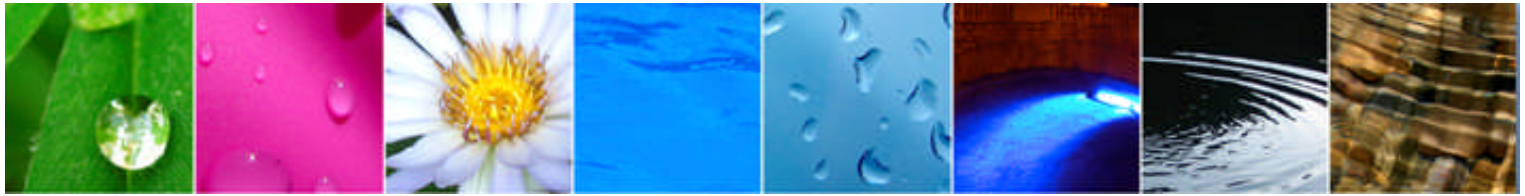


Aqua-tools

*Assessment of microbiological risks and water safety management
using a new tool of ATP-metry*



Presentation of Aqua-tools

Aqua-tools was created in 2006 by Marc Raymond and has known a very fast notoriety increase in a short time. The new generation of ATP-metry technology commercialized by Aqua-tools, together with the trainings programs and scientific conferences organized by the company, made that the company has rapidly become the N°1 reference on biological risk management in France. Among our customers we count Ondeo Industrial Solutions (Suez Group), Veolia, EDF, Arcelor Mittal and many others). Aqua-tools is the exclusive distributor in Europe and MEA of Luminultra™ company (Canada)

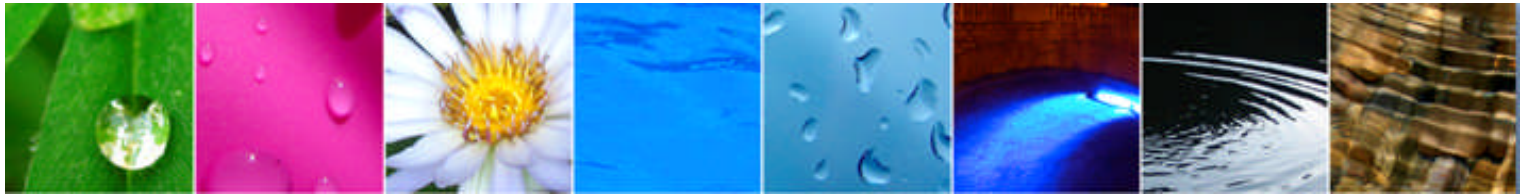
Aqua-tools is specialized in:

- Commercialization of ATP-metry kits for **fast quantification of microorganisms**
- **Audits and expertise** in control of microbial water quality in water installation
- Training programs on **analysis and monitoring of microbial risks** in sanitary and cooling tower water

The new generation of ATP-metry kits commercialized by Aqua-tools is based on **bioluminescence** and allows measurements in less than 10 minutes on the field for a higher reactivity for implementing preventive and corrective action.

The kits are implemented in the following types of installations:

- *Cooling towers*
- *Production & distribution of potable water*
- *Pure and ultra-pure water*
- *Metalworking fluids*
- *Cataphoresis baths*
- *Activated sludge in water treatment bioreactors*
- *Other:...*
- *Sanitary water*
- *Process water*
- *Biofilm*
- *Oil & Gaz*
- *Surface treatment*
- *Reuse water*



Marc Raymond – Managing Director:

