The importance of solvent cleaners in the nuclear power industry

Solvent cleaners play a crucial role in the nuclear power industry for various reasons. The nuclear power industry involves complex and sensitive processes that require a high level of cleanliness to ensure safety, efficiency, compliance with regulatory standards, and overall integrity of nuclear facilities. Here are some key reasons which highlight the importance of solvent cleaning in the nuclear power industry:

Contamination Control:
Nuclear power plants operate in environments where even small amounts of contaminants can have significant consequences. Solvent cleaning helps control and remove contaminants such as dust, dirt, oils, and other foreign residues from various components, ensuring the integrity of critical systems and equipment.

Radiation Protection:
Radioactive materials are present in different forms within nuclear power facilities. Solvent cleaning is essential for decontaminating surfaces exposed to radiation. Radioactive particles can adhere to equipment and structures, posing a risk to workers and the environment. Regular solvent cleaning helps mitigate radiation exposure by removing these contaminants and is crucial for minimizing radiation exposure to workers and preventing the spread of radioactive materials.

Equipment Maintenance:
Nuclear power plants rely heavily on sophisticated equipment and control systems for monitoring and managing various processes, including sensors, valves, pumps, heat exchangers, and instrumentation. Solvent cleaning helps maintain the performance and reliability of these

components by preventing corrosion and other issues that may arise from the accumulation of contaminants, ensuring accurate and reliable operation.

Preventing Corrosion:
Corrosion can compromise the structural integrity of materials, especially in the presence of radiation and harsh environmental conditions. Solvent cleaning helps remove corrosive agents, protecting equipment and structures from degradation. This helps extend the lifespan of materials and reduces the risk of structural failure.

Quality Assurance and Regulatory Compliance:
The nuclear industry operates under strict quality assurance and regulatory standards. Solvent cleaning is an essential part of maintaining these standards by ensuring that equipment and surfaces meet cleanliness requirements and do not introduce uncertainties or errors into the nuclear processes.

Heat Transfer Efficiency:
In nuclear power plants, efficient heat transfer is essential for optimal performance.
The presence of contaminants on heat exchanger surfaces can reduce heat transfer efficiency, leading to decreased performance and potential overheating. Solvent cleaning helps maintain clean surfaces, ensuring effective heat transfer and preventing overheating of components. Some solvents can also be extremely effective as heat transfer liquids.

Preventative Maintenance:
Solvent cleaning is often a part of routine preventative maintenance programs in nuclear facilities. Clean and well-maintained equipment is less likely to experience malfunctions. Regular cleaning helps identify and address potential issues before they escalate, contributing to the overall safety and reliability of the nuclear plant.

In summary, solvent cleaning is integral to the overall safety, efficiency, and longevity of equipment and structures within the nuclear power industry. It plays a key role in helping to control contamination, maintain equipment performance, protect against radiation, help to prevent corrosion and ensure overall equipment reliability. It's important to note that while solvents are effective cleaning agents, their use should be handled with care. Some solvents can be toxic, flammable, or harmful to human health and the environment, so proper precautions and guidelines should be followed when using them. Additionally, choosing the right solvent for a specific cleaning task is crucial to achieve optimal results without causing damage to the surfaces being cleaned.

Zero Ozone Depletion Potential (ODP) and very low Global Warming Potential (GWP) solvent cleaner for high performance degreasing.

ProSolv®5408e has been developed to provide superior critical cleaning performance, suitable for many different industries. High Solvency (KB Value 98) for removal of organic residue and oils.

ProSolv®5408e is a high-performance solvent cleaner used for sustainable and future proof degreasing.

It has a GWP of less than 1, with a 100-year Integrated Time Horizon (ITH). Soft on the environment and safe for users, it offers improved cleaning at lower costs.

ProSolv®5408e ticks all the boxes and is the perfect profile for a modern degreasing solvent. Exceptionally low surface tension to penetrate micron sized holes and close contact surfaces. Sustainable and secure for the future. Non-carcinogenic, low boiling point, economical with energy with low solvent losses, faster production, reduced costs, easy handling.

EFFICIENT AND ECONOMICAL

- Fast precision cleaning with short cycle times.
- Can be used in any vapour degreasing equipment, lower energy consumption and lower maintenance.
- Ideal replacement for Trichloroethylene, n-Propyl Bromide and HCFC based solvents.
- Stable with no additives, no testing required.
- Improved productivity, parts exit the machine cool, dry and spot-free with no drying required.
- Fast drying.
- Minimal non-volatile residue (>10ppm).
- High density solution, excellent for ultrasonic cleaning.
- Mid-range boiling point (46°C).
- Very low surface tension for penetration into the micron level crevices and holes, efficient cleaning in tight to reach places and complex geometries.
- Easy process monitoring with minimal effort and minimal waste generation, easy reclamation for reuse.
- High Solvency (KB Value 98) for a variety of contaminants.
- Compatible with a broad range of substrates.

SAFE FOR USERS AND THE ENVIRONMENT

- Safe for the environment, Zero Ozone Depletion Potential (ODP).
- Very low Global Warming Potential (GWP).
- GWP of less than 1, AR4 100yr Integrated Time Horizon (ITH).
- Non-hazardous for transportation.
- Non-flammable (No Flash Point).
- Not classified as a carcinogen.

Listed above are some of the benefits from using ***ProSolv®5408e***, a sustainable degreasing solvent for precision cleaning and an economical and efficient replacement solution for cleaning systems using older legacy solvents, which are now either banned or being phased out. EnviroTech Europe have many years of experience and our experts are available to guide you through your solvent cleaner changeover procedures or to advise on equipment.

FURTHER INFORMATION

ProSolv®5408e degreasing solvent is manufactured in the United Kingdom and available on short delivery times through our dedicated team of distributors worldwide.

Please visit our website **https://www.envirotech-europe.com** for information about all our products and further information on ***ProSolv®5408e***. For more advice, please telephone us on +44 (0) 20 8281 6370 or use our website contact form.

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bsi. ISO 9001:2015 Quality Management
FS 502194