

**HORIBA**  
Scientific

HORIBA SZ-100 for Windows [Z Type] Ver2.40

**SZ-100**

Graph Type ID# File Name Measurement Type Date  
202105171732002 PTU\_2149.nml Molecular Weight(Debye Plot) Monday, 17 May 2021 5:32:28 PM

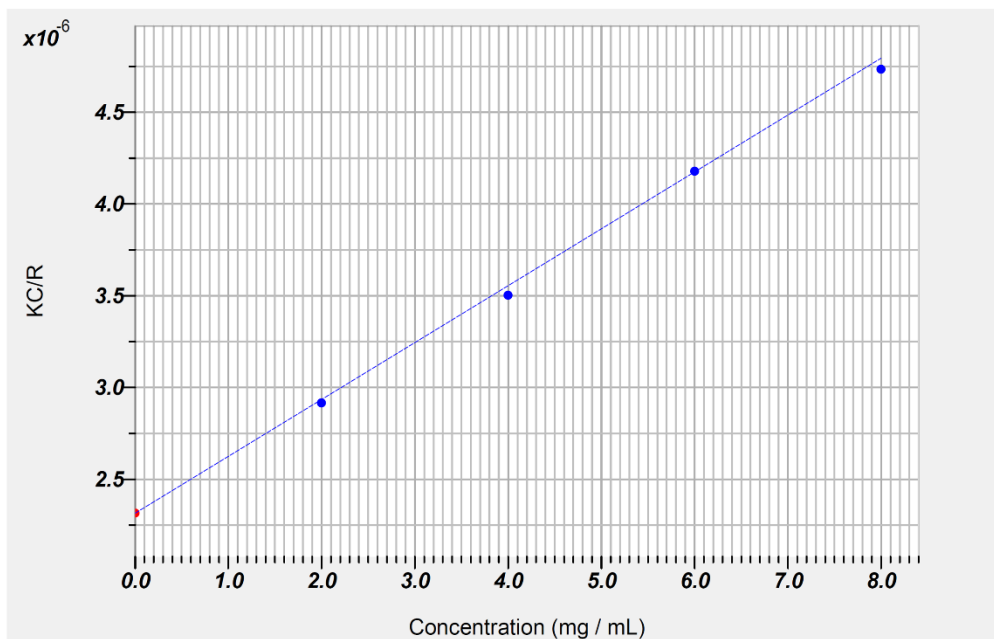
## PTU Replicate 1


### PTU\_2149.nml Measurement Results

Date	: Monday, 17 May 2021 5:32:28 PM
Measurement Type	: Molecular Weight(Debye Plot)
Sample Name	: PTU
Scattering Angle	: 90
Temperature of the Holder	: 25.0 °C
Plot Type	: Debye
Concentration	: 2.000, 4.000, 6.000, 8.000 mg/mL
Rayleigh Ratio	: $6.100 \times 10^{-6} \text{ cm}^{-1}$
Refractive Index Increment	: 0.072 mL/g
Standard Dispersant Name	: DMSO-Std
Refractive Index of Standard Dispersant	: 1.477

### Calculation Results

Molecular Weight	: 432.2 kDa
Second Virial Coefficient	: $1.549 \times 10^{-4} \text{ mL mol/g}^2$
$P^{-1}(\Theta)$	: 1.000



Graph Type	ID#	File Name	Measurement Type	Date
	202105181710011	PTU-Q2_2162.nml	Molecular Weight(Debye Plot)	Tuesday, 18 May 2021 5:10:21 PM

