



JIT Powder Coating Co.

Calvin Harris

MnTAP Advisors: Daniel Chang

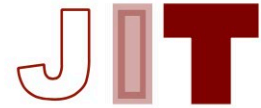
Company Supervisor: Gary Petrash



UNIVERSITY OF MINNESOTA

Driven to DiscoverSM

Company Background



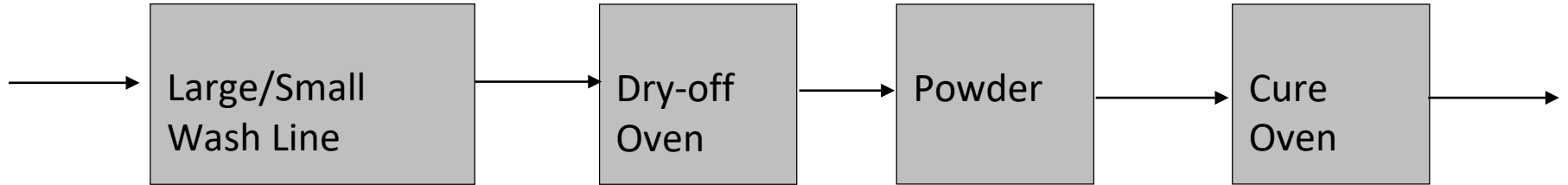
Powder Coating Company

Founded 28 years ago in Fridley, Minnesota

- Tim Milner, the founder and owner of JIT, recognized the need for a quality powder coating company in the Twin Cities area

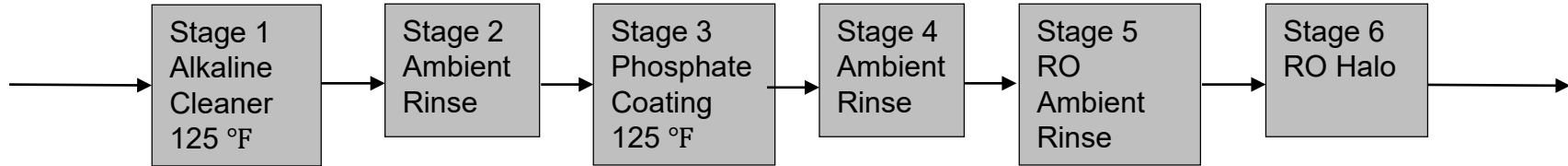
Moved to current Farmington facility in 1995

Process

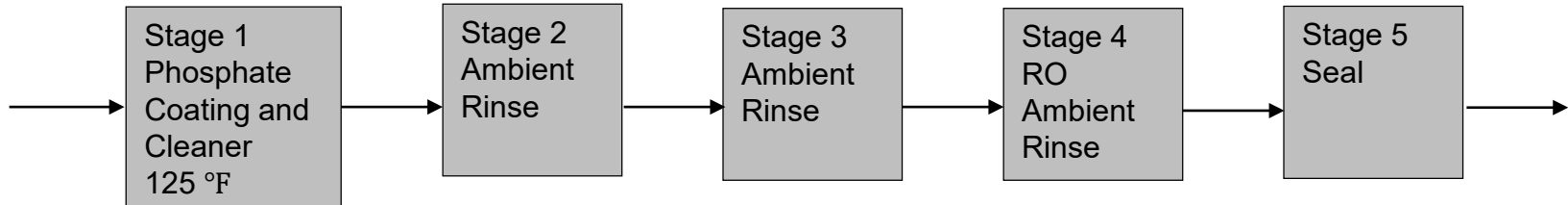


Process

Large Wash Line



Small Wash Line



Incentive to Change

JIT has always produced high quality powder coating products and is looking to expand their line capabilities

The following recommendations would enable:

- More reliability
- Business opportunities
- Labor, electricity, and gas
- Better quality



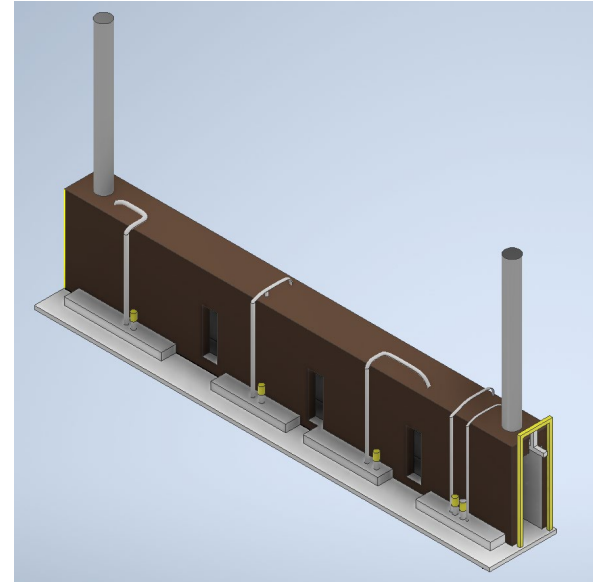
Focus Area

Large Wash Line

Approximately 50 feet long by 9 feet tall by 5 feet wide; has significant room for improvement.

Opportunities

- Modernize pumps
- Create Nozzle Schedule
- Install CPVC Iron Manifolds
- Institute Automation
- Enhance current exhaust



Zirconium Pretreatment

Current Chemical: Iron Phosphate

- Sludge, generates phosphates, must be heated
- Flexible

Zirconium

- Costs 15% more than Iron Phosphate, less forgiving
- No heating, minimal sludge, non-eutrophying
- Save 5,100 MMBTU/year, \$17,700

Recommendations

- Pump Replacements
- Nozzles Standard Operating Procedure (SOP)
- CPVC Manifolds
- Automatic Chemical Addition
- VFDs on new pumps
- VFD on exhaust

Improve JIT's process and save electricity, natural gas, and labor.



File: \\www.waters.com\www\ASSETS\Drawings\ACESB5-51-225A-4-BSS5
J251\www.waters.com\www\ASSETS\Drawings\ACESB5-51-225A-4-BSS5
T0446_5T6L2ZMB-A1A55A1\www\www.waters.com\www\www.waters.com



Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Large Line Modifications (New Pumps, Nozzle SOP, CPVC Manifolds, Pump VFDs, Automation)	6,300 MMBTU*	\$40,000	\$22,000	1.8 years	Implementing
Zirconium Pretreatment	5,100 MMBTU	\$3,130/year	\$17,700	3 years	Recommended
Small Line Heater	190 BTU/part	\$15,200	\$29,300	5 months	Implementing
Pump VFDs	34,400 kWh	\$4,500	\$4,000	1 year	Implementing
Exhaust VFD	Employee Comfort	\$1,000	NA	NA	Recommended

*- JIT outsources paint burn off, savings is an estimate

Personal Benefits

I learned so much through this internship!

- The Design Process
- Problem Solving
- Perseverance
- Working with other operators, managers, and suppliers