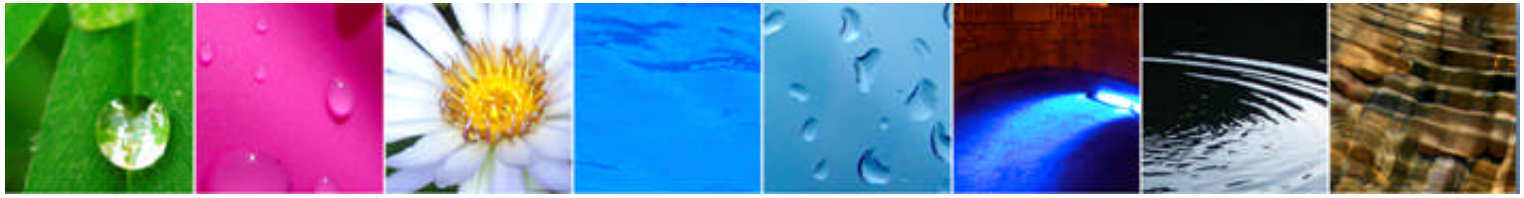
“The idea of creating the company started from the observation that companies need urgently new, modern and faster methods for the surveillance of water quality in their industrial processes. Managing the microbial risks linked to water with long, old tradition culture methods was no more satisfying for fast decision making where quality of products or public health is of concern. Our aim is not only commercializing products, but accompanying our customers in their risk analysis, providing them specific trainings for improving the global knowledge of everyone on microbial risks, relations between bacteria and hydraulics, monitoring of water installations. With every customer, we are developing an installation-turned water quality management programs, and therefore we have built confidence relations with all of our customers. We are working on an efficient water management approach around the more relevant use of water, biocides and control tests. “



Geographic presence:

Aqua-tools operates in France, Europe and Middle East countries. Conferences and workshops are organized all around Europe.





The 1st monitoring technology for control of active biomass in real time

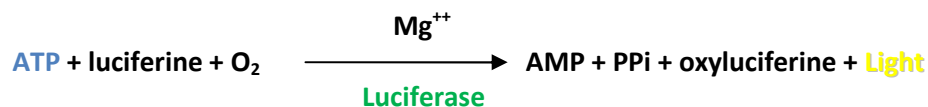
Aqua-tools kits, based on a 2nd generation of ATP-metry technology can be the **first line of defense in HACCP-based water safety and maintenance strategy for any** stream of water systems. ATP-metry results can become an invaluable component of a continuous improvement program and are an excellent complement to current monitoring practices, including biocide residual measurements and culture tests:

- Drinking water monitoring and maintenance
- Reducing process water microbial proliferation and quality issues
- Reduced health risks in cooling and heating systems
- Monitoring sanitary risks in public and hospital settings
- Improve environmental compliance

THE SECOND GENERATION OF ATP-METRY

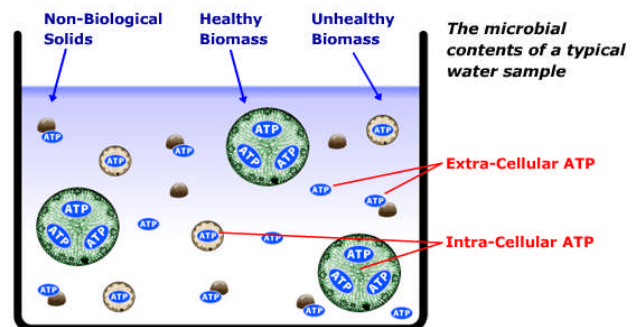
The ATP-metry is an instantaneous technique for Adenosine Triphosphate (ATP) concentration measurement in water samples. ATP is the main energy carrier for all living organisms on Earth. There is no life without ATP; Therefore, ATP is a **direct indicator of total viable microbial flora in water samples**.

ATP-metry is based on bioluminescence principle: in presence of firefly luciferase enzyme, ATP molecules emit photons of light that will be measured by a luminometer. This signal is then calibrated thanks to patented ATP-standard solution and transformed in reproducible, quantitative results.

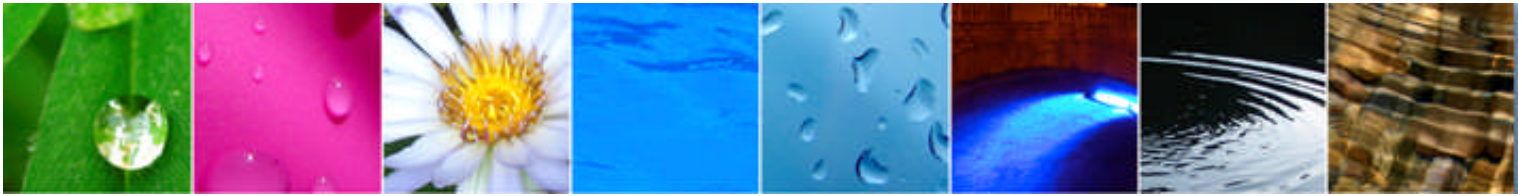


Our technology distinguishes between 2 types of ATP-molecules: **Intracellular ATP** (living biomass) and **Extracellular ATP** (representative of microorganisms' mortality)

Intracellular ATP measurement is directly proportional to living microbial flora: it allows quantifying rapidly the concentration of the microorganisms contained in a water sample. Extracellular ATP will give us information on the toxicity of the environment and will allow studying bacteria stress due to biocides or toxic products.

