSV files. This document provides information about the format of data included in the CSV file.

Introduction

The NucleoCounter® NC-202™ is a high-precision automated cell counter, using low magnification fluorescence microscopy and automated image analysis to identify and quantify live and dead cells. The NucleoCounter® NC-202™ is operated by the NC-View™ software.

Background

The NucleoCounter® NC-202™ acquires data and stores it in a CM file format. The NC-View™ software can be set to automatically export data in two file formats:

1. PDF files including images and results are designed for documenting the data as a printout

2. CSV files contain the numerical data values and text

The CSV files are useful for importing data into third-party software such as spreadsheets or data management systems. This technical note provides the specifications necessary to parse the CSV output file, recorded with the *Count & Viability* protocol of the NC-View™ software.

Notification

The CSV format may change with NC-View™ updates.

Set up Auto-Export of CSV Files

1. To auto-export CSV files, select the *Auto Export* tab in the *Options* window

2. Select the events that trigger the auto-export of CSV files:

    a. Select 'On New Data' to enable auto-export when new data is acquired

    b. Select 'On Change' to enable auto-export when data is changed. This includes changing the Sample ID, adding or deleting a tag, or adding a comment to a data set

    c. Select 'On Sign' to enable auto-export when data is signed

3. Choose whether to overwrite the CSV file with a new event, or to create a new CSV file with every new event enabled

4. Click the *Folder* icon to select the destination folder. This selection will apply to all users of the system. Thus, all users of the system need writing access to the selected folder

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CSV File Name Format

The CSV file name format is: Instrument serial number-yyyymmdd-#####-XX.csv (e.g. 9002020011900101-20210108-00012-01.csv).

The first CSV file in a folder for a data set will be named '01' in the XX-position of the CSV file name. If *Overwrite* has been selected, the 01 file will be overwritten when a new auto export event is triggered. If 'On new data' has been selected, the XX-position in the CSV file name will be sequentially increased, based on the existing CSV files in the selected folder, and a new CSV file will be created when an auto-export event is activated.

If there is no connection to the selected folder, the user does not have writing permission to the it, or the CSV file is write-protected, a warning will be given: 'Failed to save file'. When the connection has been reestablished or the CSV file is no longer write-protected, the CSV file can be created manually by selecting the data set from the file list or the file browser, followed by selecting the CSV export icon and the destination folder for the CSV file. Please note that manual export of a CSV file will result in the name format: instrument serial number-yyyymmdd-#####.csv (e.g. 9002020011900101-20210108-00012.csv). If the CSV sequential number ('XX') is needed, the file name of the CSV file should be manually changed.

CSV Output Documentation

General Information bbout CSV Format:

CSV Format Features	Type	Symbol
Column Separator	Tab	[no symbol]
Decimal	Period	.
Number Format	Scientific notation	7.25E05

Count & Viability Protocol:

Count & Viability	
Protocol Version(s)	1.40
Protocol Distributed with NC-View™ Version	2.1.0.5

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Row Number in CSV file	Column Number in CSV file		Description
	1	2 (example)	
1	Source ID:	20210108-00001	Column 2 field is a string This is the name of the data source. It has the format: yyyymmdd-##### (year month day)-(sequential number)
2	Time (UTC):	2021-01-08 08:44:03	Column 2 field is a string This is the UTC date and time the data was created. It has the format: yyyy-mm-dd hh:mm:ss (year-month-date hours:minutes:seconds)
3	Sample ID:	Jurkat	Column 2 field is a string The *Sample ID* is user-defined
4	Protocol:	Count & Viability; 1.40	Column 2 field is a string The name and version of the protocol used for generating the data. If using an adapted protocol, the output will be: name of the adapted protocol (version of the adapted protocol) followed by the name and version of the master protocol (e.g. 'Large Single Cells (1) derived from Count & Viability (1.40)')
5	Software version:	2.1.0.5	Column 2 field is a string The software version used when acquiring the data
6	Secure Mode status:	Disabled	Column 2 field is a string The secure mode status of NC-View™ when acquiring the data
7	Signed by:	userc	Column 2 field is a string The user that authenticated signing the data
8	Sample Media:	Via2-Cassette	Column 2 field is a string The sample media is the cassette type selected when acquiring the data
9	User:	userb	Column 2 field is a string The user signed in when acquiring the data
10	Operator:	User b	Column 2 field is a string Input in the *Operator* field when acquiring the data
11	Instrument:	S/N:9002020011900103	Column 2 field is a string The serial number of the NC-202™ used when acquiring the data
12	Tags:	Project A	Column 2 field is a string The tags defined by the user. If multiple tags are defined, they are separated by ";"
13	Comments:	Test setup [2021-01-08 08:44:38 userb]	Column 2 field is a string The comments added by the user. UTC date and time of comment. User that added the comment. If multiple comments have been added, they are separated by ";"
14	Total (cells/ml):	2.49E+06	Column 2 data field is a number
15	Live (cells/ml):	2.38E+06	Column 2 data field is a number
16	Dead (cells/ml):	1.12E+05	Column 2 data field is a number
17	Viability (%):	95.3	A) Column 2 data field <u>can</u> be a number B) If no cells are found, the output is a string "NA"
18	Diameter (um):	11.1	A) Column 2 data field <u>can</u> be a number B) If no single cells are found, the output is a string "NA"
19	Aggregates (%):	0	A) Column 2 data field <u>can</u> be a number B) If no cells are found, the output is a string "NA"
20	Debris Index:	5	A) Column 2 data field <u>can</u> be a number B) If no cells are found, the output is a string "NA"
21	Dilution Factor:	1	Column 2 data field is a number The dilution factor used for calculating cell concentrations

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22	Status:	OK	Column 2 data field is a string
			The status of the data acquisition process. The status field shows "OK" for a nominal protocol runs.
			Alternatively, the status can be "Warning: " followed by:
			• "Out of range 5x10E4 - 1x10E7 cells/ml)" – The cell concentration in the analyzed sample is not within the optimal range (5x10E4 to 1x10E7 cells per ml)
			• "Bubble detected" – One or more bubbles have been detected
			• "Foreign object detected" – One or more foreign objects have been detected
			If multiple warnings exist for the data set, they will be separated by ";"

Handling and Storage

For handling and storage of ChemoMetec® instruments and reagents, cassettes and NC-Slides refer to the corresponding product documentation. For other reagents refer to the material data sheet from the manufacturer of the reagents and chemicals.

Warnings and Precautions

For safe handling and disposal of the ChemoMetec® reagents, cassettes and NC-Slides refer to the corresponding product documentation and the NucleoCounter® NC-202™ user guide. For other reagents refer to the safety data sheet from the manufacturer of the reagents and chemicals required for this protocol. Wear suitable eye protection and protective clothes and gloves when handling biologically active materials.

Limitations

The NucleoCounter® NC-202™ system is FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE. The results presented by the NucleoCounter® NC-202™ system depend on correct use of the reagents, cassettes and the NucleoCounter® NC-202™ instrument and may depend on the type of cells being analyzed. Refer to the NucleoCounter® NC-202™ user's guide for instructions and limitations.

Liability Disclaimer

This application note is for RESEARCH PURPOSES ONLY. It is not intended for food, drug, household, or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. The above information is correct to the best of our knowledge. Users should make independent decisions regarding completeness of the information based on all sources available. ChemoMetec A/S shall not be held liable for any damage resulting from handling or contact with the above product.

Product Disclaimer

ChemoMetec A/S reserves the right to introduce changes in the product to incorporate new technology. This application note is subject to change without notice.

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