



HONG KONG
ASIAWORLD-EXPO
亞洲國際博覽館

3RD TO 6TH
DECEMBER
2025



PERFORMANCE EVALUATION OF VARIOUS CLEANING METHODS

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CLEANING METHODS

Manual cleaning alone	MC
Ultrasonic cleaning alone	UC
Automated precleaning machine alone	PM
Washer Disinfector (WD) alone	WD
Manual cleaning then WD	MC+WD
Ultrasonic cleaning then WD	US+WD
Automated precleaning machine then WD	PM+WD



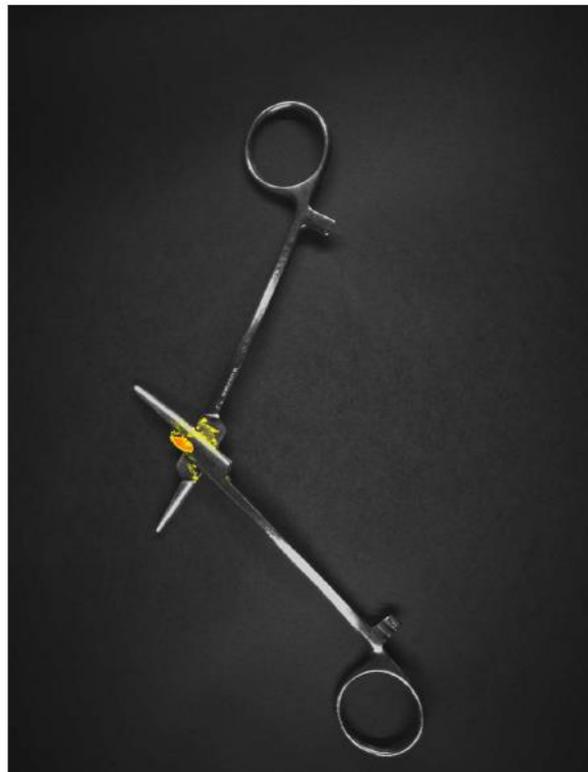


Protein Detection Method

01014 240725095550

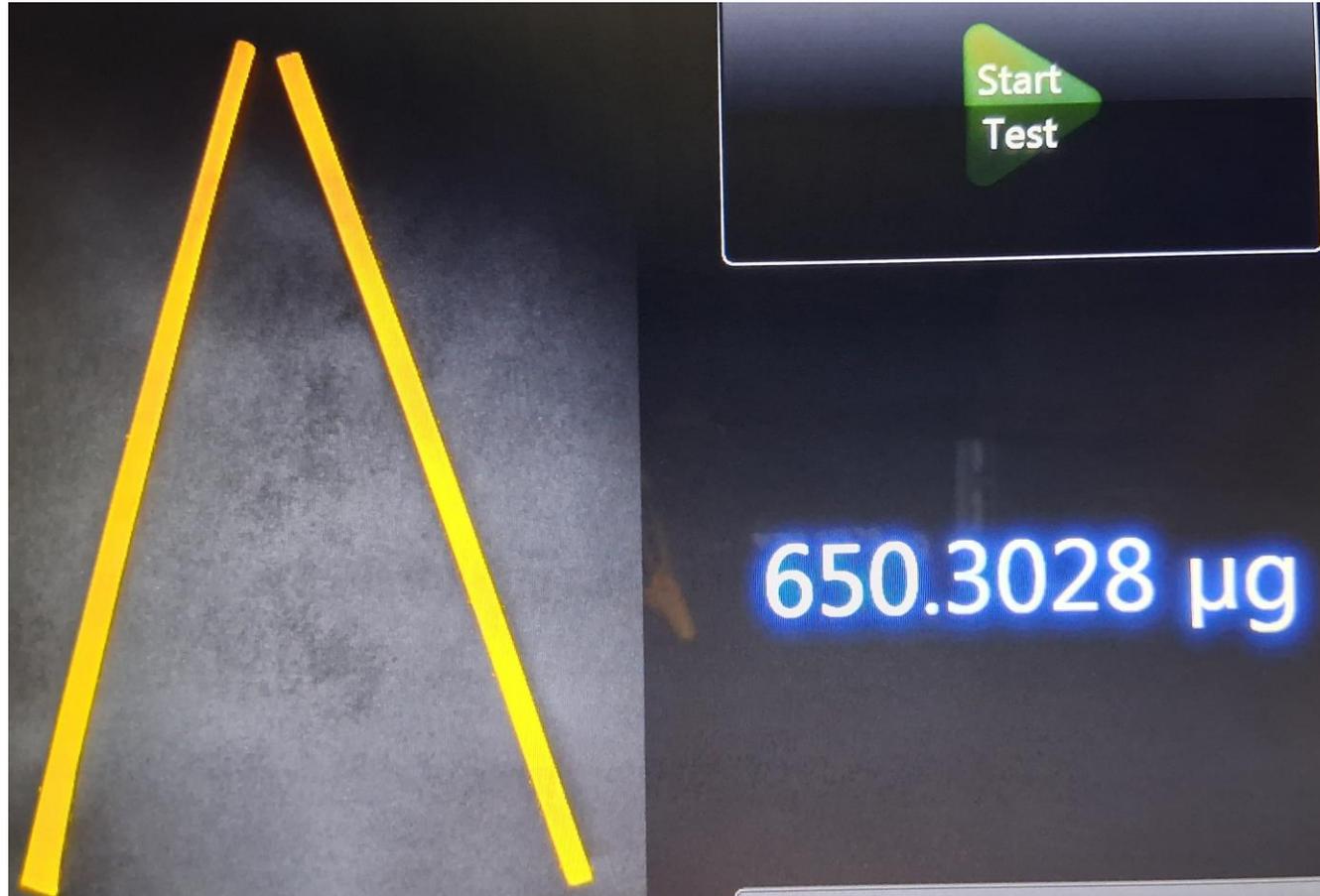


253506033574001401014240725095550



Equipment ID	PRVL/1014
Measurement ID	240725095550
Date & Time	25/07/2024 09:55:50
Type	Measurement
Sample ID	SET 1 WD AC ED R 2
Contamination Limit	Signal Mass (µg)
Contamination Measurement	2.945 µg