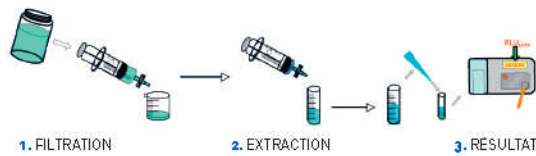


In less than 10 minutes, quantitative results for microbial concentration supply direct decision making possibilities.

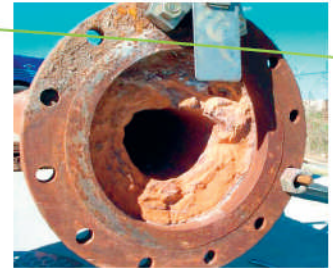


The Major Product lines

Quench-Gone™



NATURAL WATER
ULTRAPURE WATER
SANITARY WATER
COOLING TOWER WATER
FIRE WATER
RECYCLE WATER



USE :

For "Clean" water and water of Public network : Quench-Gone Aqueous.
Quench Gone provides the first line of defense in a multi-barrier operational monitoring program for raw water treatment and distribution, including :

- **Evaluation of raw water quality** and prevent raw water treatment equipment fouling or corrosion
- **Monitoring** and **control** microbiological **re-growth** in treated water distribution
- **Reduce health risks** in cooling systems through assessment of Methodical Risk Analysis
- Ensuring **drinking water quality**

See our application overview

Total Control™



PROCESS WATER
COOLING TOWER WATER
ACTIVE MUDS
AEROBIC / ANAEROBIC BIOREACTORS



USE :

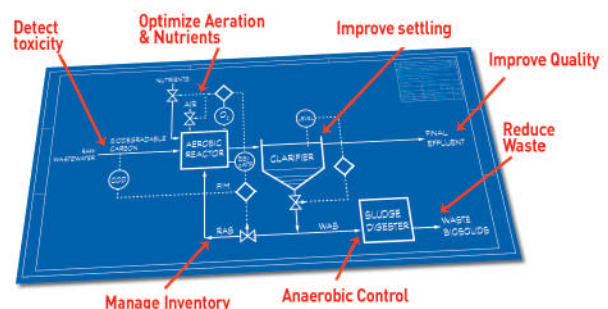
In conjunction with other routinely collected data, ATP results can become a valuable component of maintenance programs. Total Control provides a real-time measure of total active biomass concentration and health. Through two simple analyses, Total Control provides the following valuable information:

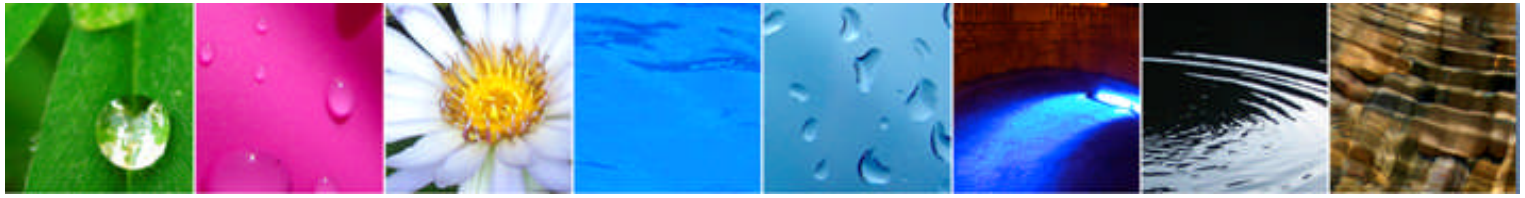
- **cATP™** : (Cellular ATP) – concentration of living biomass
- **BSI™** : (**Biomass Stress Index**) – health of the biomass
- **ABR™** : (**Active Biomass Ratio**) – biosolids activity

For wastewater and wastewater treatment : Total control BWWT (TCB™). Pulp and paper manufacturing facilities must use biological treatment for their effluent prior to discharge. As such, it is imperative to ensure that process biomass operate effectively. Total control can be used for :

- **Optimize aeration & nutrient** feed systems
- **Maximize biomass viability**
- **Prevent process upsets**
- **Monitor wastewater toxicity**

...and more!





