

Document Title: Instructions for Collecting Data Sets for Determining Moisture Content by Water Activity		Part # 13962	
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Dimensions: 8.5 inch wide, 11 inch tall


Material: Paper, 92 Bright White or better, 75g/m² or heavier

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Adhesive: None **Special Notes:** Illustrations are Ref Only ** Not to Scale**


Application Note

Instructions for Collecting Data Sets for Determining Moisture Content by Water Activity

To collect data needed to create a DUO model for moisture content by water activity measurements for 1 product, follow these 12 Steps:

1. To develop an AquaLab DUO model for a given product, water activity and moisture content data is needed for a set of samples. A minimum of 20 readings is needed to construct a good model and more may be needed depending on the natural variation of the product. The idea for these samples is to represent the variation natural to the product due to production, so the samples selected for analysis should be taken randomly over time from production runs. Twenty samples is the minimum, but more samples are better and in this case, the more variation in the samples the better. The moisture content method used to generate moisture content data should be the method the DUO is supposed to match.
 - i. The best method to collect water activity and moisture content data would be to take a random sample from production and make at least 3 subsamples (more can be used if more duplication is desired).
 1. 1 subsample should be analyzed for water activity using an AquaLab DUO at 25C (An AquaLab Series 4TE will work as well if an AquaLab DUO has not yet been purchased).
 - a. A free version of the AquaLink RG software will be included with the purchase of an AquaLab DUO or a trial version will be included with the purchase of an AquaLab Series 4TE without the DUO functionality (if it is a demo instrument, should still have a trial version of AquaLink RG). This software program will facilitate data collection and should be loaded on a computer that can be connected to the water activity instrument.
 2. If the instrument is connected to a computer while running the water activity test, the results will automatically be entered into the software program in the water activity column.
 3. If AquaLink RG cannot be used, water activity data should be manually entered into Excel.
 - ii. The other 2 subsamples should be used to do duplicate moisture content analyses using the company's reference method. Examples of reference methods include oven loss-drying, Karl Fischer titration, vacuum oven, or even moisture balances (although not technically a reference method). The average moisture content should then be entered into AquaLink RG in the Reference Moisture column next to its corresponding water activity (or into the excel sheet).
- ii. Repeat step 1 for each of the minimum 20 samples (or more if desired) at 25C recording the results for each sample in AquaLink RG (or excel sheet).

- 2. If model data is being collected prior to purchasing either an AquaLab DUO or an AquaLab Series 4TE and a water activity instrument isn't available, it may be necessary to demo a water activity instrument from Decagon to collect the needed water activity data.
- 3. Once the data has been collected, it should be saved as an Excel or text file and emailed to Decagon at brady@decagon.com. If the data was collected in AquaLink RG, it can be highlighted and either saved as an Excel file, csv file, or copied and

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