## PTU

### Replicate 2

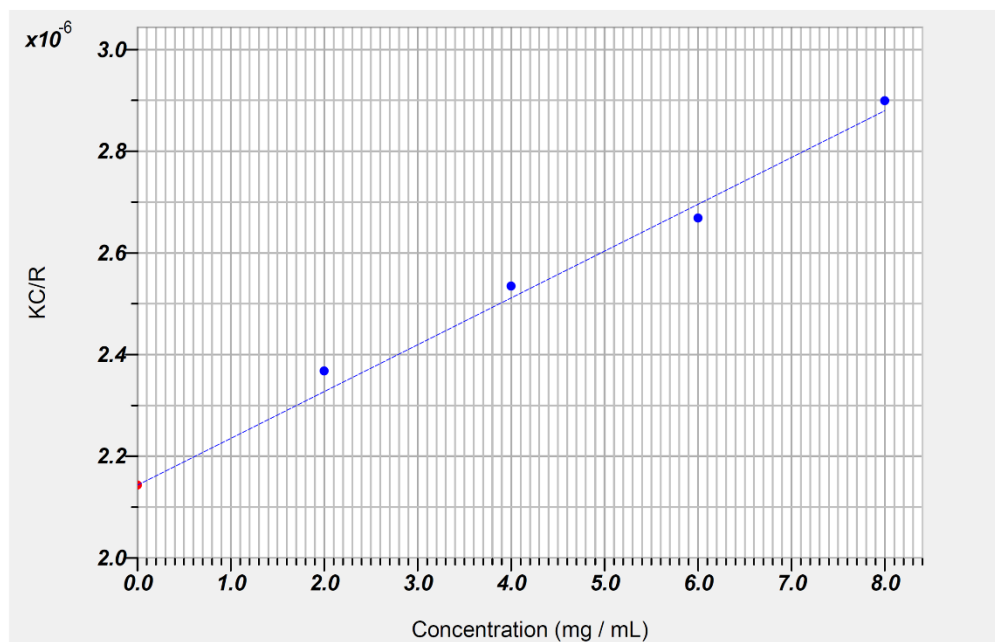
#### PTU-Q2\_2162.nml

#### Measurement Results

Date	: Tuesday, 18 May 2021 5:10:21 PM
Measurement Type	: Molecular Weight(Debye Plot)
Sample Name	: PTU-Q2
Scattering Angle	: 90
Temperature of the Holder	: 24.8 °C
Plot Type	: Debye
Concentration	: 2.000, 4.000, 6.000, 8.000 mg/mL
Rayleigh Ratio	: $6.100 \times 10^{-6} \text{ cm}^{-1}$
Refractive Index Increment	: 0.072 mL/g
Standard Dispersant Name	: DMSO-Std
Refractive Index of Standard Dispersant	: 1.477

#### Calculation Results

Molecular Weight	: 466.6 kDa
Second Virial Coefficient	: $4.601 \times 10^{-5} \text{ mL mol/g}^2$
$P^{-1}(\text{Theta})$	: 1.000



Graph Type ID# File Name Measurement Type Date  
Molecular Weight(Debye Plot) PTU-Q2.1\_2163.nml Tuesday, 18 May 2021 8:15:37 PM

