

AquaSnap Total Sensitivity and Limit of Detection

Hygiena provides a range of ATP detection tests and luminometers to help users reach the optimal sensitivity needed for their ATP monitoring programs. This document demonstrates the Relative Light Unit (RLU) measurements achieved with known dilutions of ATP using AquaSnap Total measured with EnSURE and SystemSURE Plus luminometers.

Purpose

To compare RLU measurements with differing configurations of water dipping ATP assays using known low levels of ATP.

Procedure

Sample Preparation

ATP was diluted in Tris-Acetate buffer from a certified stock solution. Various volumes of this ATP were carefully placed on the dipper of the AquaSnap Total, and then measured with Hygiena luminometers. Ten replicates were made of each volume.

Assay Method

AquaSnap device activity was measured as follows:

1. Remove dipper from swab tube
2. Pipette various μl of ATP solution directly onto the center of the end of each dipper
3. Replace dipper in tube and break the Snap-Valve in two directions
4. Squeeze reagent reservoir twice to dispense the reagent
5. Shake gently to bathe the dipper in reagent for 10 seconds
6. Measure activity by inserting the device in to the luminometer

Results

Results are displayed in Table 1. A summary of the relationships between ATP detected in AquaSnap Total and RLU output measured in Hygiena instruments is found in Table 2.

Table 1. Average AquaSnap Total RLU measurements on Hygiena Instruments at various concentrations of ATP (n=10)

Femtomoles ATP/ μl (1×10^{-15} mol / μl)	SystemSURE Plus RLU	EnSURE RLU
0.0	0	0
0.1	1	1
0.2	1	2
0.3	2	3
0.4	2	4
0.5	2	5
0.6	3	6
0.7	4	7
0.8	4	8
0.9	4	9
1.0	5	10
2.0	10	20
3.0	16	31
4.0	20	39
5.0	22	44
10.0	48	95

Table 2. Relationship between fmol ATP and RLU in AquaSnap Total devices on Hygiena Instruments

	SystemSURE Plus RLU	EnSURE RLU
1 fmol ATP/ μl	5	10

Conclusion

Water monitoring systems and ATP dippers detect low levels of ATP, down to 0.1 femtomoles or less. On average, SystemSURE Plus measures 5 RLU in a sample of 1 fmol ATP/test (μl sample).