

# Starna CellClean<sup>®</sup>

Concentrate for the cleaning of cells and optical components

## Introduction

Clean cells are the foundation of any spectrophotometric or fluorometric analysis. The residue from previous analysis will cause inaccuracies, low sensitivity and lack of precision. More importantly, it will waste your time!

## Handling Precautions

- ◆ **WARNING:** Eye irritant – wear protective glasses. In case of contact, flush immediately with water for at least 15 minutes and consult a physician.
- ◆ Do not mix with other cleaners. Mixing with chlorine-based cleaners may produce toxic gases.
- ◆ Do not drink. If swallowed, take two glasses of water and immediately call a physician. Do not induce vomiting.
- ◆ Wear chemical-resistant gloves(neoprene, nitrile, vinyl, or latex) if you anticipate long, constant exposure to Starna CellClean<sup>®</sup>.



## Material Characteristics

- ➡ Starna CellClean® is a non-toxic, mildly alkaline (typically pH 9.5) liquid. It is not flammable or corrosive, nor is it considered a hazardous material. Unused Starna CellClean® contains no CFCs, ODCs, phosphates, borates, halogens, silicates, or phenols. Starna CellClean® consists mainly of carbon, hydrogen, oxygen, nitrogen, sulphur, and sodium.
- ➡ Starna CellClean® contains both anionic and non-ionic detergents.
- ➡ Starna CellClean® is alkaline and contains amino groups. To assure safety and cleaning performance, Starna CellClean® generally should not be mixed with other cleaners. Mixing Starna CellClean® with acids may cause precipitation: mixing it with chlorine-based cleaners may cause toxic gases.

## Application

Starna CellClean® is an aqueous cleaner that can be used for a wide range of applications, including precision and critical cleaning. It contains a combination of ingredients which provide cleaning actions that include lifting, dispersing, emulsifying, sequestering, dissolving, suspending, and decomposing. Starna CellClean® can be used to remove oil, grease, resin, tar, wax, biological materials, insoluble oxides, fine particles, and many other soils. It is excellent for not only cleaning glass, and quartz, but also surfaces such as ceramic, plastic, etc. It is also highly effective on many types of filter membranes.

## Cleaning Procedures

Cleaning tasks tend to require individualised procedures that are developed empirically. However, the following general points pertain to most applications:

◆ Starna CellClean® is a concentrate. It must be diluted with water before use. A basic cleaning solution of 1-2 % v/v Starna CellClean® in water is a recommended starting point. i.e. 10 - 20 ml Starna CellClean® diluted with distilled or deionised water to 1 litre.

◆ Effective cleaning can usually be achieved at room temperature, but the solution temperature may be raised to accelerate the process. However, since thermal shocking of the cells must be avoided, they should not be subjected to dramatic changes in temperature.

**N.B. Glass cells must not be heated above 35 °C. Only quartz cells may be heated above 35 °C, to a maximum of 60 °C.**

◆ A thorough rinse step must follow the cleaning step. When properly rinsed, Starna CellClean® leaves no residue. However, the amount of rinsing required to completely remove Starna CellClean® cleaning solution depends on the job. Most cleaning tasks require multiple rinses (usually 4).

◆ Whilst Starna CellClean® is harmless to most materials, it will remove the black anodising from cells with aluminium metal bodies. Therefore, metal-bodied flow cells should be cleaned by flowing Starna CellClean® through the cell, and not by total immersion of the cell.

◆ Starna CellClean® provides limited killing action on micro-organisms, this action is not sufficient for Starna CellClean® to be classified as a bactericide, bacteriostat, disinfectant, germicide or viricide. However, cleaning with Starna CellClean® is a good pre-sterilisation step because it will remove dirt-borne microbes.

◆ We do not recommend the use of ultrasonic cleaning baths with cells. Each bath generates a different frequency, and if your bath operates at the resonant frequency of a cell, the cell will break. We do not warranty our cells for cleaning in an ultrasonic cleaner.

## Cleaning Validation

In some cases it is necessary to prove the absence of residue. This is easily achieved by measuring the conductivity of the rinse water. Assuming the final rinse water is distilled or deionised, it will have low electrical conductivity when uncontaminated. If even a trace of Starna CellClean® remains in this type of rinse water, its conductivity will increase sharply. Therefore, if the water has a higher conductivity after rinsing, more rinsing is required.

## Disposal\*

Unused Starna CellClean® is not a hazardous waste. However, once other materials are added to Starna CellClean® through the cleaning process, it is the responsibility of the user to determine whether the waste is hazardous, or requires special disposal procedures.

\* Material Safety Data Sheet available on request.

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