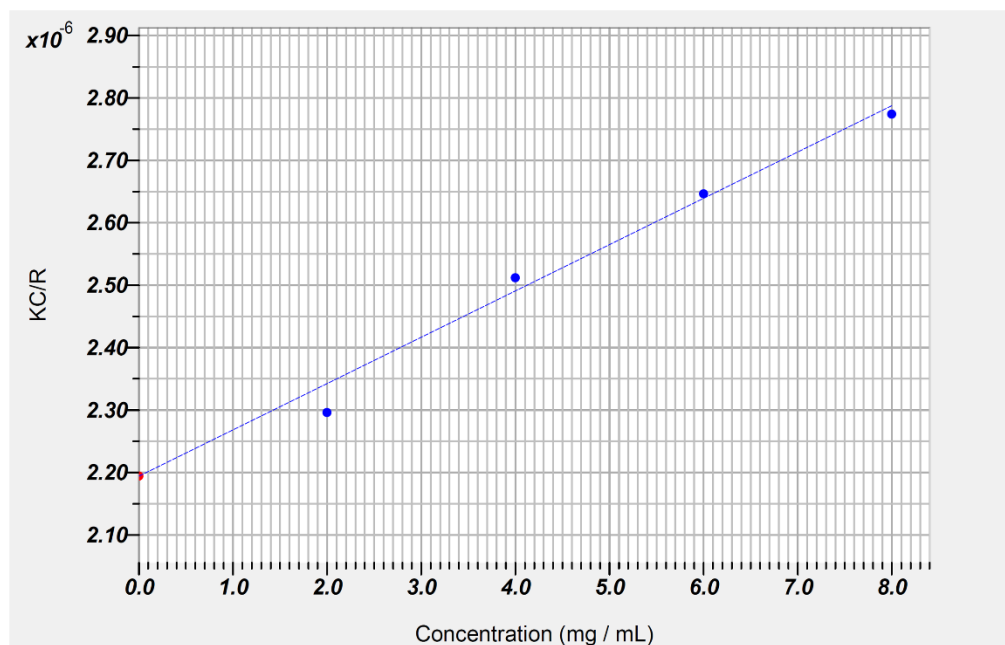
## PTU Replicate 3

### PTU-Q2.1\_2163.nml Measurement Results

Date	: Tuesday, 18 May 2021 8:15:37 PM
Measurement Type	: Molecular Weight(Debye Plot)
Sample Name	: PTU-Q2.1
Scattering Angle	: 90
Temperature of the Holder	: 25.0 °C
Plot Type	: Debye
Concentration	: 2.000, 4.000, 6.000, 8.000 mg/mL
Rayleigh Ratio	: $6.100 \times 10^{-6} \text{ cm}^{-1}$
Refractive Index Increment	: 0.072 mL/g
Standard Dispersant Name	: DMSO-Std
Refractive Index of Standard Dispersant	: 1.477

### Calculation Results

Molecular Weight	: 455.8 kDa
Second Virial Coefficient	: $3.710 \times 10^{-5} \text{ mL mol/g}^2$
P <sup>-1</sup> (Theta)	: 1.000





ORIGINAL RECEIVED  
BY: *16.16.2021*  
DATE: *2/22/2021*

## TEST REPORT

ITDI-022021-MIC-0056

Customer's Name : MSD-ITDI  
Address : MSD Bldg., ITDI, DOST Compound, Bicutan, Taguig City  
Contact Details : Landline No.: 8837.2071  
Date Received : February 10, 2021  
Sample : Discs  
Description : 0137-0146) Membrane Samples Polythiourea (PTU) with Copper Label  
4 pcs disc; Date Packaged: Feb. 9, 2021; 9:00 PM  
Identification : Submitted as 0137) PTU  
0138) PTUCu55  
0139) PTUCu510  
0140) PTUCu515  
0141) PTUCu105  
0142) PTUCu1010  
0143) PTUCu1015  
0144) PTUCu155  
0145) PTUCu1510  
0146) PTUCu1515  
Date(s) Tested : February 18 - 19, 2021

The samples, PTU, PTUCu55, PTUCu515, PTUCu105, PTUCu1015, and PTUCu155, produced partial inhibitory activity (++) with mild reactivity (2) against the test organism, *Escherichia coli*.

The samples, PTUCu510, PTUCu1010, PTUCu1510, and PTUCu1515, produced slight inhibitory activity (+) with mild reactivity (2) against the test organism, *Escherichia coli*.

*Amikacin* 30 ug, which served as positive control, produced complete inhibitory activity (+++) with moderate reactivity (3) against the test organism, *Escherichia coli*.

The sample-free disc, which served as negative control, had no inhibitory activity (-) and no reactivity (0) against the test organism.

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February 24, 2021  
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DEPARTMENT OF SCIENCE AND TECHNOLOGY  
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**STANDARDS AND TESTING DIVISION**

