ELIMINATION OF TRICHLOROETHYLENE/HAZARDOUS WASTE REDUCTION POLLUTION PREVENTION/BEST PRACTICES

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Facilities: Franklin Indiana, Lexington SC

Facility Type: Precious Metal Plating for High Reliability Components

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Certifications:

ISO 9001, ISO 14001:2015, AS9100:2016, ISO13485 and NADCAP

Members Of:

INSHARP

ESP Indiana Environmental Stewardship Program
Better Environment, Better Business
Indiana Department of Environmental Management

ELIMINATION OF TRICHLOROETHYLENE/HAZARDOUS WASTE REDUCTION POLLUTION PREVENTION/BEST PRACTICES

THE BEST WAY TO PREVENT POLLUTION IS NOT TO USE THE PRODUCT.

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POLLUTION PREVENTION/BEST PRACTICES

ISO 14001, INSHARP and ESP

- Make your company look at everything with a different perspective.
- Customer Products
- Chemicals that are used in your processes
- How SAFE is this for your company and workers
- What can you avoid as a possible pollutant and safety issues.

ELIMINATION OF TRICHLOROETHYLENE/HAZARDOUS WASTE REDUCTION
POLLUTION PREVENTION/BEST PRACTICES

Degreasing ferrous and non-ferrous parts for plating

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- The use of trichloroethylene in a vacuum vapor environment has always allowed Electro-Spec to use chlorinated solvent without and risks to the environment or human health.
- Electro-Spec is dedicated to find new technology that is environmentally friendly and with this new solvent we were able to eliminate the use of trichloroethylene.
- The use of trichloroethylene in any equipment can still run the risk of an environmental issues if not handled properly. The City of Franklin is now discovering how the impact of not handling trichloroethylene properly can impact not only the environment but the health of people living in the city.

- Next slide is a picture of our degreaser.

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VAPOR DEGREASING

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HAZARDOUS MATERIALS ELIMINATION

We all know the TCE can be a carcinogenic when the proper PPE and Environmental condition are not followed.

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Dec 15, 2020, EPA had an online webinar (first attachment) on the published Final Risk Assessment on TCE. It's a good a summary of the risk assessment and status:

Page 4 outlined the TSCA risk evaluation process. The Risk Assessment is complete November 2020. The Risk Management is next and should be done 2-4 years from Risk Assessment. So we are looking at 2022 the earliest and 2024 the latest.

Pages 8 and 9 summarized the Risk Assessment conclusion - Vapor Degreasing (open top and closed top) imposes unreasonable risk to health.

Next step is to determine the options for Risk Management. Pages 16 to 20 lists available options. Some industry experts advocates for outright ban.

However, it looks like New York State took immediate action to ban TCE in Vapor Degreasing, effective December 1, 2021. See the second attachment.

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To Eliminate the use of Trichloroethylene we had to find a new solvent. The EPA has several hundred alternative cleaning methods but none of their methods have a surface tension value of solvents. Electro-Spec needs a solvent with a low surface tension to clean the small parts we plate.

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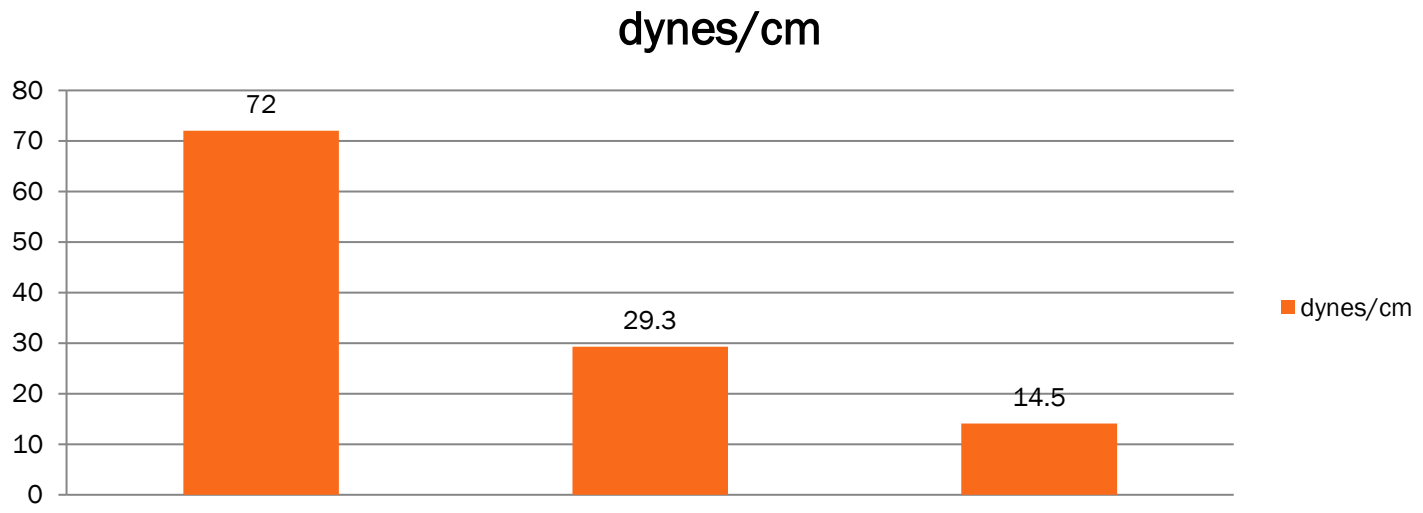
Surface tension of water is 72 dynes/cm, the surface tension of TCE 29.3 dynes/cm and the surface tension of DowClene 1621 is 14.5 dynes/cm



