

# How to identify the right viscosity Liquid Class for the I.DOT L

Maria Aniolek, Dispendix GmbH

The I.DOT L is a high throughput non-contact liquid handler equipped with 96 large reservoir source wells to extend the source volume throughput. With an increase from 80 µl to 500µl per single source well the total dispensing volume is increased from 7680 µl to 48000µl. This allows to dispense from ultra -low volumes up to high liquid transfers.

The system uses eight individually controlled pressure channels that can generate up to 100 droplets per second giving control and speed to the users while saving time and costs. It supports multiple liquid classes that can be applied to each individual well to maintain high flexibility for the protocol set-up.

Providing 8 different viscosity liquid classes (VSCY LQC) the I.DOT L already covers the full range of liquid classes with a maximum inaccuracy of 5%, if a liquid does not cover exactly one of the VSCY LQC.

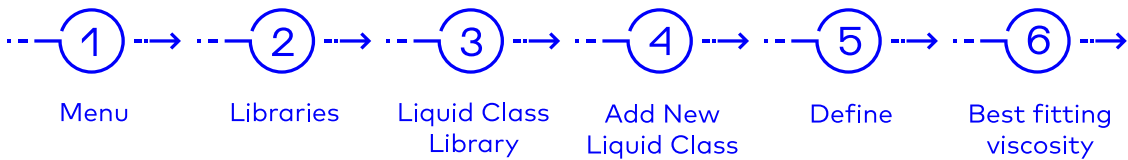
The liquid can simply be classified by the liquid class manager without having to create a liquid class for each.

Tools/Materials

Tool/Material Name
I.DOT L
L. 100 Plates
Viscosity Liquid Classes
Calibrated pipette
Sample liquid
Viscosity-LQC Dropcount protocols

1.

Genomics & proteomics



2.

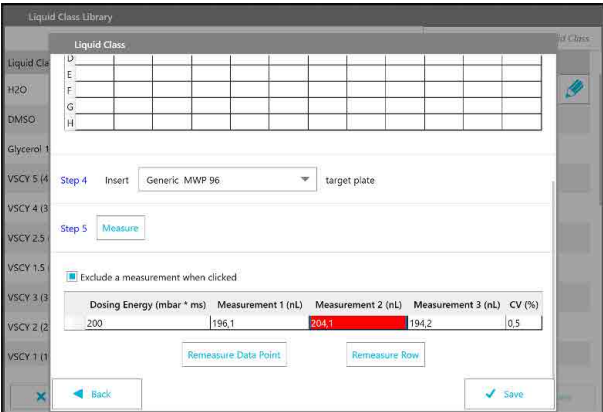
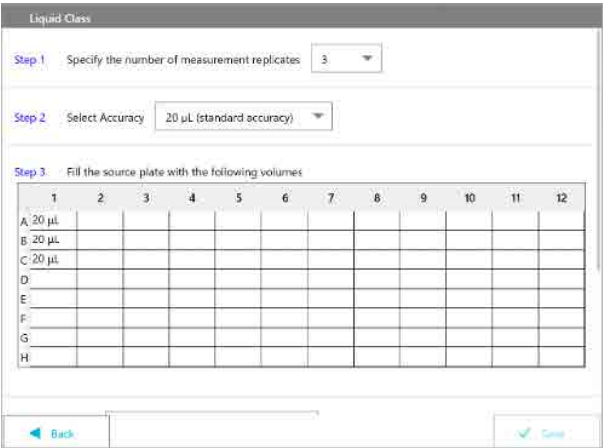
Measure the droplet volume at 200mbar\*ms

Define the number of measurement replicates and the accuracy and fill in the defined volume into the wells displayed.

Insert a target plate and click on Measure. If required, measurements can be excluded to obtain a lower CV (%). Excluded measurements will be displayed in red. If necessary, single data points or a whole row can be remeasured.

If you see any dead volume after the first measurement, leave it in the well and repeat the measurement with the dead volume inside the will. If this would not be done too less volume would be dispensed.

By clicking on save, the best fitting liquid class will be applied to the liquid.