WATER APPLICATIONS

From ultra-pure water to waste water and anything in between

DRINKING WATER and SANITARY WATER MANAGEMENT

Benefits:

Routine microbial monitoring
 Reservoir maintenance
 Disinfection troubleshooting
 Raw water quality assessment
 Mapping of the water network

Troubleshoot systems breaches
 Distributing line flushing
 Detect biological corrosion in deposits
 Validate any step used for water potabilization
 Identify the critical points for the proliferation of bacteria

Add values:

Improve real time operational control
 Manage distribution system maintenance

Reduces health risks
 Improve drinking water quality

COOLING SYSTEMS MANAGEMENT

Benefits :

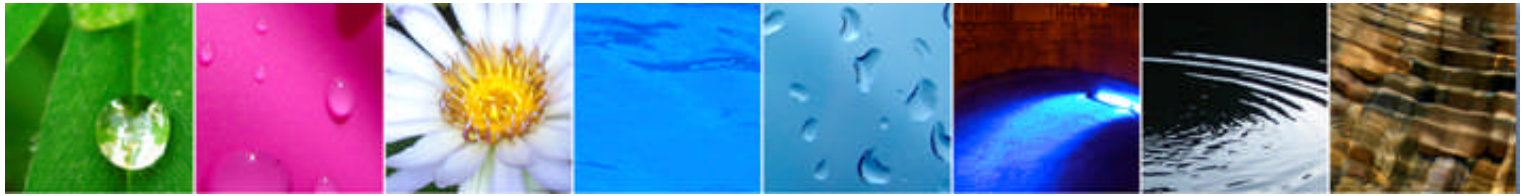
Improve process efficiency
 Prevent biological fouling
 Eliminate pathogenic organisms
 Validate treatment efficiency

Monitor biocide effectiveness
 Mitigate biological corrosion
 Monitor make-up water quality
 Optimize biocide concentration, frequency injection

Add- values:

Improve real time operational control
 Use less biocide
 Reduce health risks due to *Legionella*

Reduces *Legionella* health risks
 Improve environmental conformity
 Monitor and stabilize quality of cooling systems



REUSE WATER

Benefits:

Irrigation water protection

Reuse water treatment trouble shooting

Improve daily real time operational control

Improve environmental compliance

Irrigation quality monitoring

Troubleshooting systems contamination events

Controlled health risks using reuse water for irrigation

Add- values:

Protect public health

Manage water treatment

Continuously improve operating practices

Improve irrigation system water quality

Manage irrigation system maintenance

WASTE WATER TREATEMENT PLANTS

Benefits:

Manage bioreactor efficiency

Quantify active biomass

Detect toxicity of any influent

Improve process stability

Measure biomass health & stress

Balance complex processes

Add- values:

Improve process stability

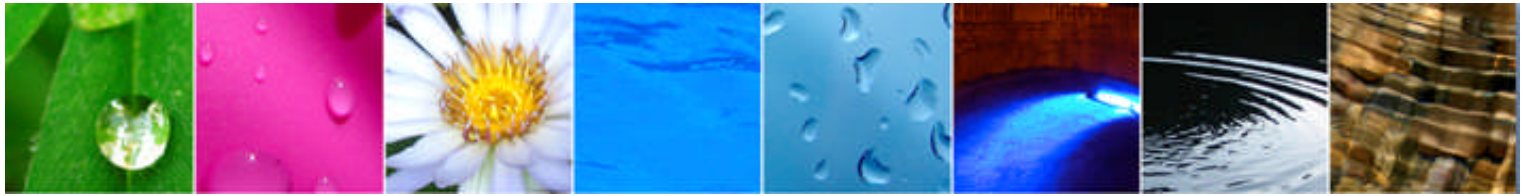
Reduce operating costs

Monitor influent toxicity

Save energy cost

OTHER APPLICATIONS AVAILABLE

- Quantification of bacteria, fungi growing in any **diesel systems** for offshore platforms, pipe line, tanks and helping
- Use of active biomass quantification as surveillance tool for **surface water treatments**
- Control microbial proliferation in compost, waste and soil

