

What Is ATP Testing?

Adenosine Triphosphate (ATP) is a molecule found only in and around living cells, and as such, it gives a direct measure of biological concentration and health. ATP is quantified by measuring the light produced through its reaction with the naturally occurring firefly enzyme Luciferase using a luminometer. The amount of light produced is directly proportional to the amount of biological energy present in the sample. Once a sample is collected, it is placed in the luminometer instrument, and the readout is reported as a numerical value measured in relative light units (RLUs). By approximating the number of microorganisms responsible for generating known RLUs, one can estimate the number of microorganisms in the sample. This test can be performed at the loss location in just minutes and be a real-time option for providing instant results for bio-contamination testing on surfaces or in liquids.

ATP testing can be used to determine the level of surface contamination for viable biological matter, primarily bacteria and bio-films that may be present in contaminated water or on surfaces impacted by category 1, 2, or 3 water. Typically, we rely on our contractor's judgment regarding determination of category 1, 2, and 3 water losses, as long as their recommendation is in accordance with industry standards (ANSI/IICRC S500–2015) and validated by their documentation (photos, etc.). Occasionally, due to an unknown source or date of loss, the contractor may struggle to make this determination, which can have large ramifications regarding what type and amount of materials are removed and replaced and potential health issues related to exposure by occupants. When testing water to determine category 1, 2, or 3, see the liquid/water guidelines on the following page that use the Bio-reveal Aquasnap sampling device. ATP testing can also be used to evaluate the level of surface cleanliness and overall hygiene of biohazard-impacted materials post-cleaning. See biohazard contamination testing guidelines on the following page using the Bio-reveal Ultrasnap swab. ATP testing may be a solution if the contractor has it available and been trained on its use. Performing an ATP test is billable in Xactimate with the code WTRTESTATP+ for around \$20 to \$25 per sample. Discuss with the contractor to see if this may be a viable solution and then document the reasons it was necessary in the claim file, if you authorize any testing. Be sure to explain to the adjuster why this test was necessary and the related costs.

Interpretation of Bio-reveal Sampling Results

LIQUIDS / WATER

BIO-REVEAL FOR CATEGORY 1, 2 AND 3 WATER LOSS TESTING LIQUID SAMPLING

Bio-reveal Guideline for Evaluating Category 1, 2 and 3 Water Loss

(Liquid samples collected through extraction or from settled or ponded water, etc. The water samples are then analyzed by dipping the Bio-reveal Aquasnap into the collected liquid)

Water Loss Category	Definition of Water Loss * (Field Conditions)	Bio-reveal Result (RLU / 0.10 ml)**
Category 1	Clean Water (broken water supply lines, tub or sink overflows with no contaminants, appliance malfunctions involving water supply lines, melting ice or snow, falling rainwater, broken toilet tanks, toilet bowls that do not contain contaminants or additives, etc.)	< 5
Category 2	Gray Water (discharged water from dishwashers, washing machines, overflows from toilet bowls with some urine-no feces, sump pump failures, seepage due to hydrostatic pressure, broken aquariums, punctured water beds, etc.)	≥ 5 and < 500
Category 3	Black Water (sewage or other contaminated water sources entering or affecting the indoor environment, toilet backflows that originate beyond the trap, flooding from seawater, ground surface water and rising water from rivers or streams, etc.)	≥ 500

* Definition of water loss is dependent on time and temperature characteristics present at the site. Category 1 and Category 2 water loss situations can become Category 3 water losses after sufficient time as defined and referenced by the IICRC S500 standard.

** RLU / 0.10 ml = Relative light unit per volume collected on sampling swab equal to 0.10 ml.

References utilized:

- 1) IE Connections article titled: *H. Quantifying Bacteria Levels in Water Categories 1-3*, Table 10: Summary of suggested Category 1, 2 and 3 bacterial ranges in water, Brandy, Dr. Robert, February 2007
- 2) IICRC Standard for Professional Water Damage Restoration S500

Interpretation of Bio-reveal Sampling Results

BIO-REVEAL INTERPRETATION FOR BIOHAZARD CONTAMINATION TESTING

Guideline for Surface Sampling of Biohazard Impacted Materials (Building and Non-Building), Contents, Etc. Includes Initial Assessments, Cleaning & Post Restoration Verification Testing of Biohazard Impacted Materials (Building and Non-Building) (Surface samples are collected using the Bio-reveal Ultrasnap swab from Biohazard Impacted materials)

Sampled Surface Condition (Biological Contamination)	Bio-reveal Surface Sampling Result (RLU)*	Interpretation Result
Ideally Clean or Decontaminated Surfaces / Materials	≤ 15	PASS (ACCEPTABLE)
Moderately Contaminated Surfaces / Materials	≥ 16 and < 50	CAUTION (PASSING BUT RECLEANING MAY BE NECESSARY)
Biohazard Contaminated Surfaces / Materials	≥ 50	FAIL (NOT ACCEPTABLE)

* RLU – Relative light unit or unit of measure for bioluminescent measurements

*Information provided by Bio-reveal as a trademark of Industrial Hygiene Consulting Corporation.

MEET ED

Instructor Ed Jones has more than 30 years of experience in the industry, has the title of Master Water Restorer, is an Institute of Inspection Cleaning and Restoration Certification (IICRC)–approved instructor, and has served on the S500–2021 consensus body committee to develop the most recent standard.



Happy Drying! Ed

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