

Cleaning Success Stories: Morgan Advanced Materials

TCE Elimination

Morgan Advanced Materials

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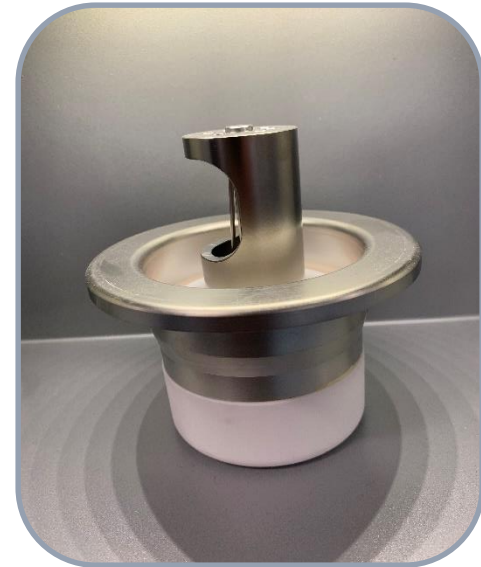
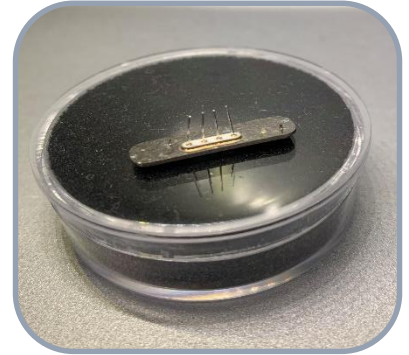
- New Bedford, MA
- 150+ Employees
- \$30M Sales

Ceramic to Metal Brazed Assemblies

- Aerospace
- Medical Implants
- Medical Imaging



Manufacturing Process



Hazardous Chemical Usage



Large Quantity Generator for TCE



Wax
removal
after
ceramic
grinding



Grease
removal
after
hermeticity
check



Metal
cleaning



Final
Assembly
Cleaning

Driver for Change

CAUTION
HAZARDOUS
WASTE

Health & Safety
of Employees

Reduce
Environmental
Impact

Reduce
Hazardous
Chemical Usage

Repeated
Tighter
Restrictions on
Exposure Limits

TURI
TOXICS USE REDUCTION INSTITUTE
UMASS LOWELL

Removal from
TURI Program



Alternatives to TCE

- Two waxes used
 - Brown Z286 Wax – large/bulky parts
 - Pink casting wax – parts that get ground on both sides and flipped
- Sister company in CA developed water-soluble wax
- Test wax in-house in New Bedford
 - Removed with hot water and borax/baking soda
 - 3 station Crest clean-line
 - Wash – Wash – Rinse
 - Not able to flip parts
- Qualified on Medical implant ceramics only due to concerns

Waxes Used



Hayward Water-Soluble Wax

Water tanks
contaminated after
one cycle

No cascade or
overflows

Initial
Implementation
concerns

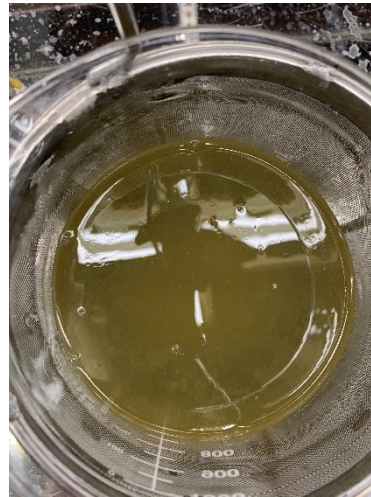
Need to drain and
clean tanks after one
cycle

Cannot use to flip
parts



How can we get a more effective cleaning process?