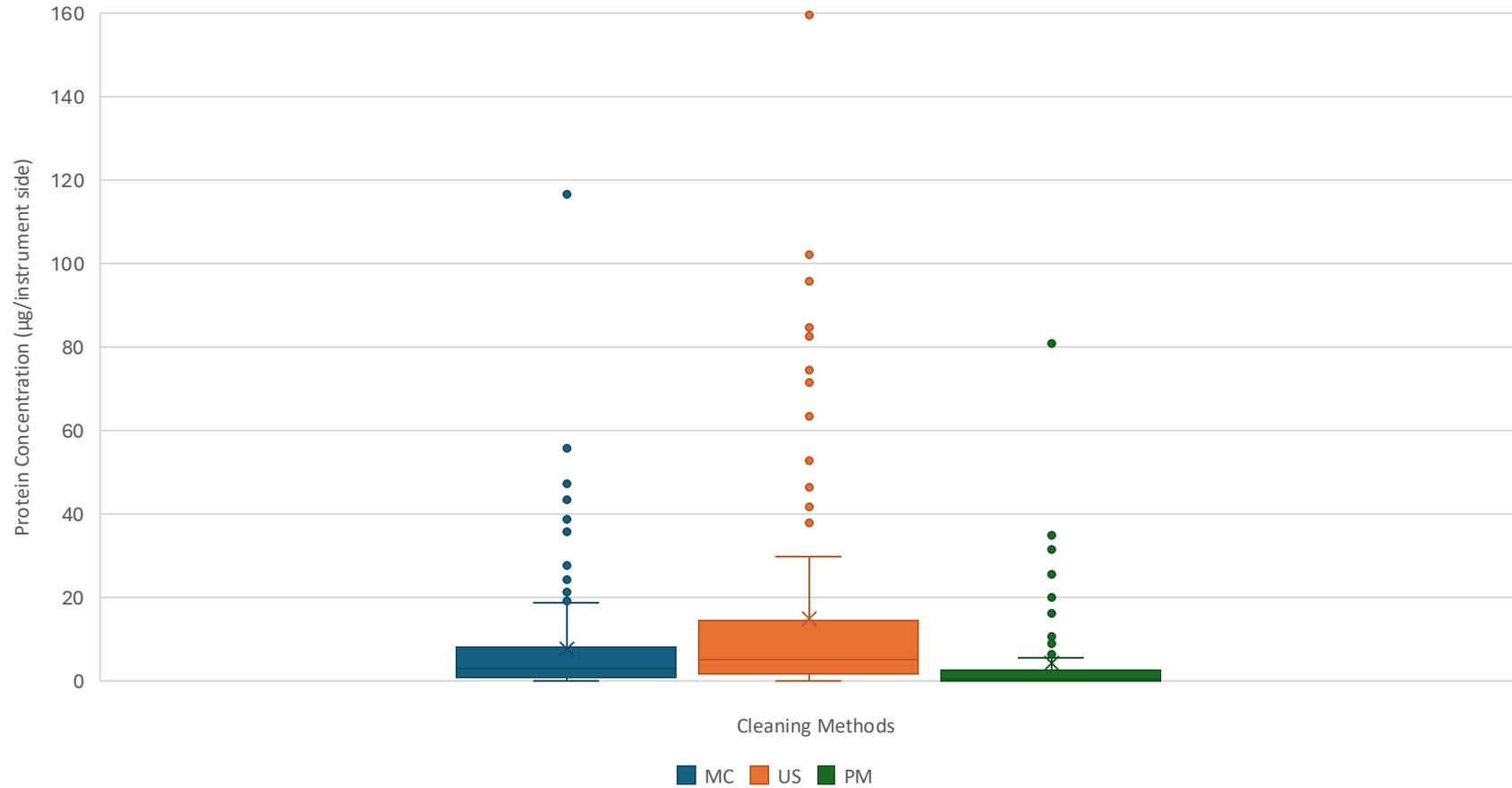


PROTEIN LIMITS

S(HTM) 01-01 (UK)	5 µg per instrument side
ISO 15883:5 (2021)	3 µg/cm ² 6.4 µg/cm ² (alert level)
ANSI/AAMI ST98: 2022	3 µg/cm ²
DGKH, DGSV and AKI guideline: 2017	3 µg/cm ² Warning : > 80 to ≤ 150 µg/device
JSMI guideline: 2021	200 µg per instrument side



MANUAL VS ULTRASONIC VS PRECLEANING MACHINE



LIVE AND STANDARD SETS

Method	N	Mean	St dev	Min	Max
US	122	15.109	25.551	0	159.59
MC	182	7.697	13.627	0	116.42
PM	82	4.156	11.107	0	80.81

WD	337	1.173	1.975	0	14.89
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ANOVA – COMBINED RESULTS

Method	N	Mean	St dev	Min	Max
US	122	15.109	25.551	0	159.59
MC	182	7.697	13.627	0	116.42
PM	82	4.156	11.107	0	80.81
WD	337	1.173	1.975	0	14.89
US+WD	133	1.781	3.317	0	22.63
PM+ WD	124	0.301	2.109	0	22.82
MC+WD	103	0.550	2.458	0	21.42

F = 33.76
p < 0.0001
(< 0.05)