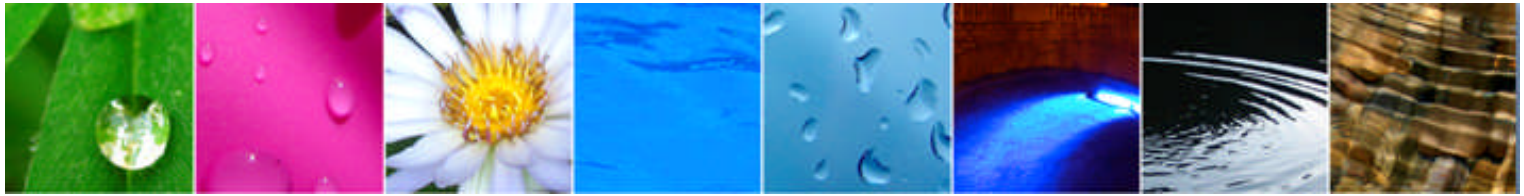


Audits

Applications	Description
<p>Cooling towers Sanitary water installations Production and distribution of potable water Process water Production of industrial, demineralized water Production of pure and ultra-pure water Surface treatment Cathaforesis baths Oil Reuse water</p>	<p>Use of Quench-Gone Aqueous™ kit as a tool for the implementation of Methodical Risk Analysis and surveillance programs</p> <p><i>Mapping of the water installation by ATP-metry in order to identify the critical points for the proliferation of the biomass, leading to deregulation of the ecosystem. Localisation of the origins of the microbial proliferation.</i></p>
<p>Waste water treatment plants</p>	<p>Use of Total Control Microbiological (TCB)™ kit as a tool for monitoring the performances of waste water stations.</p> <p><i>Mapping of the waste water installation by ATP-metry in order to analyze the health and stress state of the active biomass, identify the degree of performances of the installation and identify the possible presence of toxic substances in influent water.</i></p>
<p>1 day audit</p>	<p>Locations : Installations in France, Europe and Middle East</p>

Technical support & Expertise

Applications	Description
<p>According to the applications</p>	<p>Analysis and interpretation of the results from your ATP analysis. Expertise and advices based on the interpretations of the results.</p> <p>Follow up of the implementation of preventive and corrective actions.</p> <p>Development and implementation of specific protocols dedicated to the application and the installation.</p> <p>Advices on the efficiency of the existing treatment strategies or the improvements to implement.</p>
<p>Period to be defined according to the installation</p>	<p>Locations : Installations in France, Europe and Middle East</p>

