



New York State Pollution Prevention Institute



VACUUM CYCLE NUCLEATION

New York State Pollution Prevention Institute (NYSP2I), at Rochester Institute of Technology (RIT), is looking to work with precision parts manufacturers in New York State (NYS) to evaluate and possibly implement a new technology called Vacuum Cycle Nucleation (VCN).

NYS provides NYSP2I with funds to help offset your costs associated with evaluating and implementing this new technology. Projects are confidential with most companies contributing a modest cost share.

How does VCN work?

VCN utilizes surface bubble nucleation under pulsating pressure conditions using aqueous-based solutions to lift contaminants off part surfaces, even those with irregular shapes. Other applications require high concentrations of hazardous and toxic chemicals to achieve desired cleanliness - VCN can achieve the same cleanliness levels with much lower amounts of chemicals.

- Parts are immersed in a water-based solution that contains low concentrations of cleaning chemicals like hydrogen peroxide or surfactants
- The cleaning chamber is heated to temperatures from 120 to 150 degrees fahrenheit
- A vacuum applied to lower the boiling point so bubbles form on the parts and help to achieve enhanced mass transfer of fluid
- VCN can often clean parts that could otherwise only be cleaned using toxic and hazardous chemicals

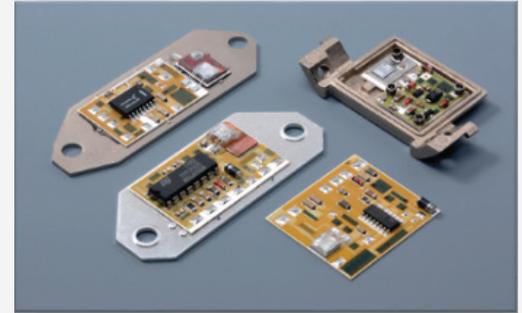
Who should use VCN?

Any sector that utilizes precision parts cleaning:

- Metal finishers
- Medical device manufacturers
- Microelectronics

Why use VCN?

Saves money - costs associated with chemical purchases are reduced, regulatory compliance requirements are minimized, and productivity can increase.



What does VCN do?

Cleans complex parts - precision cleaning using aqueous solutions; effectively cleans parts with irregular geometries such as tight recesses and small openings.

Reduces toxic chemicals needed to effectively clean precision parts. Chemicals such as halogenated solvents (e.g., trichloroethylene) and high concentrations of acids or caustics can be reduced or eliminated altogether.



Photos courtesy of www.hanson-precision.com

Partners



New York Manufacturing Extension Partnership

Funding provided by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation. © 2016 Rochester Institute of Technology. Any opinions, results, findings, and/or interpretations of data contained herein are the responsibility of Rochester Institute of Technology and its NYS Pollution Prevention Institute and do not represent the opinions,



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