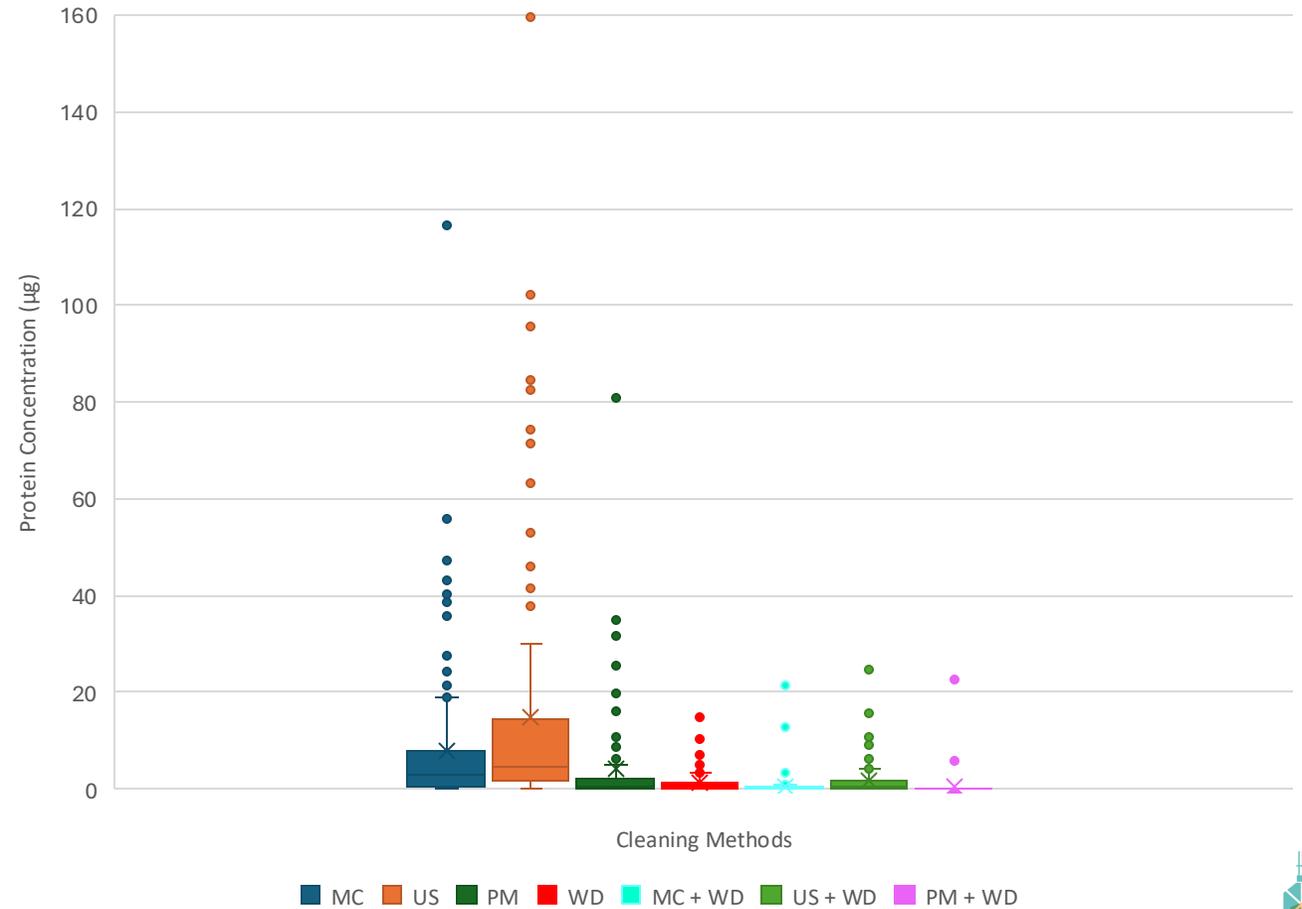


COMBINED RESULTS

Method	Success rate
UC	51.22%
MC	65.38%
PM	80.49%
UC + WD	90.98%
WD	92.90%
MC + WD	98.06%