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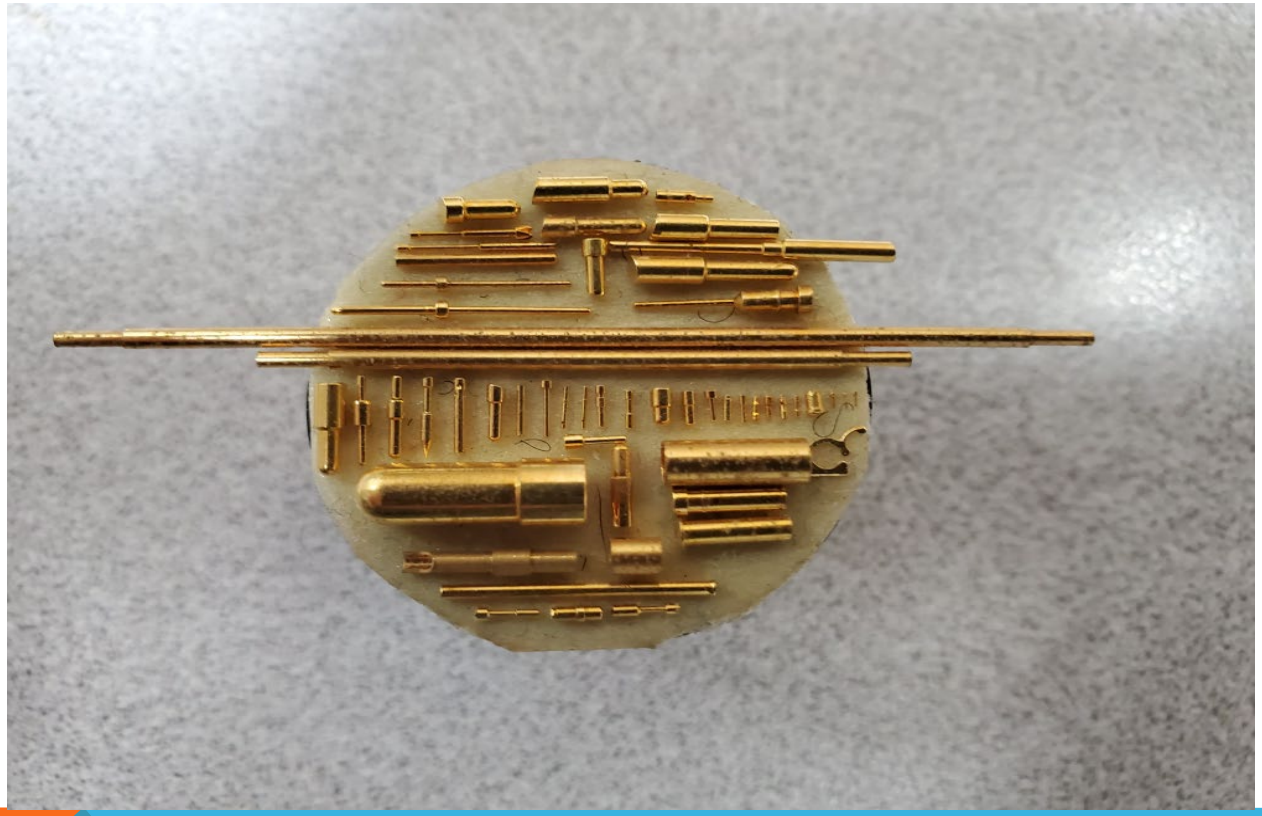
SAMPLE OF PART SIZE PLATED AT ELECTRO-SPEC INC.



