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CarboTect™ - Organic contaminant detection tool

Introduction

Carbotect™ is a colour based test to detect the presence of residual organic matter in process and packaging equipment in the food, beverage and pharma industries. It is also used to detect ultra-low levels of organic materials associated with microbial bio-fouling present in factory water systems. It can also be used to detect the presence of residual oxidizing sanitizers used for the cleaning of processing and packaging equipment where incomplete rinsing of equipment may arise.

The test is simple. One needs only to collect a sample of the final rinse water after the completion of a cleaning procedure and to add the **Carbotect™** reagent pellet to the 100ml sample bottle as supplied and wait 5 minutes to allow for the development of the colour reaction. The degree of colour change is measured relative to a colour chart or to a reference standard prepared with distilled water.

Thus while the **Carbotect™** test will offer production and QA personnel with a rapid and reliable indication as to the effectiveness of the CIP procedure, it also affords the observer with a semi-quantitative determination of the degree of contamination that may remain in the system.

In addition, this product can also be used as a diagnostic tool to assist with the identification and isolation of the primary sources of contamination i.e. dead-legs etc., as well as to detail aspects of non-hygienic engineering design in the overall plant infrastructure.

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BIOFILM

Biofilm is frequently encountered in process equipment as well as the piping system supplying water in the production plant.

Microbes in bulk water systems exist primarily in biofilms or slime layers which coat inner surfaces of tanks, reservoirs and supply pipes. The slime layer is essentially a progressive accumulation of organic compounds which sustains the further growth of contaminating microbial populations.

The **Carbotect™** diagnostic tool has been shown to be reliably sensitive to the low levels of these organic compounds to be used as an indirect indicator of microbial contaminants associated with biofilms in bulk water systems.

A more detailed image of the extent of the colour changes and the correlation to the concentration of the glucose compound is described below. In addition the colour reagent is also sensitive the presence of proteins and their building blocks – peptides, as well as unrelated polysaccharide compounds such as cellulose.

Control 0.5 0.1 0.05

Concentration of Glucose (mg/lit [ppm])

Industry sectors where **Carbotect™** will add value:

- All Beverage production and packaging facilities – all soft drinks, fruit juices, ice tea & coffee, flavoured waters, breweries, vineyards, dairies etc.
- All food processing facilities – processed foods, ready-to-eat products, sauces and condiments etc.
- Pharmaceutical plants – powders, tablets, syrups and other liquid based formulations etc.
- Bulk water facilities – municipalities, water treatment plants at food, beverage and pharma facilities
- Hospitality industry – point of use beverage dispensers – draft beer, soft drink fountains

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