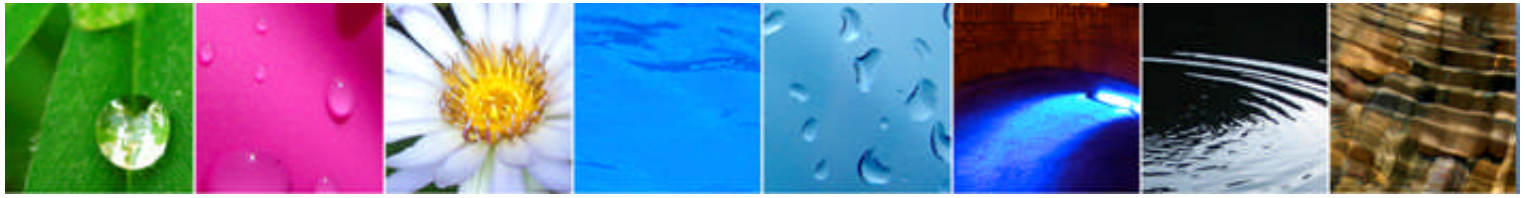


Trainings

Advanced trainings on Analysis and Monitoring of Sanitary Risks	Content
<ul style="list-style-type: none"> • Evaluation of sanitary risks linked to the proliferation of <i>Legionella</i> in cooling towers • Evaluation of sanitary risks linked to the proliferation of <i>Legionella</i>, <i>Pseudomonas</i> and aerobic flora in sanitary water networks • Evaluation of performances of waste water installations • Evaluation of sanitary risks linked to the proliferation of bacteria in potable water distribution lines. 	<ul style="list-style-type: none"> • Provide a clear overview on sanitary risks : synthesis of all useful information (regulations, responsibilities, microbiology issues) • Explain to the different players in the field how to perform a Methodical Analysis of Risks • Propose a new methodology for risk analysis that is easy to implement on the field and leading to efficient operation of water installations • Give the necessary information for understanding the available analytical methods
1 day training	Locations : Installations in France, Europe and Middle East

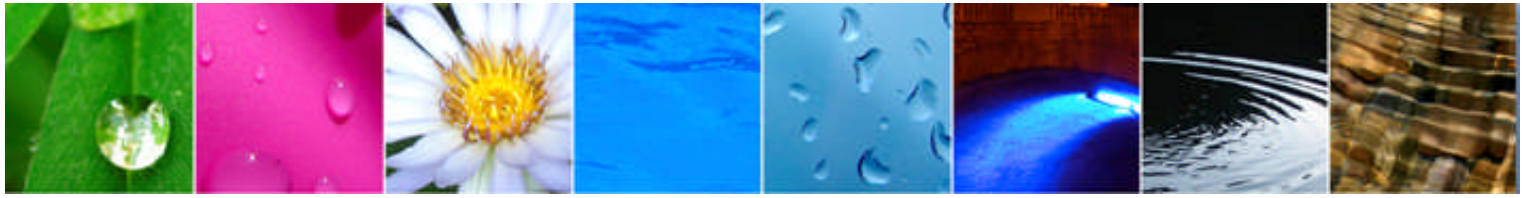
Educational Training on Water Quality analysis

Educational trainings	Content
According to the application	<ul style="list-style-type: none"> • Waters : Categories & Microbiological Criteria • European & ISO directives • Water quality pathogens and quality indicators according to the type of water • Standardized methods for water analysis • Analytical methods: reference methods & alternative methods for: Total viables flora, Coliforms & Escherichia Coli, Enterococci, Clostridia, Staphylococcus, salmonella, Legionella spp. And Legionella pneumophila, Pseudomonas aeruginosa
1 or 2 days training	Locations : Installations in France, Europe and Middle East

