Tech Article

Vapor Degreasing: The Answer to a Quality Parts Finish

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The perfect finish is crucial when it comes to producing quality metal parts. Achieving the correct surface is fundamental to further processes like coating and plating or simply to improve the final appearance. One way to produce a good quality finish is through critical cleaning parts with vapor degreasing.

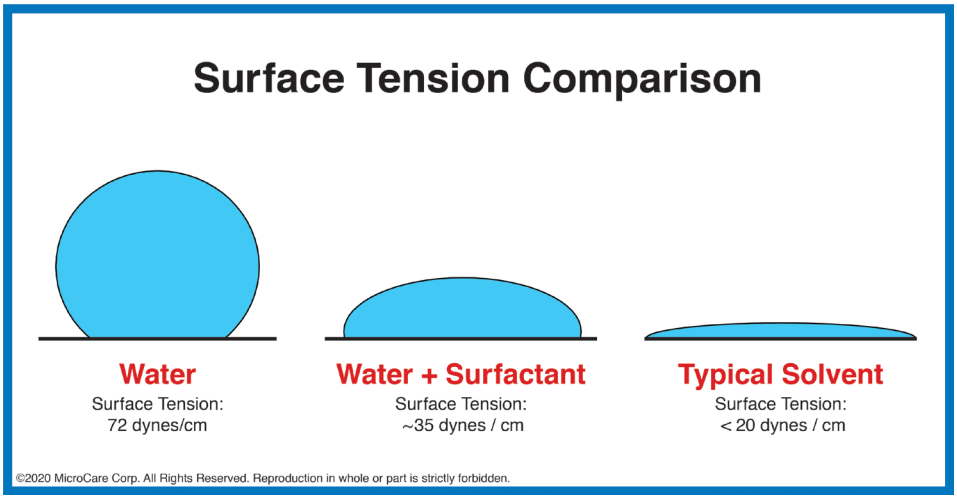
When it comes to critical cleaning parts, finding a long-term process that works effectively and adapts to changing requirements is the ideal. Even the smallest amount of surface contaminant whether it's oil, grease, adhesives, fingerprints or other particulate, can impair a finishing method and result in parts not functioning reliably.

Critical cleaning is becoming more of a challenge due to the increasing use of miniaturized parts and complex geometries. Smaller components have tighter tolerances, which brings increased complications when manufacturing and finishing. To perform as they should, intricate components must be precision cleaned. This, however, can be a difficult process to navigate. Especially when adding in factors like hard to clean residue, cost implications or the ever-changing environmental restrictions and workplace safety rules placed on companies today.

How Vapor Degreasing Works

A method that is regaining acceptance as a comprehensive and effective cleaning process is vapor degreasing. Vapor degreasers are a closed-loop system that require two elements: a specially designed cleaning machine, and a specific low-boiling, non-flammable fluid as the cleaning agent. Vapor degreasers contain two chambers: the boil sump and the rinse sump. In the boil sump, the solvent is heated, and the parts are immersed and cleaned in the fluid. Once cleaned, the parts are mechanically transferred to the rinse sump for final rinse in a pure, uncontaminated fluid. The parts come out clean, dry, spot-free and immediately ready for the next step in the process or packaging.

The cleaning fluids used within the system have multiple chemical properties that are advantageous to critical cleaning. For example, they typically have a low surface tension and a very low viscosity. This allows them to easily penetrate and clean very tight spaces like blind holes and the crevices between stacked parts. Most vapor degreasing fluids also are very heavy and dense, typically 20-40% heavier than water. This aids in dislodging particulate from the components.



Most vapor degreasing fluids have lower viscosity than water allowing them to penetrate and clean parts better.

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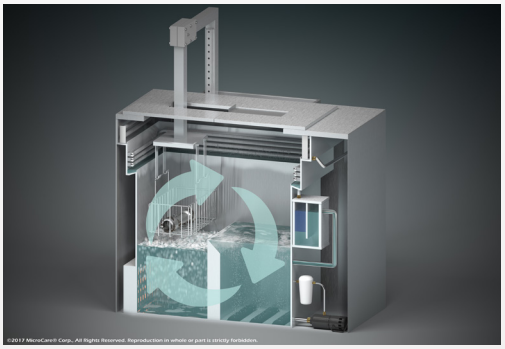
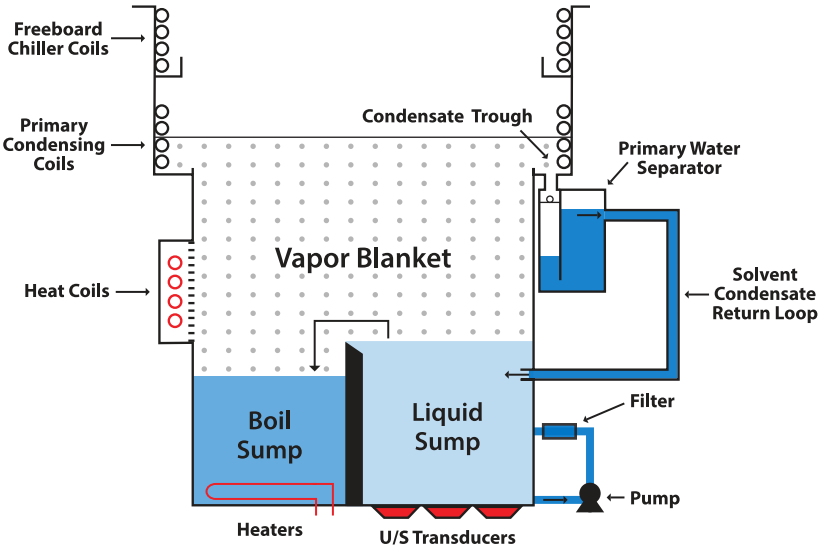


A vapor degreaser recycles cleaning fluid for hundreds of uses, saving waste.

Improving Worker Safety

Importantly, using a vapor degreasing process is a good way to address worker safety, regulatory requirements and environmental concerns. Leading companies are developing and commercializing non-toxic, environmentally acceptable cleaning options. Plus, they out-perform older cleaning fluids like nPB, Perc or TCE.

What makes modern vapor degreasing chemistries even more impressive is that they also have 'green credentials' with a low VOC formula, which is ozone-friendly and complies with many regulations including F-Gas, and REACH.



Vapor degreasing cleans, rinses and dries parts in one machine.

Conclusion

To achieve a high-quality surface for finishing, cleanliness is an essential step, and one that should be investigated thoroughly to ensure components are ready for the next stage of manufacture. Vapor degreasing offers one solution. By using modern, highly advanced cleaning fluids, the process is simple, consistent and sustainable, resulting in perfectly cleaned parts. In addition, its flexibility to adapt to any future changes, whether it's regulatory, environmental or a change in cleaning requirements, makes vapor degreasing a highly useful cleaning process for the finishing world.

About the Author:
Mike Jones, retired Vice President of International Sales for MicroCare, has over 30 years of experience in the critical cleaning industry. He is a prolific writer and educator focusing on critical cleaning in general and vapor degreasing and benchtop cleaning in particular. For more information, visit www.microcare.com.

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