

Application Note

[AN]RTV20221025001

[NOTE] How to use the "Dilution Factor" function to adjust the working range of the lateral flow test?



Application:

Using RapidScan's dilution factor when analyzing one analyte in a variety of samples allows user to detect different types of samples with one lateral flow test. Food safety testing, agriculture testing, and environmental testing commonly use dilution factor to detect mycotoxins among different samples.

Product: RTV & ERTV

Introduction:

1. When using the same lateral flow test and analyte, but different specimens. Due to different sample and excess concentrations.

--> Some samples require a dilution process to reach the working range for lateral flow testing.

For example: Aflatoxin may exist in rice, beans, corn, etc., but the toxin content to be detected may be different.

2. The numerical values of the following examples are all under the assumptions, for the convenience of explanation.

Example:

1. Assumption:

A. Using Lateral flow test kit for the detection of aflatoxin. Its **Working Range** is 20 - 50 µg/mL.

B. Wheat:

Positive → Aflatoxin concentration > 60 µg/ml

Negative → Aflatoxin concentration ≤ 60 µg/ml

Peanut:

Positive → Aflatoxin concentration > 120 µg/ml

Negative → Aflatoxin concentration ≤ 120 µg/ml

C. Dilution factor **within Working Range:**

Wheat → 2X

Peanut → 4X

D. Changes in concentration **after dilution.**

Wheat:

Positive → Aflatoxin concentration $>30(60/2)$ $\mu\text{g/ml}$

Negative → Aflatoxin concentration $\leq 30(60/2)$ $\mu\text{g/ml}$

Peanut:

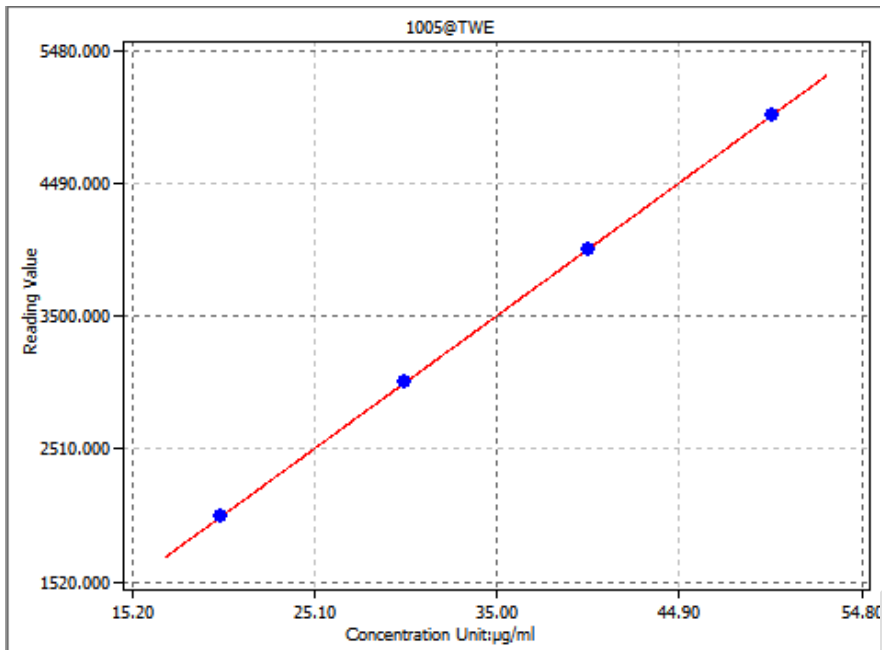
Positive → Aflatoxin concentration $>30(120/4)$ $\mu\text{g/ml}$

Negative → Aflatoxin concentration $\leq 30(120/4)$ $\mu\text{g/ml}$

→ **Reach the Cassette's Working Range**

E. Use the Quantitative Mapping Curve function in Modify Lot to convert the T value to the concentration value.

	T value	Aflatoxin concentration	unit
1	2000	20	$\mu\text{g/ml}$
2	3000	30	
3	4000	40	
4	5000	50	



Quantitative Mapping Curve

Bias: Result Significant Digits:

Result Formula:

Concentration:

Curve:

4PL Parameters

Working Range: Concentration -

a b c d

2. Dilution Statement and Qualitative Statement settings:

Dilution Statement

Menu(Max. 6)

Qualitative Statement

Statement

Formula

Result Text

Set the sample name.

Set the dilution factor.

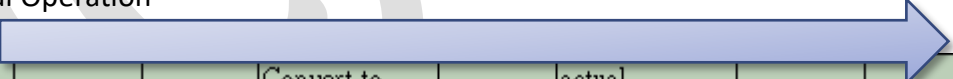
Dilution Statement
 Menu(Max. 5) **Wheat** Factor: 2.000 Inc.1 Del

Qualitative Statement
 Statement + Clear
 Formula T1_CONCENTRATION>60
 Result Text + Text 2:

Dilution Statement
 Menu(Max. 5) **Peanut** Factor: 4.000 Inc.1 Del

Qualitative Statement
 Statement + Clear
 Formula T1_CONCENTRATION>120
 Result Text + Text 2:

3. Actual Operation

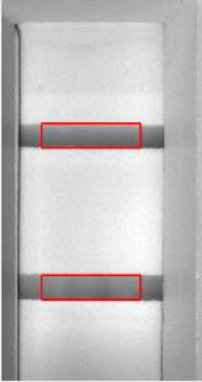


	specimen	T Value	Convert to concentration (µg/ml)	Dilution factor	actual concentration (µg/ml)	Formula	Result
#1	Wheat	4078	40.78	2x	81.56	>60	+
#2	Peanut	3009	30.09	4x	120.36	>120	+
#6	Wheat	2298	22.98	2x	45.96	<60	-

#1

Testing Result

20221025-10



Result : +

C-Value : 3898

T1-Value : 4078

Open the report folder...

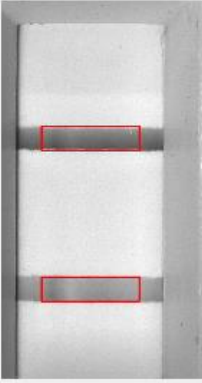
Generate report

Remarks :

#2

Testing Result

20221025-11



Result : +

C-Value : 4271

T1-Value : 3009

Open the report folder...

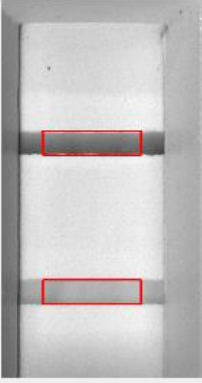
Generate report

Remarks :

#6

Testing Result

20221025-12



Result : -

C-Value : 4284

T1-Value : 2298

Open the report folder...

Generate report

Remarks :