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HOW TO CLEAN LABORATORY GLASSWARE SAFELY

Laboratory glassware has frequent contact with a range of substances on a repeated basis and ensuring that equipment can be re-used safely requires a robust cleaning process.

Effective cleaning also helps to prolong the life of the products you used and protects the validity of future work.

The act of cleaning glassware for reuse is often referred to as re-processing and can be carried out manually, with the use of automated washing equipment or a combination of both.

This blog outlines the core steps to effective re-processing as well as general tips for cleaning glassware safely.

REPROCESSING LABORATORY GLASSWARE EXPLAINED

A complete cleaning, or re-processing cycle typically consists of four stages, although not all are always necessary.

1. Initial cleaning

This step ensures the removal of any adhering contamination from the surfaces of laboratory glassware, using process chemicals if necessary.

2. Neutralization

If required, this process is undertaken to neutralize the residues of any process chemicals employed on and in the surfaces of laboratory glassware during cleaning. As alkaline process chemicals are typically used in cleaning processes, acidic chemicals are generally used for neutralization.

3. Rinsing

This step removes any remaining dissolved / detached contamination and the process chemical employed from the surfaces of the glassware.

4. Disinfection

This stage is only required if the safety classification in the laboratory or specific process demands it. The aim of disinfection is to reduce the number of pathogenic germs and active viruses on the surfaces of laboratory glassware and, if applicable, to reduce the contamination to a degree which is accepted as being safe.

BASIC TIPS FOR CLEANING LABWARE

Whether a full re-processing is taking place or not, and whether it is manual or automated, there are a number tips that can help ensure lab glassware and plastic coasted glassware is cleaned effectively and safely. Here are twelve tips to help you in your daily work.

1. Washing machines may be used to enable automated re-processing. Support racks on the washer must be well maintained. The support pins should be coated with a non-abrasive material to prevent metal to glass contact and scratching.

2. For manual washing, use only plastic core brushes that have soft, non-abrasive bristles. Soft, clean sponges or other wiping materials may be used. Do not use brushes or wiping material with abrasive cleaners. Scouring pads will scratch glass and should not be used.

3. Inspect your glassware after cleaning and discard it if scratched, chipped, cracked or damaged in any way.

4. Many commercial glass cleaners are available. Follow the manufacturers' directions for the use of these products since some are corrosive and can damage laboratory glass.

5. Organic solvents are acceptable cleaning agents when conditions warrant their use.

6. Do not soak plastic-coated glassware for long periods of time and this can shorten the life of the coating. Do not allow used plastic-coated glassware to sit unwashed for long periods of time, as this will make cleaning more difficult.

7. Do not place metal or other hard objects, such as spatulas, glass stirring rods, or brushes with metal parts, inside the glassware. This will scratch the glass and can cause eventual breakage and injury.

8. Do not use strong alkaline products and hydrofluoric acid as cleaning agents. They are glass dissolvers and can damage the glassware and eventually cause breakage which can result in injury.

9. Do not use any abrasive cleansers, including soft cleansers as these can also scratch the glass and if use repeatedly can cause eventual breakage and injury.

10. Do not place hands inside glassware while wearing any jewelry, particularly diamond rings, as these will score the inside of the glassware, resulting in damage that could lead to eventual breakage and injury.

11. Do not heat glassware to temperatures above 400°C to burn out carbon residues. This will result in the introduction of permanent stresses in the glass that will eventually cause the glassware to break, resulting in possible injury.

12. Plastic-coated glassware should not be cleaned with harsh, chemical grade detergents. Instead, use a non-abrasive grade detergent. If using a dishwasher or dryer, avoid temperatures greater than 110°C (230°F). Scouring pads and brushes are not recommended for use on plastic-coated glassware.

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