

Certificate No.: FT0007-069-071911

METTLER TOLEDO

Mettler Toledo
Service Business Unit Laboratory
1900 Polaris Parkway
Columbus, OH 43240
1-800-METTLER

Standard Calibration Certificate

Customer

<i>Company:</i>	ABC Pharma Incorporated		
<i>Address:</i>	1432 East 9th Street		
<i>City:</i>	Columbus	<i>State/Province:</i>	OH
<i>Zip/Postal:</i>	43322		
<i>Contact:</i>	John Buttler	<i>Work Order No.:</i>	98984759

Device

<i>Manufacturer:</i>	Mettler Toledo	<i>Terminal Type:</i>	IND780
<i>Model:</i>	KE1500 1500kg	<i>Serial No. Terminal:</i>	767287876HYH
<i>Serial No.:</i>	9889828892	<i>Printer Serial No.:</i>	8973743988
<i>Max Capacity:</i>	1500 kg	<i>Location:</i>	Formulation Rm 4B
<i>Readability:</i>	0.2 kg	<i>Asset No.:</i>	89879992
<i>Scale Class:</i>	III	<i>Verification Value:</i>	0.2 kg
<i>Tolerance Type:</i>	In-Service		

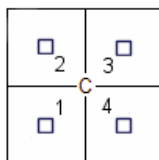
Procedure Statement: The device referenced in this document has been metrologically tested in accordance with METTLER TOLEDO Work Instruction. All translations into other languages are based on the referenced work instruction, which is in English.
This certificate refers to : As Found and As Left

Conform Statement: This device was tested in accordance with MT SOP # VP0080A and is certified to **CONFORM** with MT Procedures.

<i>Test Date:</i>	19-Jul-2011	<i>Next Cal. Due Date:</i>	31-Jul-2012
<i>Service Technician:</i>	Craig Stickel	<i>Signature:</i>	ELECTRONIC SIGNATURE

Measuring Results

Eccentricity



Test Weight

500 kg

Position	AS FOUND		AS LEFT	
	Displayed Value	Deviation	Displayed Value	Deviation
Center	500.0 kg	N/A	500.0 kg	N/A
Left Front	500.0 kg	0.0 kg	500.0 kg	0.0 kg
Left Rear	499.8 kg	0.2 kg	500.0 kg	0.0 kg
Right Rear	500.0 kg	0.0 kg	500.0 kg	0.0 kg
Right Front	500.2 kg	0.2 kg	500.0 kg	0.0 kg
Maximum Deviation:	0.2 kg		0.0 kg	
Allowable Deviation:	0.6 kg		0.6 kg	
Within Tolerances:	YES		YES	

Linearity

	<i>As Found</i>				
	<i>Nominal Value</i>	<i>Reading</i>	<i>Error</i>	<i>Allowable Error</i>	<i>Within Tolerances</i>
1	0 kg	0.0 kg	0.0 kg	0.2 kg	YES
2	4 kg	4.2 kg	0.2 kg	0.2 kg	YES
3	250 kg	250.0 kg	0.0 kg	0.4 kg	YES
4	500 kg	500.0 kg	0.0 kg	0.6 kg	YES
5	750 kg	749.8 kg	-0.2 kg	0.6 kg	YES
6	1000 kg	1000.0 kg	0.0 kg	0.6 kg	YES
7	1500 kg	1500.0 kg	0.0 kg	0.6 kg	YES

	<i>As Left</i>				
	<i>Nominal Value</i>	<i>Reading</i>	<i>Error</i>	<i>Allowable Error</i>	<i>Within Tolerances</i>
1	0 kg	0.0 kg	0.0 kg	0.2 kg	YES
2	4 kg	4.0 kg	0.0 kg	0.2 kg	YES
3	250 kg	250.0 kg	0.0 kg	0.4 kg	YES
4	500 kg	500.0 kg	0.0 kg	0.6 kg	YES
5	750 kg	750.0 kg	0.0 kg	0.6 kg	YES
6	1000 kg	1000.0 kg	0.0 kg	0.6 kg	YES
7	1500 kg	1500.0 kg	0.0 kg	0.6 kg	YES

Repeatability

Test Weight: 750 kg

	<i>Without Test Weight</i>	<i>With Test Weight</i>	<i>Actual Value</i>
1	0.0 kg	750.0 kg	750.0 kg
2	0.0 kg	750.0 kg	750.0 kg
3	0.0 kg	750.0 kg	750.0 kg
	<i>Deviation:</i>		0.0 kg
	<i>Allowable Error:</i>		0.6 kg
	<i>Within Tolerances:</i>		YES

Uncertainty

<i>Loads Applied</i>	x_i	0 kg	4 kg	250 kg	500 kg
<i>Combined Uncertainty</i>	$u(E_i)$	± 0.06 kg	± 0.06 kg	± 0.06 kg	± 0.06 kg
<i>Expanded Uncertainty</i>	U	± 0.12 kg	± 0.12 kg	± 0.12 kg	± 0.12 kg
<i>Loads Applied</i>	x_i	750 kg	1000 kg	1500 kg	N/A
<i>Combined Uncertainty</i>	$u(E_i)$	± 0.06 kg	± 0.06 kg	± 0.07 kg	N/A
<i>Expanded Uncertainty</i>	U	± 0.12 kg	± 0.12 kg	± 0.14 kg	N/A

Note that measurement uncertainty was not included in the comparison to the MPE. If your procedures require inclusion of measurement uncertainty, the current uncertainty requires increasing the MPE by an expansion factor of 30%.

