



QG21 Waste

Innovative Technology

**Rapid Microbial Detection in minutes
of aerobic and anaerobic health biomass**

APPLICATIONS

- Wastewater treatment plant (WWTP)
- Activated sludge
- Aerobic, anaerobic, anoxic reactors
- Lagoons
- Membrane bioreactors, UASB reactors
- Anaerobic digestion
- Bio-fermentation
- Composting
- Rehabilitation of soil

RECOMMENDATIONS

Video demonstration and more information about applications of the QG21 Waste kit are available on www.aqua-tools.com

contact@aqua-tools.com
www.aqua-tools.com

MEASUREMENT BY ATP 2G[®]



What does ATP 2G[®]?

The **QG21W 2G[®] refill kit** – 2nd generation ATP-metry – is the only one allowing **interference-free** quantification of all living microorganisms in samples as complex as **chemical products heavily loaded in total suspended solids (TSS)** such as industrial process water.

Quantitative ATP-metry is recommended for **microbial risk monitoring** as a biological tool of water quality assessment.

It's a **biological indicator tool**. It accounts for all living organisms present, isn't influenced by inorganic particulates, provides accurate microorganisms counts, and detects bacteria considered to be unculturable. Adenosine triphosphate [ATP] is the energy source of any living organisms. ATP 2G[®] analysis is an **effective tool in monitoring microorganisms** and detects **all metabolically active cells** in the sample. This kit is new alternative method.

Technology

Adenosine Triphosphate (ATP) is the main energy carrier for all living cells. Its concentration is measured by the **QG21W** kit via a reaction of bioluminescence: ATP, in contact with a complex of luciferin/luciferase, reacts to produce light measured by a luminometer. Results delivered in RLU are converted in ng ATP/mL or in Equivalent Microorganisms/mL using a **standard ATP solution, UltraCheck™ 1**, in order to provide reliable quantitative results over time. The QG21W kit measures the following parameters in complex chemical samples:

- **Total ATP (tATP™)** which is the sum of intracellular and extracellular ATP.
- **Extracellular ATP or dissolved ATP (dATP™)** which is ATP present outside living cells and rejected by dead microorganisms.

From these measurements, the following monitoring parameters are calculated:

- **Intracellular ATP (cATP™)** which is ATP contained within living microorganisms, directly linked to their concentration:
 $cATP = tATP - dATP$.
- **Biomass stress index (BSI™)** which represents the microorganisms stress or mortality $BSI (\%) = dATP/tATP$. This index is used in toxicity studies of influents or in bioreactors.



- **Ratio of active biomass (ABR™)** which represents the percentage of active biomass among total suspended material in the bioreactor: $ABR (\%) = (cATP (ng/mL) \times 0.5) / MES (mg/L)$. Maximizing this parameter enhances the quality of activated sludge.

Create your Microbial ToolBox

The **QG21W kit** allows quantifying microbial flora and monitoring the **biological process of wastewater treatment more precisely**:

- Optimization of aeration regulations measuring their impact on the biomass, and reduction in energetic costs.
- Optimization of recirculation flows in function of the living/dead biomass ratio.
- Early detection of toxics and inhibitors via quantification of microbial stress in routine analyses, particularly when industries are connected to the sewerage system.

Strong points

- **Quick measurement** in minutes
- **Quantitative sample** transfer ensures accuracy
- **Superior chemistry of reagents** – higher ATP extract recovery
- **Optimized protocols** ensure minimal interferences (TDS, TSS, Oil, Biocides)
- **Liquid-stable ATP standard** (UltraCheck 1) converts RLU to quantitative concentration

Added value ATP 2G[®]

- **Account greatest number of microorganisms**
- **In an acceptable time frame**
- **At a reasonable cost**
- **More reliable, robust**
- **More reproducible and relevant**

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