ELIMINATION OF TRICHLOROETHYLENE/HAZARDOUS WASTE REDUCTION POLLUTION PREVENTION/BEST PRACTICES

- The only way Electro-Spec Inc was going to be able to eliminate the use of TCE was to purchase a new machine that would allow us to use the most advance solvent.
- The cost of a new machine to use any advance solvents would be between $250,000.00 - $300,000.00 and that is a large capital investment for a small business post COVID.
- We did find a company the distributed the type of machine we needed and a local chemical manufacture could supply us the solvent.
- With the help of IDEM's CTAP group we were able to get a grant that would pay for 50% of the machine cost making it possible for Electro-Spec to eliminate the use of TCE. This would not have happened without the help of IDEM CTAP helping Electro-Spec Inc find a grant to help cover the cost.

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NEW MACHINE NEW SOLVENT

ELIMINATION OF TRICHLOROETHYLENE/HAZARDOUS WASTE REDUCTION POLLUTION PREVENTION/BEST PRACTICES

DOWCLENE™* 1621 consists of a special formulation with primarily hydrophilic components and ensures efficient removal of the following examples:

- Metalworking media
- Corrosion inhibitors
- Lubricant greases
- Moist emulsion residues
- Polar oil additives DOWCLENE™* 1621
- has good distillation behaviour due to its narrow boiling range
- is thermally stable
- can be monitored on site with the MAXICHECK™ test kit
- enables very long bath usage and reliable cleaning results even with chlorinated and sulphurated oils.
- can achieve biocompatible surfaces according to DIN ISO 10993-5: 2009 and is therefore suitable for applications in medical technology

NEW SOLVENT NEW MACHINE

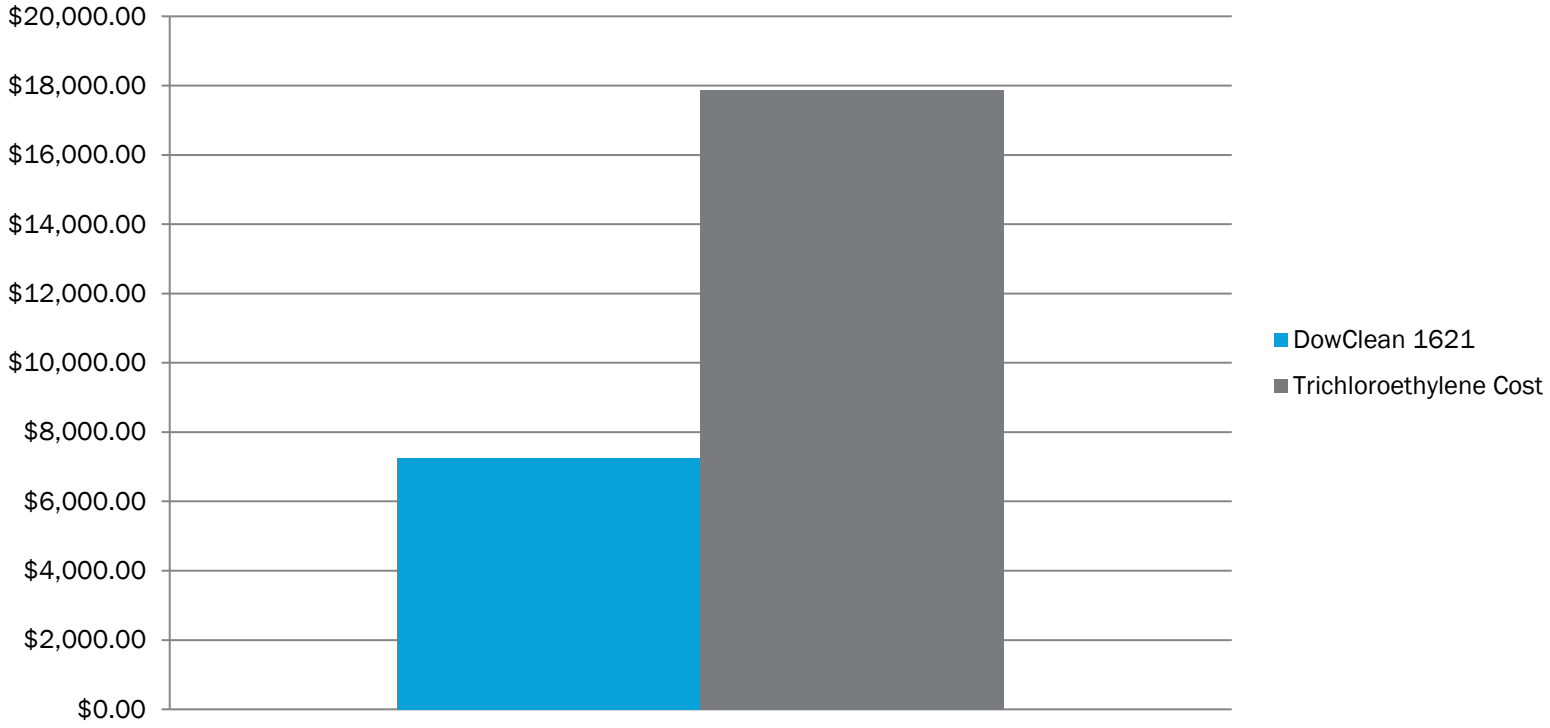
Through one of our Partner members we were invited to a Cleaning workshop on the NW side of Indianapolis.

