EasyTrace

Vessel Cleaning Systems

Sustainable Vessel Cleaning for the Modern Trace Analysis Laboratory

qmx

INTRODUCTION

In the modern trace analysis analytical laboratory, the need for clean, contamination-free vessels is paramount.

EasyTrace Vessel Cleaning Systems from Qmx Laboratories represent a significant advancement in laboratory vessel cleaning technology, particularly in their sustainability features.

EasyTrace and EasyTrace PLUS are state-of-the-art cleaning systems designed to efficiently and effectively clean a range of laboratory vessels for trace metal analysis with minimal environmental impact and operator involvement.

By utilising a small amount of dilute acid to generate ultra-pure acid vapour, vessels can be effectively cleaned to eliminate trace metal contamination, removing the need for manual cleaning or acid soaking and thereby freeing up analyst time, reducing exposure to hazardous substances and conserving resources.

This document explores the importance of sustainability in the inorganic analytical laboratory and details how EasyTrace Systems address these needs, ensuring efficient, effective and eco-friendly cleaning of laboratory vessels.

THE IMPORTANCE OF SUSTAINABILITY IN ANALYTICAL CHEMISTRY

ENVIRONMENTAL IMPACT REDUCTION

Analytical chemistry, while essential for scientific advancement, often involves the use of hazardous chemicals and generates significant waste. Implementing sustainable practices in this field can help to:

- **Minimise Chemical Waste**
  By reducing the volume and toxicity of chemical waste, laboratories can help protect their immediate ecosystems and minimise risks to human health.
- **Conserve Energy**
  Utilising energy-efficient technologies can help in reducing the carbon footprint of laboratory operations.

RESOURCE CONSERVATION

Sustainable practices in analytical chemistry help in:

- **Efficient Resource Utilisation**
  Using minimal amounts of reagents and solvents conserves valuable natural resources.
- **Adoption of Renewable Resources**
  Encouraging the use of renewable materials reduces dependency on non-renewable resources.

HEALTH AND SAFETY

- **Reducing Exposure to Toxic Substances**
  Limiting the use of hazardous chemicals improves the safety of laboratory personnel.
- **Promoting Cleaner Work Environments**
  Sustainable methods create safer, cleaner laboratory conditions.

EasyTrace

EasyTrace can be used to clean polymer, quartz, glass etc., and includes one tray with reconfigurable rods for microwave vessels and other containers.

EasyTrace *PLUS*

EasyTrace *PLUS* offers complete automation of cleaning agent additions/ removal, DI water rinse, and drying cycles.

ECONOMIC BENEFITS

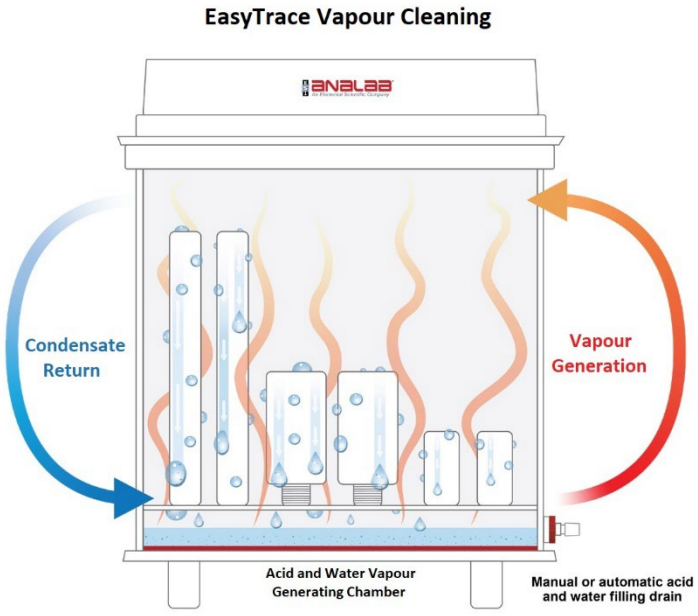
Sustainable practices provide economic advantages such as:

- **Cost Savings**
  Lower consumption of reagents, along with reduced waste disposal costs, leads to financial savings.
- **Regulatory Compliance**
  Meeting environmental regulations avoids potential fines and enhances operational efficiency.

SYSTEM OVERVIEW

EasyTrace and EasyTrace *PLUS* are state-of-the-art cleaning systems designed to efficiently and effectively clean a range of laboratory vessels for trace metal analysis with minimal environmental impact and operator involvement. Key features include:

- **Acid Vapour Cleaning**
  The systems use a small amount of dilute acid (typically 5-10% HNO_3 or HCl) to generate acid vapour for enhanced cleaning.
- **Reduced Chemical Use**
  Significantly reduces the need for large volumes of corrosive substances and water in comparison to traditional acid soaking or manual cleaning techniques.



- **Energy Efficiency**
  Designed to consume less energy compared to conventional cleaning systems.
- **Reduced User Interaction**
  The EasyTrace *PLUS* system can fully automate the cleaning process, freeing up significant amounts of valuable analyst and instrument time and reducing exposure to hazardous substances.

SUSTAINABILITY FEATURES

- **Reduction in Chemical Use**
  The EasyTrace Vessel Cleaner employs acid vapour cleaning technology, which requires a relatively small amount (≈ 500ml) of dilute acid. This approach ensures effective cleaning while significantly cutting down on the quantity and toxicity of chemicals used, thereby minimising chemical waste and environmental impact.
- **Energy Efficiency**
  Designed with sustainability in mind, the EasyTrace Vessel Cleaner operates with lower energy consumption. Its energy-efficient components and smart operating modes contribute to a reduced carbon footprint, making it an eco-friendly choice for laboratories.
- **Water Conservation**
  Water usage is a critical concern in laboratory operations. The EasyTrace Vessel Cleaner incorporates mechanisms that optimise water usage, ensuring effective rinsing of vessels with minimal waste. This feature not only conserves a vital resource but also reduces operational costs.
- **Waste Reduction**
  By using dilute acid to generate acid vapour for cleaning, EasyTrace systems generate less hazardous waste compared to traditional cleaning methods. This reduction in waste translates to lower disposal costs and a decreased environmental impact.
- **Durable and Long-lasting Design**
  EasyTrace systems are constructed from inert fluoropolymer materials, reducing the need for frequent replacements and contributing to overall sustainability. Its robust construction ensures long-term performance, minimising the environmental impact associated with manufacturing and disposal.

CONCLUSION

EasyTrace Vessel Cleaning Systems exemplify the integration of sustainability into analytical laboratory equipment. Their advanced features significantly reduce chemical usage, conserve water, enhance energy efficiency, and minimise waste generation. By adopting such innovative and sustainable technologies, laboratories can not only improve their operational efficiency but also contribute to global efforts in environmental protection and sustainability.

In conclusion, the EasyTrace Vessel Cleaner stands out as a vital tool for modern laboratories aiming to uphold the principles of sustainability while maintaining high standards of cleanliness and efficiency.

Contact info@qmx.com for enquiries
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