Why are vapour degreasing solvents so good at cleaning?

Vapour degreasing solvents are typically chosen for their excellent solvency properties. They have the ability to dissolve and disperse a wide range of contaminants, including dirt, oil, grease, wax, and other contaminants. The cleaning action of solvents is primarily attributed to their unique molecular properties and interactions with the materials they contact. Here's why solvents are so good at cleaning:

Low Surface Tension:
Vapour degreasing solvents can reduce the surface tension of liquids, making them more effective at penetrating and breaking up dirt and stains. This allows the solvent to reach areas that might otherwise be hard to clean.

Polarity:
The polarity of a solvent plays a significant role in its cleaning ability. Polar solvents have molecules with positive and negative poles, which allows them to interact with polar substances like water-based stains. Nonpolar solvents, on the other hand, are effective at dissolving nonpolar substances like oils and grease. Different cleaning tasks may require the use of polar or nonpolar solvents depending on the nature of the dirt or stain. Most vapour degreasing solvents are nonpolar in nature, meaning they do not have a positive or negative charge. This allows them to interact with a variety of contaminants, regardless of their charge or polarity, making them versatile for different types of cleaning applications.

Heat and Vaporization:
The vapour degreasing process involves heating the solvent to create vapour, which rises and condenses on the surfaces to be cleaned. This condensation releases latent heat, which aids in loosening and lifting contaminants from the surfaces. The vaporization and condensation cycles help dislodge and carry away dirt, oils, and other substances effectively.

No Aqueous Residues:
Unlike water-based cleaning methods, vapour degreasing solvents leave little to no aqueous residue behind. This is especially important for applications where water could cause corrosion or damage, such as cleaning sensitive electronics or precision mechanical components.

Minimal Agitation Required:
Vapour degreasing is a relatively gentle cleaning method that doesn't require extensive mechanical agitation. This reduces the risk of damaging delicate parts while ensuring effective cleaning.

Consistency:
Vapour degreasing provides consistent and uniform cleaning results because the solvent vapor can reach all surfaces evenly, including intricate and complex geometries.

Environmental Considerations:
While some vapour degreasing solvents in the past were environmentally concerning, modern solvents are designed to be safer and more environmentally friendly. They are engineered to have lower toxicity, reduced volatility, and minimal global warming or ozone-depleting potential.

Dissolving Power:
Solvents have the ability to dissolve a wide range of substances, both organic and inorganic. This is due to their molecular structure, which allows them to interact with different types of molecules. When a solvent comes into contact with a substance, its molecules surround and separate the particles of the substance, breaking down the intermolecular forces holding them together. This leads to the dissolution of the substance into the solvent.

Evaporation:
Vapour degreasing solvents typically have relatively low boiling points, which means they evaporate quickly when exposed to air. This evaporation helps in removing the dissolved dirt and contaminants from surfaces, leaving them clean and dry. It is important to ensure evaporating solvent doesn’t escape to the atmosphere. This is achieved by having cold condensing coils just above the components being cleaned.

Versatility:
Vapour degreasing solvents come in various types and compositions, allowing them to target specific types of contaminants. For example, alcohol-based solvents are effective at cleaning glass surfaces due to their ability to dissolve and evaporate quickly without leaving streaks.

Chemical Interactions:
Vapour degreasing solvents can undergo chemical reactions with certain types of substances, leading to their removal or transformation. This can be especially useful for removing tough stains that might not be easily removed through simple dissolution.

Compatibility:
Vapour degreasing solvents are often formulated to be compatible with specific materials, ensuring that they don't damage the surfaces being cleaned. This makes them versatile for use on a wide range of surfaces.

Rinsing Action:
Vapour degreasing solvents can also act as rinsing agents, carrying away dissolved dirt and contaminants when they evaporate. This helps prevent redeposition of dirt onto cleaned surfaces.

Overall, the combination of excellent solvency, low surface tension, nonpolar properties, heat assistance, minimal residue, and controlled vaporization make vapor degreasing solvents highly effective for a wide range of cleaning applications.

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 vapour 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 vapour 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 (TCE) and n-Propyl Bromide (nPB).
- Stable with no additives, no testing required.
- Improved productivity, parts exit the machine cool, dry and spot-free with no drying required.
- Minimal non-volatile residue (>10ppm).
- High density solution, excellent for ultrasonic cleaning.

- Mid-range temperature operation, easier handling, mid-range boiling point, processed components easily handled (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.
- Compatibility with a wide range of sensitive components (some components or products are sensitive to the high pressures of water-based cleaning, the heat of washing and/or drying, or surface residues after drying).

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 vapour 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 vapour 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.

supplied and supported by

ENVIRO Tech
Europe, Limited

EnviroTech Europe Ltd
Aissela, 46 High Street, Esher, Surrey, KT10 9QY,
United Kingdom
Tel +44 (0) 20 8281 6370
www.envirotech-europe.com

bsi. ISO 9001:2015 Quality Management
FS 502194