They distributed and serviced the exact type of machine we needed and offered a solvent that was not hazardous to humans or the environment.

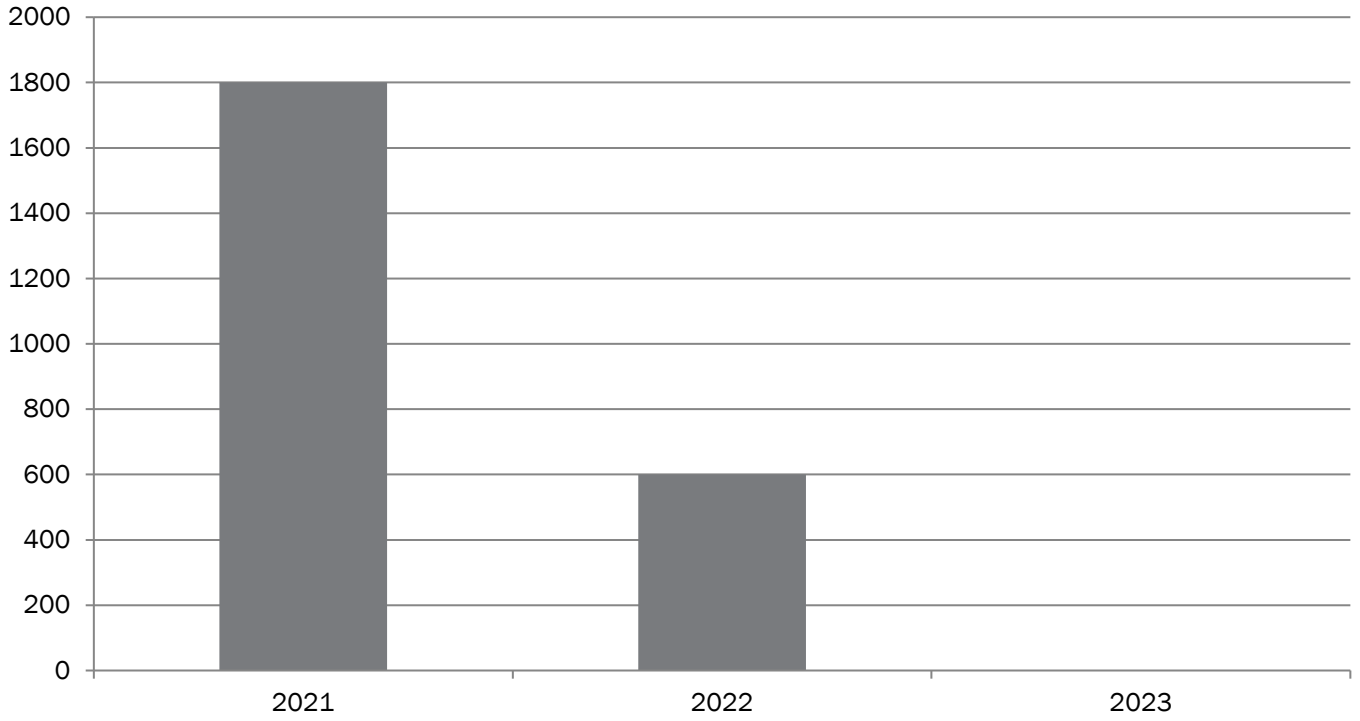
They had a machine charged with solvent that would allow us to process over 100,000 parts over an eight week time frame through the machine with a 97.0% FPY.

ELIMINATION OF TRICHLOROETHYLENE/HAZARDOUS WASTE REDUCTION POLLUTION PREVENTION/BEST PRACTICES

01-2021 –01-2024 SOLVENT COST THE COST OF THE NEW SOLVENT IS CHEAPER THAN USING TCE



ELIMINATION OF TRICHLOROETHYLENE/HAZARDOUS WASTE REDUCTION POLLUTION PREVENTION/BEST PRACTICES ELIMINATION OF HAZARDOUS WASTE BEING SHIPPED FOR RECYCLING



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- The purchase of the new vacuum vapor degreaser has allowed Electro-Spec Inc. to eliminate the use of TCE in our facility.
- The new machine has also helped with ergonomic issues allowing the machine to be operated eliminating heavy lifting and bending.
- We look forward to the next 20 years knowing were are using a more environmentally friendly solvent and eliminating the use to TCE in our facility.


LOONEY TUNES
"That's all Folks!"