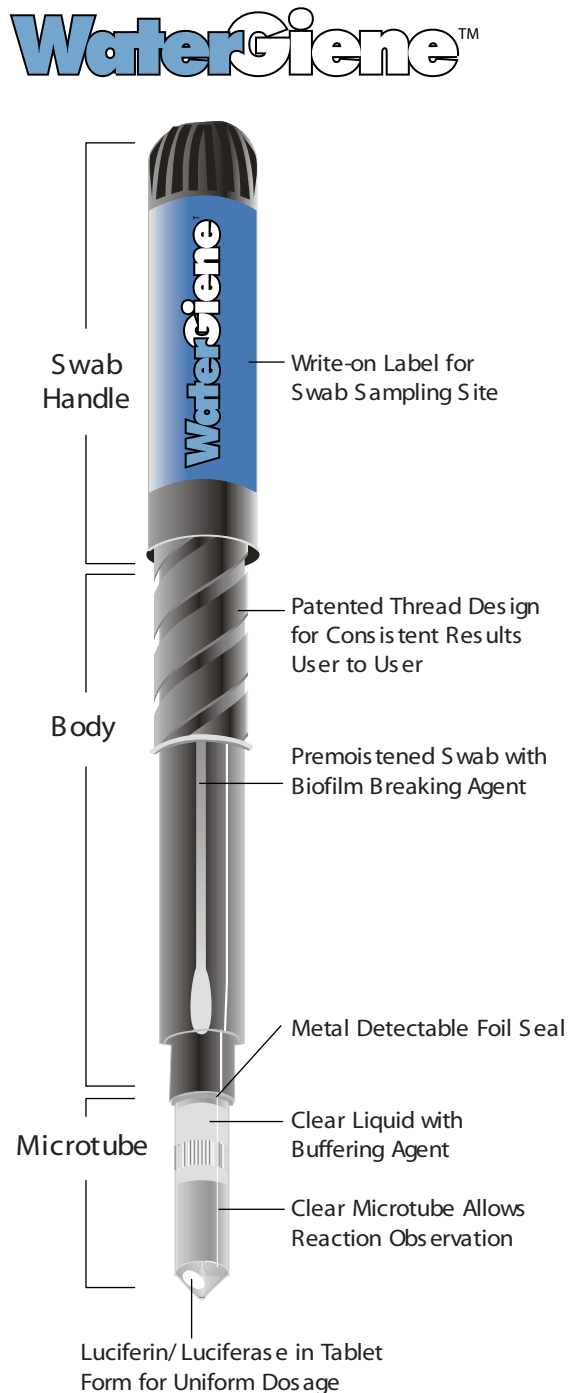


FIGURE 1



WaterGiene™ (Figure 1) is 10-100 times more sensitive in detecting bacteria and other biologics from solutions than previous ATP (Adenosine Triphosphate) tests, (see Table 1). The real time detection of ATP in water at these more sensitive levels offers new biologic control not achieved by traditional microbiology or other ATP tests.

In combination with the new LUMGiene™ luminometer, WaterGiene offers breakthrough detection in just 30 seconds using the same simple swab, twist and count format of other Charm swabs (Figure 2).

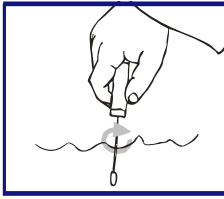
WaterGiene uses a specially wetted swab thus application as a surface swab for microorganisms as low as 100 cfu/100cm<sup>2</sup> is possible.

Pure water is ATP free. ATP in water may indicate process control loss due to the presence of microbes and/or organic debris. WaterGiene has broad application to a variety of manufacturing operations, as follows:

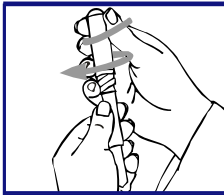
## WATERGIENE APPLICATIONS

- Food
- Beverage
- Critical Care
- Pharmaceutical
- API
- Cosmetics
- Personal Care Products
- Biotechnology
- Medical Device
- Clean Room

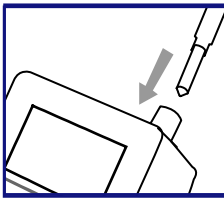
FIGURE 2: PROCEDURE



① For use in water and cleaned wetted surfaces, place swab in sample for 5 seconds while twirling. For rinse surfaces, Swab about 16 square inches total, rotating the handle to achieve full swab contact with surface.



② Reinsert swab into body and engage the threads. Screw the swab all the way down. Gently shake 3 times to bring liquid down into the bottom of the clear tube.



③ Insert swab into LUMGiene chamber. Press down until swab is fully seated. Select H2OG channel on LUMGiene. RLU [Relative Light Unit] values greater than 0 indicates that bacteria, food residue, or other biological material has been detected [see table below].

TABLE 1: Sensitivity measured with WaterGiene on LUMGiene H2OG channel and PocketH2O on LUM Channel of LUM-T

Bacterial <sup>β</sup> Concentration cfu/ml <sup>^</sup>	WaterGiene in LUMGiene* mean RLU [% Positive]	PocketH2O in LUM-T mean RLU [% Positive]
1,500,000	—	18387 [100%]
150,000	1873336 [100%]	430 [19%]
15,000	181118 [100%]	0 [0%]
1,500	23287 [48%]	0 [0%]
150	0 [0%]	—

<sup>β</sup> Four different bacteria studied, E.coli, Psuedomonas, Citrobaacter, and Enterobaacter. Bacteria were cultured then rinsed in saline and added to pure water. Mean of 52 determinations.

\* H2OG is a feature of LUMGiene

<sup>^</sup> Divide by 25 to convert to approximate surface concentration, cfu/ 100cm<sup>2</sup>

— Not evaluated



Part of Charm Sciences<sup>1</sup>



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