Contaminated Water Tanks



Hayward
Water-Soluble
Wax



Pink Casting
Wax



Potential Solutions

Filtration

Recirculation

Cascades/
overflows

Wax separation
units

Test in person
capability



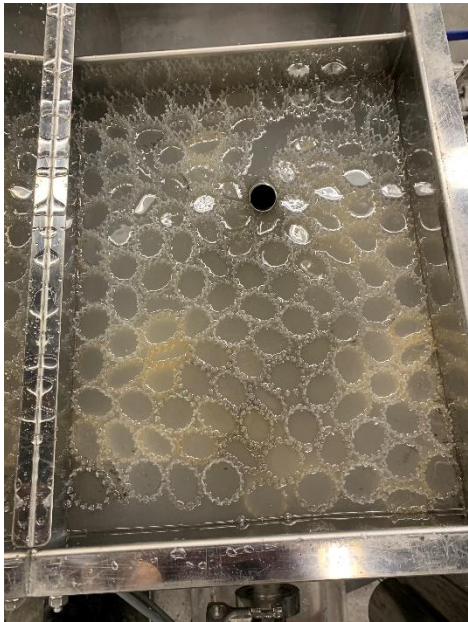
Equipment Selection



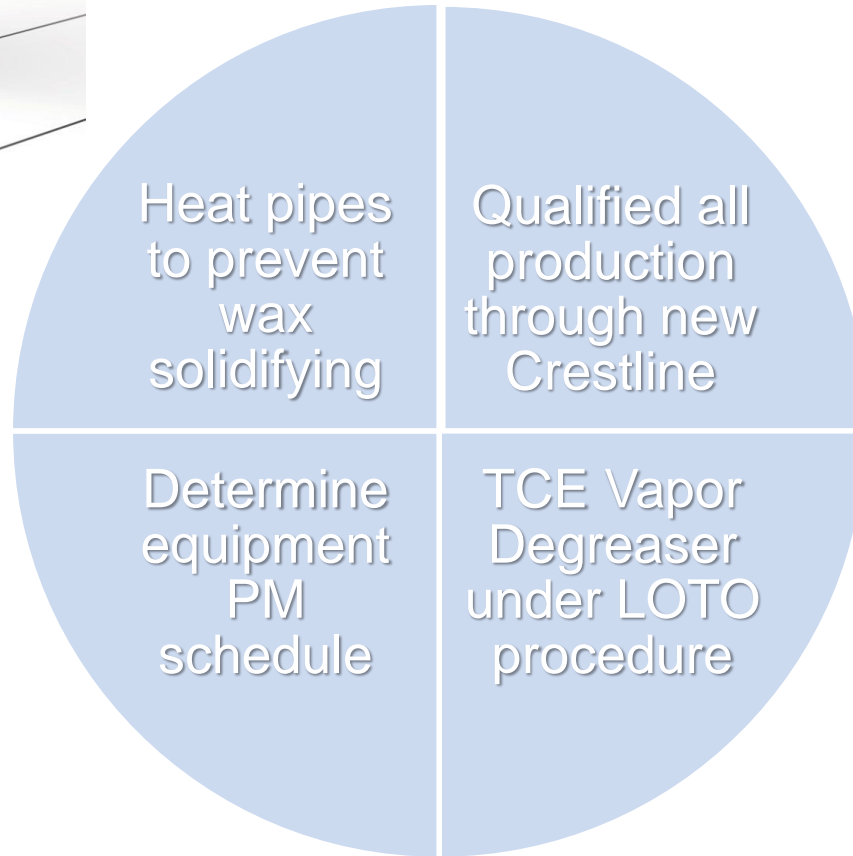
**CREST
ULTRASONICS**

A Global Leader in Ultrasonic Cleaning Innovations

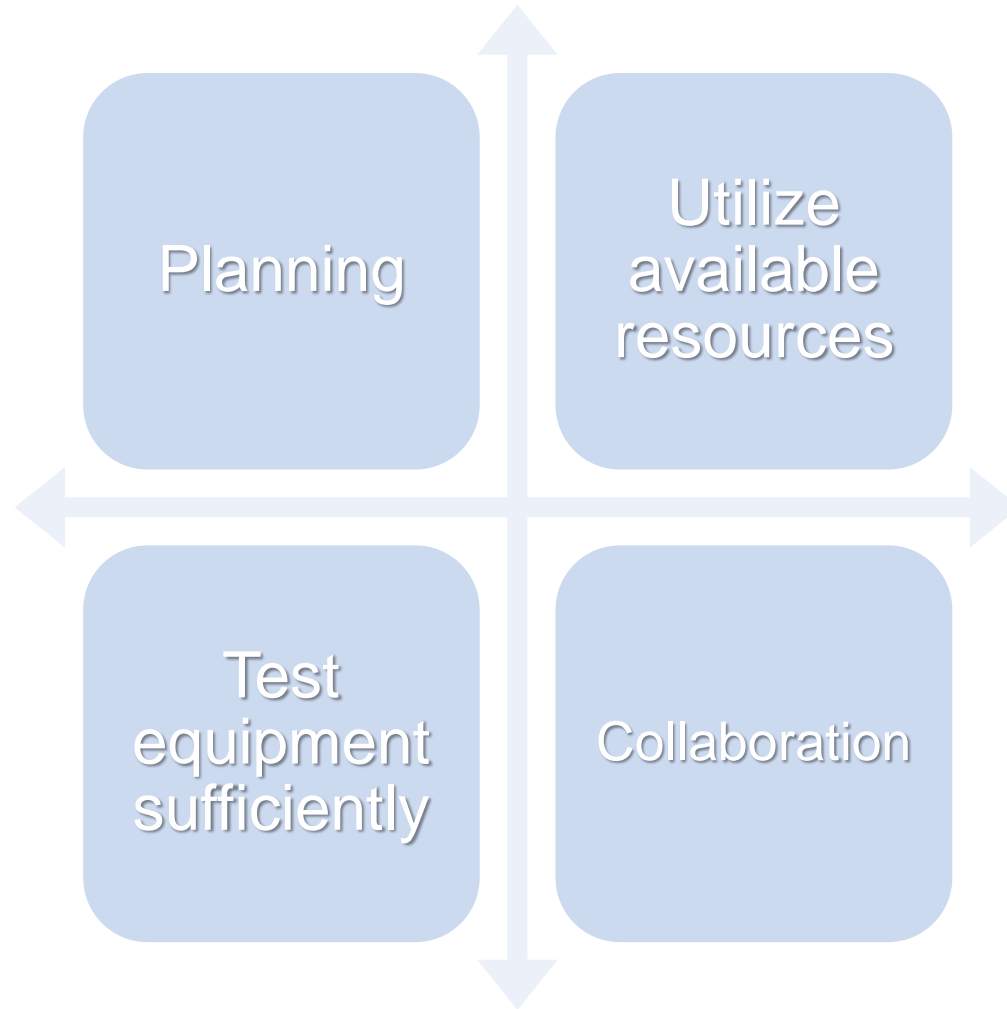
Wax Separation Units



Current Status



Lessons Learned



Questions???