

Senior Design Project Data Sheet

Project #	Project Name	Project Track	Project Family
13656	Agitator Redesign for Corrosive Environment		
Start Term	Team Guide	Project Sponsor	Doc. Revision
2012-1	Ed Hanzlik	Coating Technology Inc.	

Project Description

Project Background:

The goal of this project is to completely redesign a chemical bath agitator system for a local coating company. The current system has a very short lifetime because of harsh operating conditions, inefficient design, and poor maintenance. The new system will address all of these issues. The final prototype should be much more mechanically efficient, resistant to corrosion, and low-maintenance.

Problem Statement:

The goal of this project is to create a new agitator design that addresses all of the issues of the previous system.

Objectives/Scope:

1. Improve corrosion resistance of the system
2. Increase the mechanical efficiency of the agitator
3. Reduce wear points and maximize the life of the system
4. Provide detailed operating instructions and a maintenance plan

Deliverables:

- Working prototype
- Accelerated lifetime test of system
- Analysis of failed hardware including reasons for failure
- Complete set of drawings and bill of materials
- Operation and maintenance manuals

Expected Project Benefits:

- Increased system life
- Lower operating costs
- Less downtime
- Improved safety

Core Team Members:

- Kate Karauda – Team Leader
- Luigi Abbate
- Will Fritzinger
- Peter Torab

Strategy & Approach

Assumptions & Constraints:

1. System will be designed for current chemical bath setup
2. System will operate continuously for 6 days at a time
3. Changes must not increase time required to clean parts
4. Minimize required maintenance
5. Current budget: \$2500

Issues & Risks:

- Expensive off-the-shelf parts are required and must be accounted for in the budget. Lead time may also be an issue.
- Current practices indicate that we cannot expect much maintenance by the customer
- Prototype will most likely require some machining
- The agitator operating environment is not ideal in many ways. It may be difficult to identify the primary cause of previous failures.