Site 1 Only

Method	Success rate
PM + WD	98.39%
WD	96.47%



ADDITIONAL CLEANING BEFORE WD

Method	Success rate	
PM + WD	98.39%	chi-sq = 0.9949, p=0.3185
WD	96.47%	

Method	Success rate	
MC + WD	98.06%	chi-sq = 3.7868, p=0.0515
WD	92.90%	

Method	Success rate	
UC + WD	90.98%	chi-sq = 0.4994, p=0.4797
WD	92.90%	

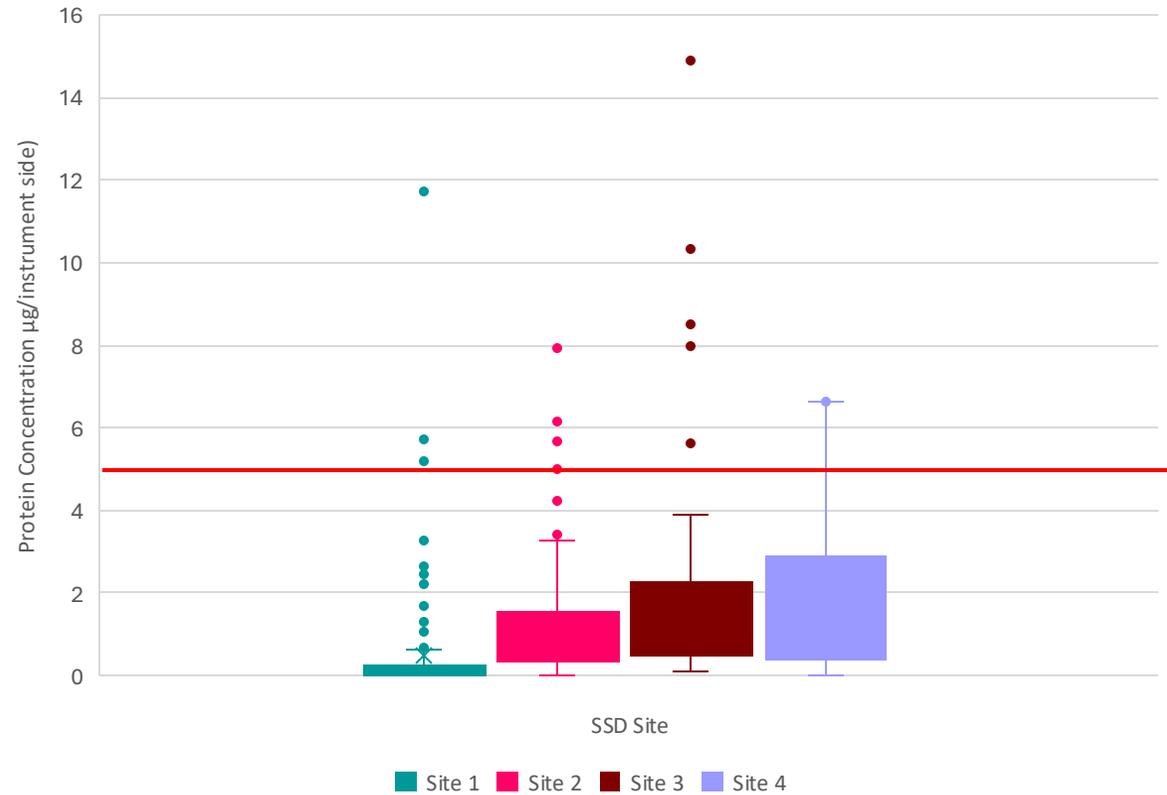
**p value > 0.05
no significant different**



WASHER DISINFECTOR

Site	Mean	St dev	Max
1	0.481	1.262	11.74
2	1.288	1.523	7.93
3	1.871	2.561	14.89
4	1.972	2.380	6.74

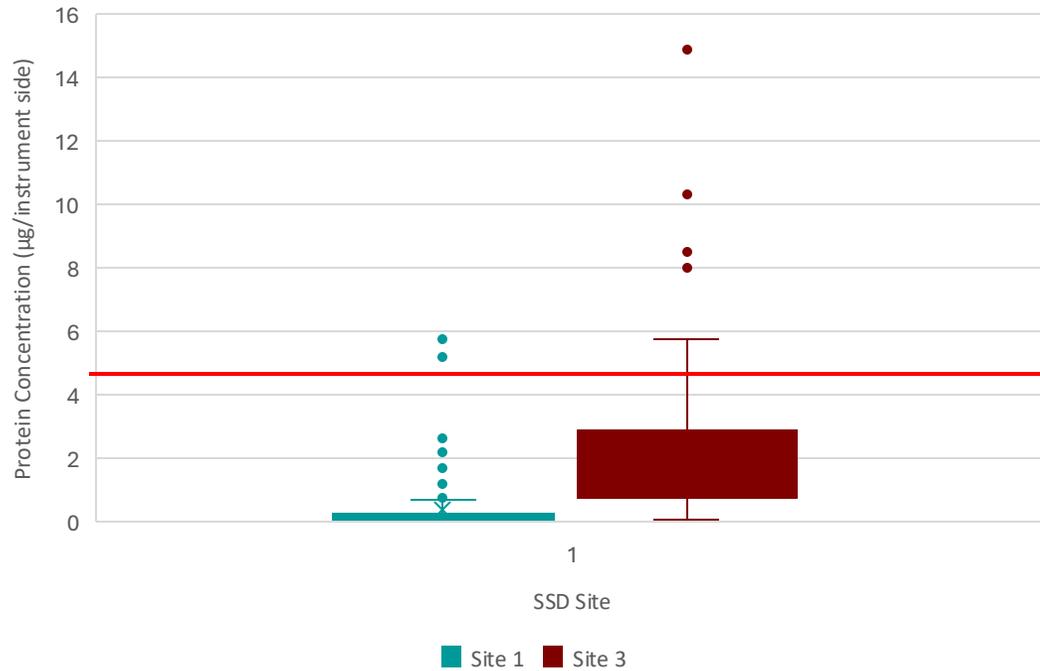
$F = 12.42$
 $p < 0.0001$
(< 0.05)



