



BALLAST WATER Treatment Monitoring Kit for Rapid Onboard Testing

OVERVIEW

**The aqua-tools
Ballast Water Kit
provides fast
and reliable method.**

**Can be easily used
directly on board by
crewmembers to
Monitor Ballast Water
Treatment System
efficiency.**

**Make sure that you
are in compliance
with ballast water
regulations.**

IMO Ballast Water Management Convention and
United States Coast Guard 46 CFR 162.060

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Introduction of harmful aquatic organisms and pathogens to new environments via ships' ballast water is a great threat to the world's oceans able to cause extremely severe environmental, economic and public health impacts.

Ballast water treatment systems (BWTS) have risen from the requirements of the Ballast Water Management Convention and ship board operation. The majority of these technical solutions (mechanical, physical, chemical or biological processes, either singularly or in combination) is based on land-based existing systems for municipal, industrial water and effluent treatment applications, and must show efficacy for the duty of ballast water treatment in accordance with the IMO and United States Coast Guard guidelines.

AQUA-TOOLS, in collaboration with **SGS Group** (Switzerland) and **LuminUltra** (Canada), **has developed a full, easy and rapid method to ensure that your ballast water treatment system satisfies regulation D-2 of the Ballast Water Convention by the quantification of biological signal from viable and living organisms** in ballast water.



Innovative rapid ballast water treatment monitoring method

The innovative rapid method is scientifically validated to be used on board of commercial vessels and also for approval of different ballast water treatment systems. The Kit provides materials to perform 100 analyses for each fraction: **zooplankton** ($\geq 50\mu\text{m}$), **phytoplankton** ($10\text{--}50\mu\text{m}$) and **bacteria**.

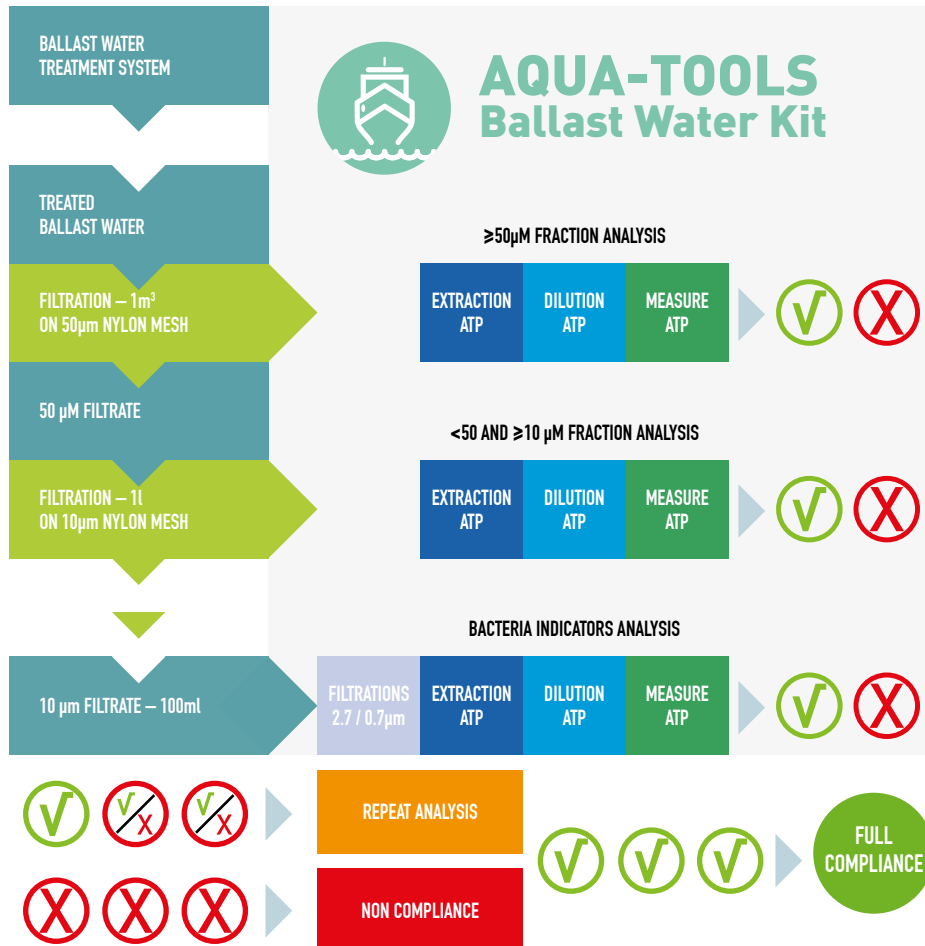
The technology used, ATP 2G[®] (2nd generation), allows performing of rapid analysis **on board during (de)ballasting process** and assessing the efficacy of BWTS in less than 40 minutes. This technology relies on the quantification of a molecule called Adenosine TriPhosphate or ATP – an energy carrier found in all living organisms.

ATP 2G[®] technology has important added value - Bioluminescence reaction is not inhibited by salinity and works with salt concentration up to 300 PSU - quantitative sample transfer ensures accuracy - superior chemistry of reagents - optimized protocols ensure minimal interferences (TDS, TSS, Oil, Biocides) - liquid-stable ATP standard converts RLU to quantitative concentration of ATP.

A patenting grinding method for ATP extraction (less than 20 minutes) has been developed and validated for high level of ATP recovery from zooplankton ($\geq 50\mu\text{m}$) and phytoplankton ($10\text{--}50\mu\text{m}$) despite their solid shell and cell wall.



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INTERPRETATION GUIDELINES

BALLAST WATER FRACTION	COMPLIANT
$\geq 50\mu\text{m}$ cATP ₅₀ (pg/m ³)	< 2000
≥ 10 and < 50µm cATP ₁₀₋₅₀ (pg/mL)	< 500
Bacteria indicators cATP _{bact} (pg/100mL)	
Chemical Treatment	< 20
Physical Treatment	< 150

ORDERING INFORMATION & TECHNICAL SUPPORT

BALLAST WATER ATP KIT - 100 TEST	Product code AT010406	BW-100 Test - 4 X 25 Test
ATPREP BEADS TUBE - 100 TEST	Product code AT010247	Mix Beads Extraction Tube
SMALL LAB EQUIPMENT BW	Product code AT010283	Set of pipettes and racks for tubes
PHOTONMASTER II LUMINOMETER*	Product code AT010107	Autonomous and portable luminometer

* Photonmaster is a registered trademark of LuminUltra

