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Technical Data sheet

Technique :	ATP- Hygiene-Test
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General description

ATP- Hygiene-Test

The ATP-Hygiene-Test is originally designed for the determination of microbial activity respectively the proof of microbial organic residues on material surfaces in hospitals, kitchens and industries and is usually implemented to support the concepts of GMP (good manufacturing practice) and of HACCP (Hazard Analysis and Critical Control Points) within the safe-guarding of a proper plant hygiene.

The respective test can also be applied as a rapid, preliminary and non-destructive assessment of microorganisms and their potential bio deteriorating activity on sensitive cultural artefacts and materials (i.e. wall-paintings, historical glasses, wood, paper, parchment, textiles) by careful surface swabbing with a cotton rod and subsequent analysis at site or in the laboratory.

ATP (Adenosine Triphosphate, ATP) is the universal energy carrier and is found in all living (micro-)organisms. The ATP content is largely due to the nature of the microbial cells and also a function of metabolic conditions.

The method uses the enzyme luciferase to convert a chemical compound (luciferine) by adding ATP, collected by cotton swabs from respective material surfaces to be monitored, into a light signal which is measured by a photodiode detector or photomultiplier tube. The enzyme is very specific for ATP and the test is very sensitive giving results in seconds that are linear, repeatable and reproducible. However the test is a biological assay and therefore inherently more variable, depending largely on the sample distribution and mode of collection.

The ATP measuring instrument gives results in Relative Light Units (RLU). This is not a standardised, while relative unit and is dependent on the instrument construction and reagent / swab formulations. So, care should be taken when comparing the RLU scale from different instruments or suppliers.

The ATP-Hygiene-Test detects ATP from all sources and can hardly differentiate between organic matter or microbes. It is not intended to replace classical cultural enrichments and needs always to be crosschecked by microscopical analysis, enumeration methods and taxonomical studies. Accordingly, the ATP hygiene test should not be considered as an absolute, precise measurement of surface contamination; it is a sophisticated sensitive indicator test of hygienic status and potential risk for microbial interactions with materials.