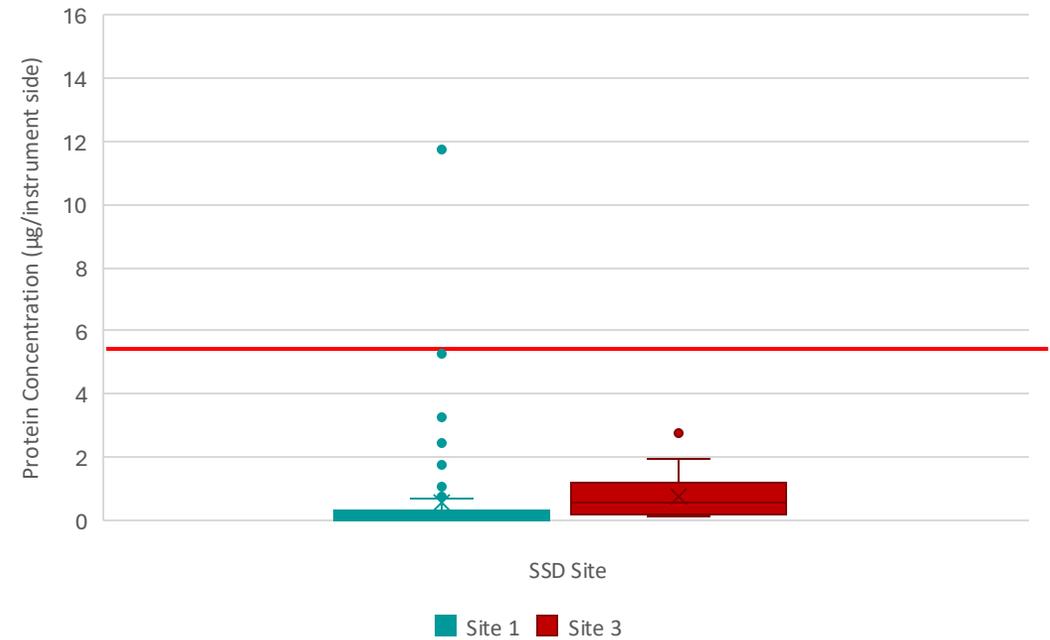


STANDARD VS LIVE SETS

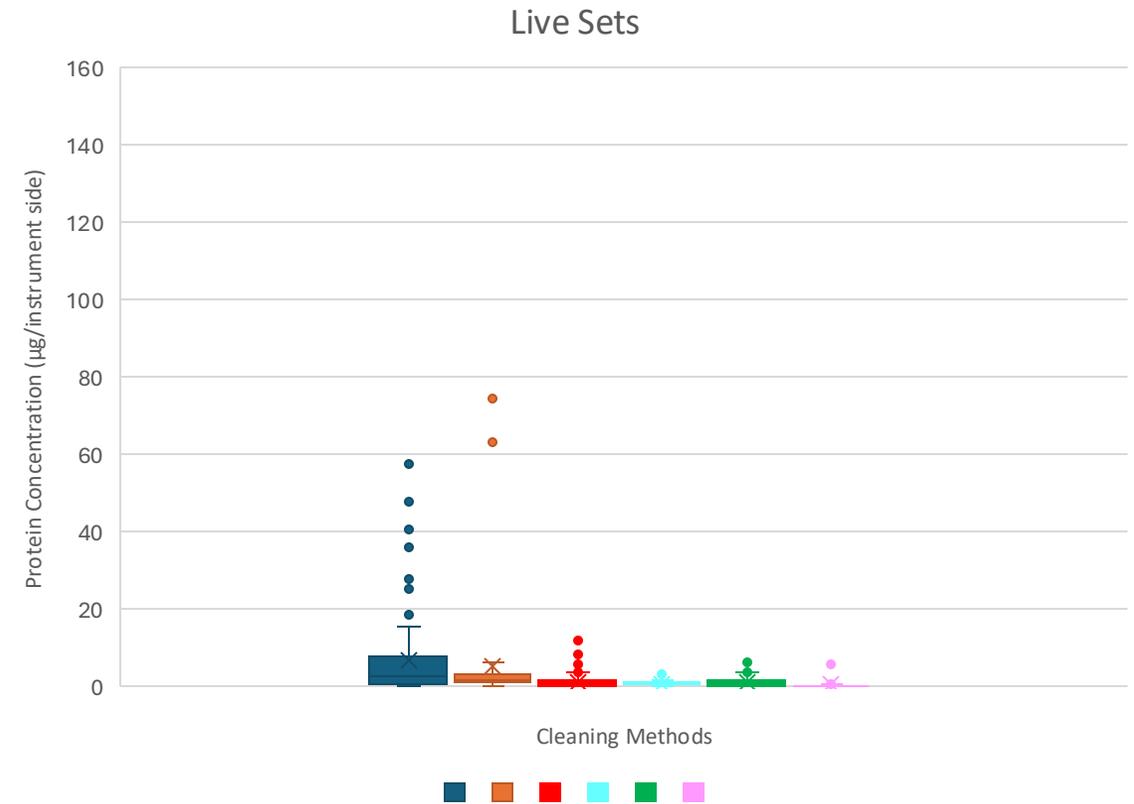
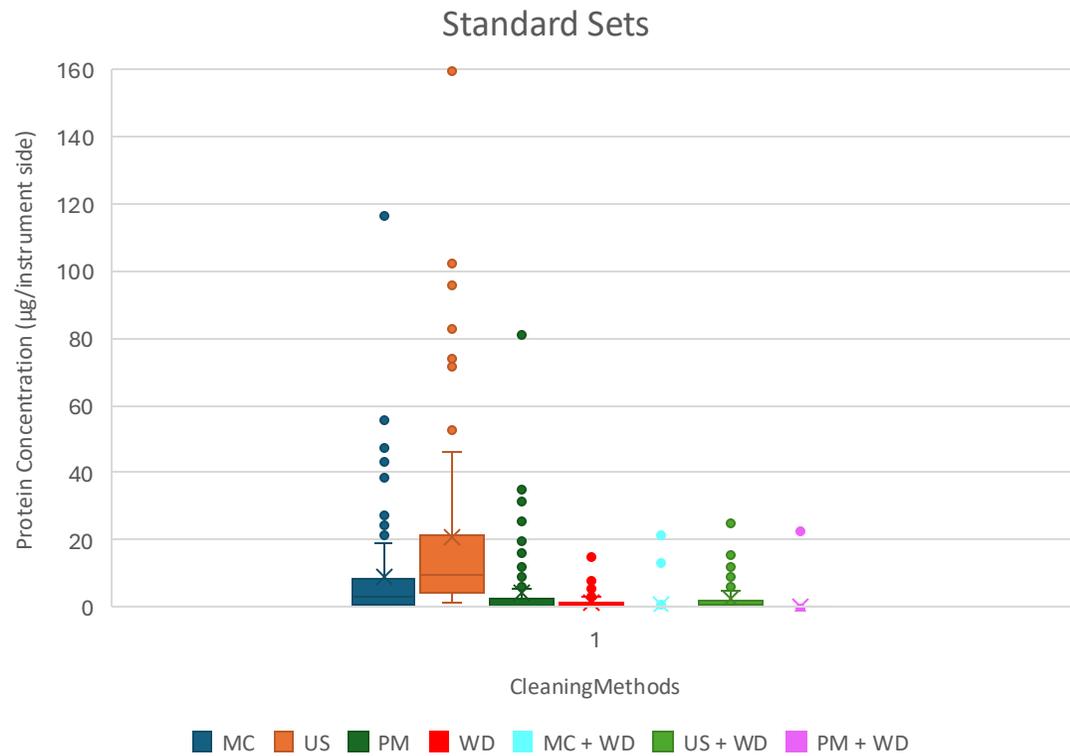
WD Standard Sets



WD Live Sets



COMBINED RESULTS





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ASDU Borders

CDU Steris Bellshill

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NHS Greater Glasgow & Clyde

NHS Greater Glasgow & Clyde

NHSScotland Assure

