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JJF 1828-2020

Calibration Specification for Adenosine Triphosphate (ATP)Fluorescence Detectors

ATP荧光检测仪校准规范

(English Translation)

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Introduction

This specification is written in accordance with the requirements of JJF 1071-2010 "Rules for Compiling National Measurement and Calibration Specifications".

This specification mainly refers to ASTM D7463-14a "fuel, fuel/water mixture, fuel-related microbiology Standard Test Method for the Adenosine Triphosphate (ATP) Content "StandardTestMethodforAdenosine Triphosphate (ATP) ContentofMicroorganismsinFuel, Fuel/WaterMixtures, and FuelAssociatedWater] formulation.

This specification is the first release.

Calibration specification for ATP fluorescence detector

1 Scope

This specification applies to the calibration of handheld and desktop ATP fluorescence detectors.

2 Reference documents this specification refers to the following documents.

ASTMD7463-14a fuel, fuel/water mixture, fuel-related microbial adenosine triphosphate in water (ATP) content standard detection method [StandardTestMethodforAdenosineTriphosphate (ATP) ContentofMicroorganismsinFuel, Fuel/WaterMixtures, andFuelAssociatedWater] for dated reference documents, only the dated version applies to this specification; for those without date references the latest version (including all amendments) is applicable to this specification.

3 Terms and units of measurement 3.1 relative light unit; RLU [ASTMD7463-14a, 3.1.19] Adenosine Triphosphate (ATP) is hydrolyzed to Adenosine Monophosphate (AMP) and pyrophosphate release chemical energy to drive the oxidative release of luciferin catalyzed

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by luciferase the unit of measurement of the light quantum number that is put.

Note: Not a SI unit, but proportional to the ATP concentration. Different detectors may produce different values for the same photon number the same RLU reading.

4 Overview

The ATP fluorescence detector (hereinafter referred to as the instrument) consists of a detection chamber, a control panel, and a photoelectric detector (avalanche diode) Tube or photomultiplier tube detector, etc.) and data acquisition signal processing system, etc., and equipped with supporting fluorescent Swab or reagent of a mixture of luciferin and luciferase. After collecting ATP in the sample, mix it with luciferin and luciferase the biological reaction will produce bioluminescence around 550nm. Within a suitably low ATP concentration range, the luminous intensity is the ATP concentration is proportional. According to the relative light unit RLU, the sample can be deduced from food residues and microorganisms the degree of pollution is monitored for overall cleanliness.

The instrument can be divided into handheld and desktop.

5 Metrological characteristics

5.1 Background noise value

5.2 Limit of detection

5.3 Linear range and correlation coefficient

5.4 Repeatability

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