Sample/ Control	<i>Escherichia coli</i> (ATCC 25922)					
	Replicate 1	Replicate 2	Replicate 3	Total Mean Zone of Inhibition (mm)	Reactivity	Inhibitory Activity
PTU (10 mm)	10.00	10.00	10.00	10.00	2	++
PTU Cu55 (10 mm)	10.00	10.00	10.00	10.00	2	++
PTU Cu510 (10 mm)	10.00	10.00	10.00	10.00	2	+
PTU Cu515 (10 mm)	10.00	10.00	10.00	10.00	2	++
PTU Cu105 (10 mm)	10.00	10.00	10.00	10.00	2	++
PTU Cu1010 (10 mm)	10.00	10.00	10.00	10.00	2	+
PTU Cu1015 (10 mm)	10.00	10.00	10.00	10.00	2	++
PTU Cu155 (10 mm)	10.00	10.00	10.00	10.00	2	++
PTU Cu1510 (10 mm)	10.00	10.00	10.00	10.00	2	+
PTU Cu1515 (10 mm)	10.00	10.00	10.00	10.00	2	+
Positive Control: Amikacin 30 ug (6 mm)	15.05	15.03	15.11	15.06	3	+++
Negative Control: Sample-free disc (10 mm)	0.00	0.00	0.00	0.00	0	(-)

Reactivity Rating: 0 – None (No detectable zone around or under specimen)  
1 – Slight (Some malformed or degenerated cells under the specimen)  
2 – Mild (zone limited under the specimen)  
3 – Moderate (zone extends 5 to 10 mm beyond specimen)  
4 – Severe (zone extends greater than 10 mm beyond specimen)

Inhibitory Activity Rating: (+++) complete; (++) partial; (+) slight, and (-) negative

Test Reference: United States Pharmacopoeia 30-NF 25, 2007 <87> Biological Reactivity Tests,  
In vitro

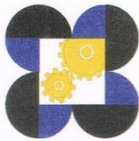
Test Method: Disc Diffusion Method

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February 24, 2021  
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STD Building, DOST Compound, Gen. Santos Ave., Bicutan, Taguig City, Metro Manila 1631, Philippines  
Tel. Nos. : (632) 837-2071 to 82 loc 2188, 2189 (Receiving and Releasing Unit) / 2198 (Division Chief);  
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Email: std@itdi.dost.gov.ph; Website: http://itdi.dost.gov.ph







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DEPARTMENT OF SCIENCE AND TECHNOLOGY  
**INDUSTRIAL TECHNOLOGY DEVELOPMENT INSTITUTE**  
**STANDARDS AND TESTING DIVISION**

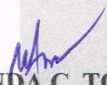
**VALIDITY OF THE TEST REPORT:** The test results are those obtained at the time of the test and pertain only to the sample(s) received by the Laboratory of this Institute. *Codes and words in Italics are quoted solely for the customer's reference; significance of these codes and words is not verified by the Laboratory.* This report is not to be used for advertising purposes or sales promotion. This report shall not be reproduced except in full without the approval of the Standards and Testing Division.