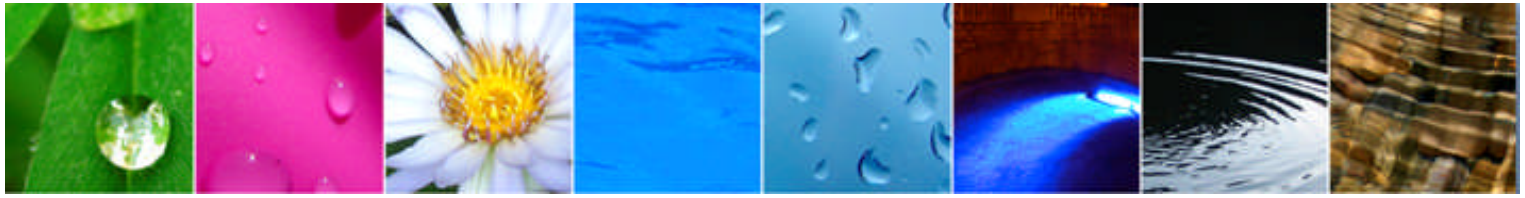


Aqua-tools Catalogue: ATP-metry Test Kits

Product Code	Catalogue Number	Product Name	Number of test	Applications
<i>For Waste Water application as Aerobic, Anaerobic reactors, Effluent toxicity evaluation...TCB & QG21 W have the same application. QG21 W includes reagents pre-distributed in 15 ml tubes</i>				
TCB	TCB-50	Total Control BWWT 50	50	Waste water
QG21 W	QG 21 W-50	QG21 Waste water	50	Waste water
<i>For Surface water, Ground water, water disinfection: QGA & QG21 P perform the same measurements; QG21P includes reagents pre-distributed in 15 ml tubes and is 3 times more sensitive</i>				
QGA**	QGA-100	Quench Gone Aqueous 100	100	Cooling tower, sanitary water, process water, demineralized water, Rinsing bath water
QG21 P**	QG21 P- 25	Quench Gone 21 Pure	25	Cooling tower, sanitary water, process water, demineralized water, Rinsing bath water
QG21 P**	QG21P- 100	Quench Gone 21 Pure	100	Cooling tower, sanitary water, process water, demineralized water, Rinsing bath water
<i>QG21P XL is dedicated to sanitary water and ultra pure water in pharmaceutical and semiconductor facilities, 80 time more sensitive than QG21 P & QGA</i>				
QG21P XL**	QG21P XL-25	Quench Gone Twenty one XL 25 tests	25	Pure water, Sanitary water
QG21P XL**	QG21P XL-100	Quench Gone Twenty one XL 100 tests	100	Pure water, Sanitary water
<i>QGO M is dedicated for oil & gaz analysis</i>				
QGO M**	QGO-100	Quench Gone Organic 100	100	Diesel & gaz , metalworking fluids, oily sample
<i>For Slurries, Electro Coating Deposit, high TSS load water :TCM & QG21 I are dedicated for the same applications, except that QG21 I includes reagents distributed in 15 ml tubes</i>				
TCM	TCM-50	Total Control MGC 50	50	Pulp & paper, water containing solids, UFR, EDC
QG21 I	QG21 I-50	Quench Gone 21 Industrial	50	Pulp & paper, water containing solids



<i>ALB are designed for all sample, reagents doesn't require pipettes</i>				
ALB	ALB 100	Acculight	100	Cooling tower, sanitary water, process water, demineralized water, Rinsing bath water
<i>For acid beverage applications, detection of mold & yeast</i>				
QGB**	QGB-100	Quench Gone Beverage	100	Beverage industries
<i>QG Prep consumables to be ordered with QGA, QG21 P, QG21P XL, QGO M</i>				
QG Prep	QG Prep	Seringe & Filters	100	100 Seringe & 100 Filters For QGA and QGO M sample preparation
<i>LSK Standardization Kit to check linearity and detection range of luminometer</i>				
LSK-5	LSK-5	5 ATP standard Curves	5	5 calibrated ATP solutions at different concentrations for validation of linearity of luminometer
<i>Dedicated Luminometer</i>				
Kikkoman	C-110	Luminometer		
<i>Consumables</i>				
Starter Kit	Start	Sample equipment		1 pipette 5000mL + 1 pipette 1000 mL + tips 1000 mL x 480 + tips 5000 mL x 500 + tubes 15 mL x 500 + rack
Consumable	Cons	Suppl. sample equipment		(tips 1000 mL x 480) + (tips 5000 mL x 500) +(tubes 15 mL x 500)
Tubes		Luminometer Tubes	1000	non sterile
Tubes		Sterile Luminometer Tubes	750	recommended for Ultrapure water
<i>Others Consumables</i>				
Luminase		Luminase supplement kit		5 tubes of Luminase
Kit suppl. UltraCheck/Luminanase		Reagents supplement kit		1 x UCheck + 1 x Luminase



Aqua-tools: WHO WE ARE?

Aqua-tools is an innovated company dedicated to microbiological monitoring of water:
from ultra-pure water to waste water and anything in between.

Microbiological contamination of water is a major issue:

For human health

For industries

For environment

Our dedicated products allow a real-time monitoring of water quality and the immediate detection of microbial proliferation. Proactive approach for decreasing sanitary risks and improving water networks becomes possible to implement whatever the installation.

React and measure immediately the efficiency of actions – this is where Aqua-tools products bring the major benefit.

We are accompanying our customers at every step of the development of their water surveillance programs – from the first hands-on the technology, through the analysis of their daily results using the technology, up to the implementation of water quality guidelines specific for each installation.

We are working on a sustainable water use approach:

Economy, efficiency, environment

through a relevant use of water and chemicals in the water network installations

For more information: www.aqua-tools.com

Aqua-tools.com

36 rue de la Falaise

78126 Aulnay-Sur-Mauldre - France

Tel. : + 33 (0)1 30 95 79 50

Fax : + 33 (0)1 30 95 54 55