Why are test solutions for TOC analysers so important?

ANALYTICAL INSTRUMENTS

Why TOC is monitored?

Total Organic Carbon (TOC) is monitored on purified water systems to minimise risk & aid compliance to the United States Pharmacopeia (USP) Chapter <643>. This outlines the general method for TOC testing in pharmaceutical applications. This chapter provides guidance on how to qualify the analytical technique for use, as well as guidance on how to interpret TOC instrument results for use as a limit test.

USP <643> & European Pharmacopeia (EP) Chapter 2.2.44 are very similar. The suitability of the TOC analyser is determined by testing certified blank water (Reagent) a standard solution of 0.500mg C/L (500ppb) sucrose dissolved in Reagent Water, & a System Suitability Solution of 0.500mg C/L (500ppb) of 1,4-benzoquinone dissolved in Reagent Water. Sucrose is intended as a relatively “easy to oxidise” standard & benzoquinone as a “difficult to oxidise” standard.

The analysis of 3 samples enables the calculation of the limit response & response efficiency. The test solution must measure below the calculated limit response to meet the requirements of Chapter <643> & Chapter 2.2.44. The response efficiency is a representation of the TOC analyser’s ability to oxidise different types of organic compounds. The system is determined to be suitable if the response efficiency is between 85% & 115%.

System Suitability Test solutions

System Suitability Test (SST) solutions are usually available from either the TOC analyser manufacturer or a third-party accredited company.

The SST solutions used on the Swan AMI-II LineTOC are:

- USP Reagent Water Rw x 2 250ml bottles
- 0.500mg/L C from USP Sucrose Rs x 2 250ml bottles
- 0.500mg/L C from USP 1,4 Benzoquinone Rss x 2 250ml bottles

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MADE IN SWITZERLAND

Swan's TOC test solutions provider is UKAS accredited to ISO/IEC 17025:2017 (competence of testing & calibration laboratories) & UKAS accredited to ISO 17034:2016 (Certified Reference Material (CRM) manufacturers).

UKAS TESTING 8020 UKAS REFERENCE MATERIALS 8020 ilac-MRA

Swan's customers recognise that the products supplied are among the very best in the world. The certifications & accreditations are just one facet of what distinguishes a company as an elite manufacturer of CRMs. Very few suppliers can document (through the accreditation process) the same rigorous quality programs in place, but those programs are what allow the supply of the highest quality products possible, & allows international acceptance of products by laboratory accrediting bodies.

The importance of rapid supply of TOC solutions

The System Suitability Test (SST) is normally undertaken during TOC analyser commissioning or a routine service & maintenance visit (~every 6 months). The SST is performed by a trained & competent person, usually a service engineer or site technician. This would mean that the SST solutions will be ordered in advance to allow the service/maintenance activities to be carried out on the same day.

In today's world the importance of efficient service & maintenance visits is critical for several reasons; to minimise the water system & TOC analyser down time, to minimise the time spent on site by service engineers & reduce the need for additional visits & to maximise water system efficiency & maximise company profitability.

Swan Analytical Instruments & its TOC test solution provider can guarantee speedy delivery of SST solutions. Swan SST solutions are readily available for quick despatch. With delivery tracking available the service companies & site owners can keep track of items to ensure that they are available for use when they are needed. This will help eliminate delays & potential need to revisit & rebooking of service visits.

For quick delivery of SST solutions from a UKAS accredited supplier consider Swan for your online TOC.

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