GP 5.10-01-F06  
Rev 1 / 28 June 2018

  
**MARLON S. AGUINALDO, RMT**  
*Head/Technical Manager, Microbiology Section*

  
**DR. CYNTHIA M. NALO-UCHONA**  
*Head, Over-all Technical Manager  
Biological Laboratory*

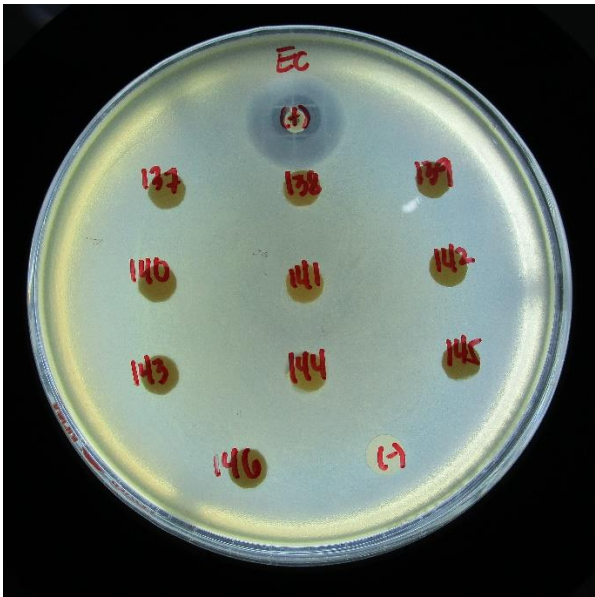
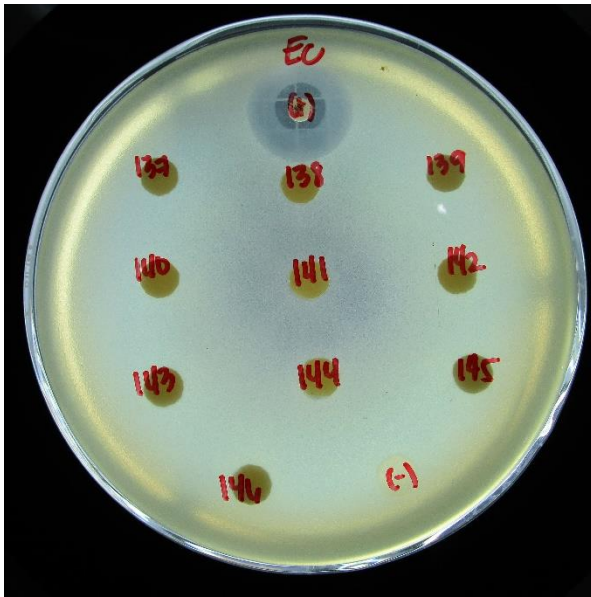
Issued under the Authority of:

  
**ROSALINDA C. TORRES, PhD, RCh**  
*Division Chief/Quality Manager*

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February 24, 2021  
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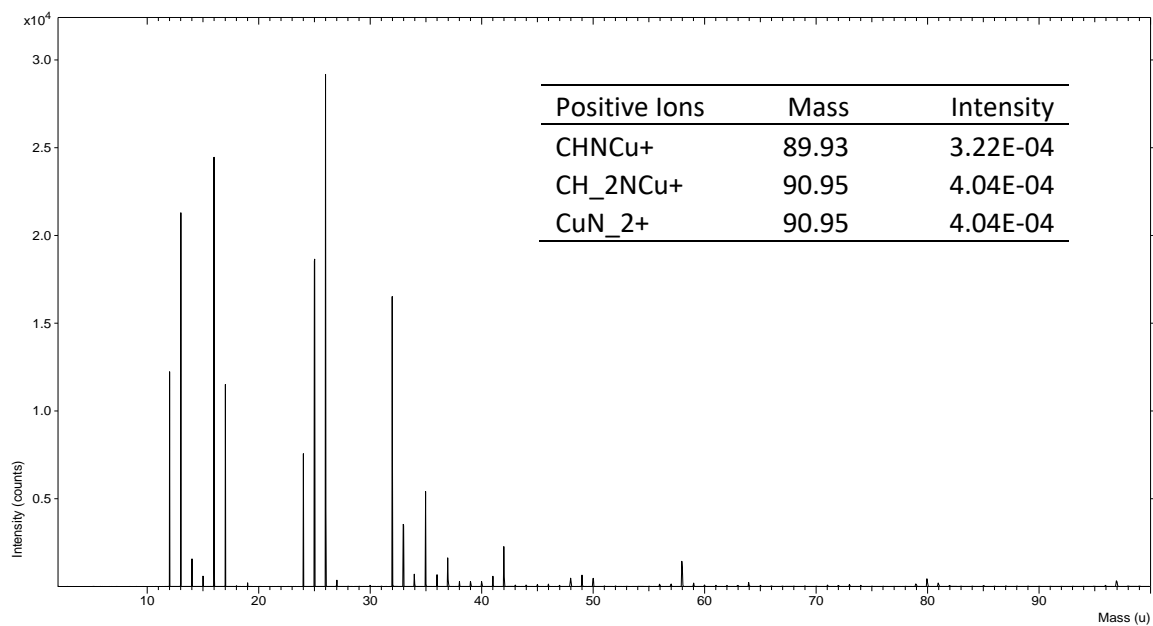
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Replicate

# TOFSIMS Spectra of PTU-Cu Membrane

## Positive Ion



## Negative Ion Spectra