Minimum Weight Certificate**Expanded Measurement Uncertainty**

$$U = U_0 + C \times I$$

$$U_{r1} = 0.12 \text{ kg} + 0.000013 \times \text{Load}$$

Value "I" represents the display at various net loads

Example calculated expanded measurement uncertainty values at different net weight displays:

<i>Net Weight Display</i>	<i>Expanded Measurement Uncertainty</i>	
1.5 kg	0.1 kg	8.00133 %
15 kg	0.1 kg	0.80133 %
150 kg	0.1 kg	0.08133 %
750 kg	0.1 kg	0.01733 %
1500 kg	0.1 kg	0.00933 %

Explanation of minimum weight table:

The minimum weight values in this table indicate where the instrument expanded measurement uncertainty (k=2, ~95% confidence) multiplied by a safety factor is equal to or lower than the required weighing accuracy. Find the minimum weight value where the required Weighing Accuracy (0.1, 0.2, 0.5, 1, 2, 5%) intersects the desired Safety Factor (1, 2, 3, 5).

Table of minimum net weight display values (minimum weights) for different weighing accuracies and various safety factors

<i>Weighing Accuracy</i>	<i>Safety Factors</i>			
	<i>1x (no safety factor)</i>	<i>2x (safety factor of 2)</i>	<i>3x (safety factor of 3)</i>	<i>5x (safety factor of 5)</i>
0.1 %	121.6 kg	246.6 kg	375.0 kg	642.9 kg
0.2 %	60.4 kg	121.6 kg	183.7 kg	310.3 kg
0.5 %	24.1 kg	48.3 kg	72.6 kg	121.6 kg
1 %	12.0 kg	24.1 kg	36.1 kg	60.4 kg
2 %	6.0 kg	12.0 kg	18.0 kg	30.1 kg
5 %	2.4 kg	4.8 kg	7.2 kg	12.0 kg

Notes on minimum weight values in above table:

1. If "N/A" is shown above, no appropriate value could be calculated.
2. For multirange and multi-interval devices, the display values in the above table apply to the smallest weighing range.
3. METTLER TOLEDO is not responsible for the proper selection of a Weighing Accuracy or Safety Factor.
4. The user is responsible for ensuring that device settings are not modified from the settings at the time the tests for producing this certificate were conducted.
5. The user is responsible for ensuring that the environment does not change from that found at the time the tests for producing this certificate were conducted.

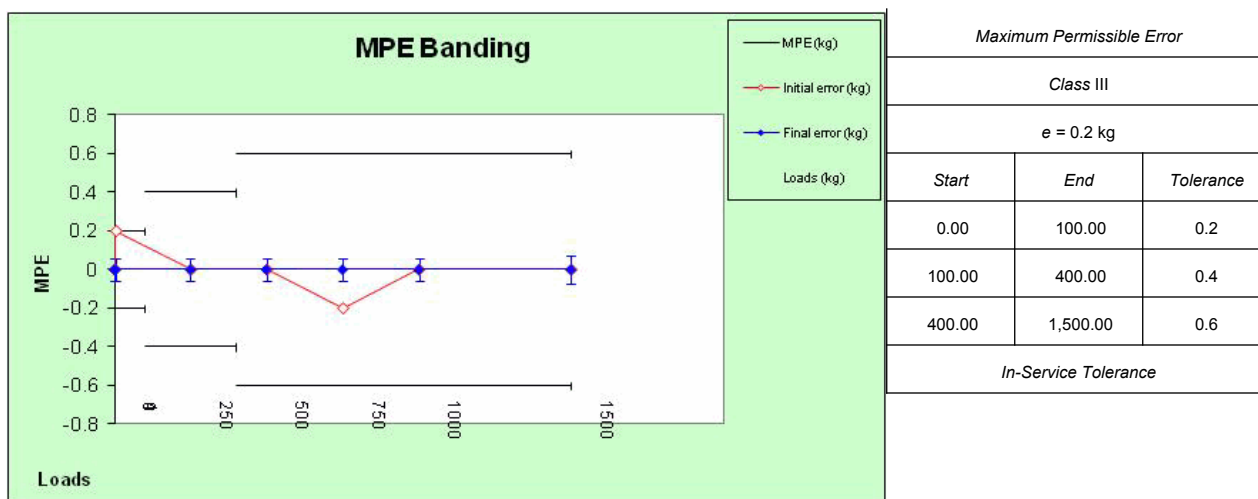
Reference Weights

Traceability All weights used for metrological testing are traceable to national or international standards. The weights were calibrated and certified by an accredited calibration laboratory.

Weight Set 1

<i>Weight Set No.:</i>	M1 Weight Set	<i>Certificate Number:</i>	667739928378
<i>Class:</i>	M1	<i>Date of Issue:</i>	1-Feb-2011
<i>Calibration Due Date:</i>	1-Feb-2012		

MPE Banding



Remarks

None.