## Overview of the droplet volume at 200mbar\*ms for the single viscosity liquid classes

LQC	Droplet volume at 200 mbar*ms
Water	43,5 nl
VSCY – LQC 1	40,7 nl
VSCY – LQC 1.5	38 nl
VSCY – LQC 2	36,4 nl
VSCY – LQC 2.5	33,3 nl
VSCY – LQC 3	30,9 nl
VSCY – LQC 4	27 nl
VSCY – LQC 5	23,6 nl

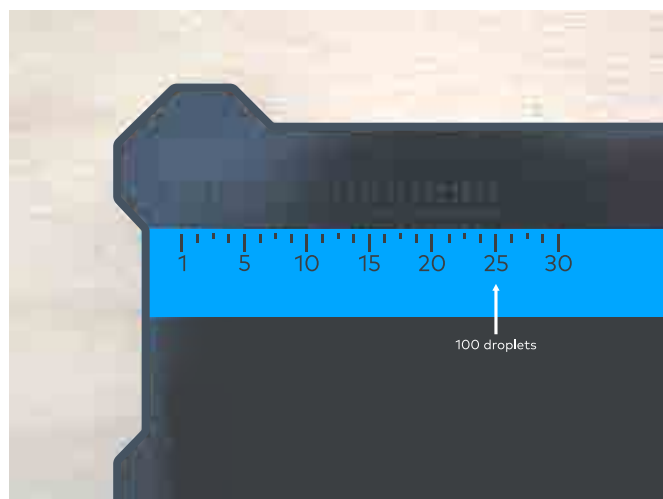
The measured mean droplet volume will be compared with the values in the table and the best fitting Viscosity Liquid Class with the value closest to the measured droplet volume will be chosen.

# 3.

### Verification of the liquid class

To ensure that the Viscosity Liquid Class is fitting to the sample liquid the Dropcount protocol with the respective Viscosity LQC should be performed.

- Open the protocol Dropcount I.DOT L.idox, apply the liquid class that was defined for your liquid and insert adapter plates into the target tray to dispense on.
- Fill the dispensing well with 22  $\mu\text{L}$  of the sample liquid and start the first measurement. If you see any dead volume after the first measurement, leave it in the well and repeat the first measurement – continue with the dead volume inside the well – if this would not be done too less volume would be dispensed.
- It is of utmost importance to use a calibrated pipette for those measurements and to pipette exactly 22  $\mu\text{L}$  into the well to perform this test with the highest accuracy!
- The software will calculate a filling volume of 26.4  $\mu\text{L}$ , but the purpose of this measurement is to dispense exactly 100 droplets, which can be realized by filling the well with 22  $\mu\text{L}$ .
- Count the dispensed droplets on the target plate.
- The deviation between the counted droplets to the desired 100 droplets is the deviation of the accuracy.
- Depending on the respective accuracy goal (we claim for 5%) the counted droplets should be between 95 and 105.
- Is the droplet number too high (>105 droplets) the next higher Viscosity LQC should be used; is the droplet number too low (<95 droplets) the next lower Viscosity LQC should be used.





©2021 BICO AB. All rights reserved. Duplication and/or reproduction of all or any portion of this document without the express written consent of BICO is strictly forbidden. Nothing contained herein shall constitute any warranty, express or implied, as to the performance of any products described herein. Any and all warranties applicable to any products are set forth in the applicable terms and conditions of sale accompanying the purchase of such product. BICO provides no warranty and hereby disclaims any and all warranties as to the use of any third-party products or protocols described herein. The use of products described herein is subject to certain restrictions as set forth in the applicable terms and conditions of sale accompanying the purchase of such product. BICO may refer to the products or services offered by other companies by their brand name or company name solely for clarity and does not claim any rights to those third-party marks or names. BICO products may be covered by one or more patents. The use of products described herein is subject to BICO's terms and conditions of sale and such other terms that have been agreed to in writing between BICO and user. All products and services described herein are intended FOR RESEARCH USE ONLY and NOT FOR USE IN DIAGNOSTIC PROCEDURES.

The use of BICO products in practicing the methods set forth herein has not been validated by BICO, and such nonvalidated use is NOT COVERED BY BICO'S STANDARD WARRANTY, AND BICO HEREBY DISCLAIMS ANY AND ALL WARRANTIES FOR SUCH USE. Nothing in this document should be construed as altering, waiving or amending in any manner BICO's terms and conditions of sale for the instruments, consumables or software mentioned, including without limitation such terms and conditions relating to certain use restrictions, limited license, warranty and limitation of liability, and nothing in this document shall be deemed to be Documentation, as that term is set forth in such terms and conditions of sale. Nothing in this document shall be construed as any representation by BICO that it currently or will at any time in the future offer or in any way support any application set forth herein.

#### Contact

Tel: +49 (0) 711 490 544 00  
Email: [info@dispendix.com](mailto:info@dispendix.com)  
Website: [www.dispendix.com](http://www.dispendix.com)