Fiberglass Reinforced Plastics Institute

Equipment Failure Incident Report

The Fiberglass Reinforced Plastics Institute ("FRPI") thanks you for taking a moment to report an equipment failure. Where failure is defined as any event occurring with the equipment that necessitates inspection, repair or removal from service. Your contribution will help our industry better understand the types and causes of failure, as we strive to continually improve the safe, reliable and economic performance of custom manufactured Fiberglass Reinforced Plastic ("FRP") process equipment. All information submitted will be kept confidential, with only compiled statistics made available for an industry reference.

INSTRUCTIONS. This report contains the following Parts:

PART 1 - Product Category Identification
PART 2 - Types of Failure Experienced, with five (5) categories
PART 3 - Causes of Failure Determined, with ten (10) categories
PART 4 - Project Specific Information

Please complete Parts 1, 2 and 3 completely plus provide as much information in Part 4 as you are comfortable with sharing. If you have more than one (1) piece of equipment to report on, please submit a separate report for each piece.

You may mail or fax the completed form to the following address:

Fiberglass Reinforced Plastics Institute Inc.
714B Southbridge Street, Box #7
Auburn, MA 01501

Fax Number: 508-248-7447

PART 1. What kind of FRP equipment are you reporting a failure for? Please check one (1) piece of equipment only.

- O Piping system
- O Tank or vessel Liquid
- O Scrubber, Gas or Vapor
- O Duct system
- O Stack
- O Other

PART 2. Please describe the TYPES of failure experienced by checking as many items in this section that apply to the piece of equipment you are reporting on.

1. Laminate Degradation:
   - O Chemical attack
   - O Over heating
   - O Weather

2. Internal Pressure:
   - O Manufacturing source
   - O Maintenance or testing

3. External Pressure:
   - O Vacuum (negative internal pressure)
   - O Burial loading
   - O External hydrostatic

4. Fire:
   - O Internal, resulting from the process
   - O External, resulting from another source

5. Mechanical:
   - O Secondary bond (joint)
   - O Impact damage
   - O Puncture
   - O Flexural fatigue
   - O Other

PART 3. Please describe the CAUSES of failure determined by checking as many items in this section that apply to the piece of equipment you are reporting on. Please note that the analysis of the data you provide looks at types and causes of failure separately, rather than attempting to correlate both of these issues.

1. Poor Resin Selection:
   - o Environmental data incomplete
   - o Environmental data in error

2. Environmental Conditions Changed:
   - o Change in manufacturing process
   - o Process upset

3. Insufficient Basic Mechanical Data:
   - o Mounting arrangements or requirements
   - o Agitation (vibration, torque, other)
   - o Loading (top, packing, other)

4. Inadequate Process Design:
   - o Process data incomplete
   - o Process data in error

5. Unrecognized Fire Hazard:
   - o Equipment related
   - o Other source

6. Inadequate Equipment Design:
   - o Design data incomplete
   - o Error in design

7. Faulty equipment manufacturing:
   - o Laminate (material) related
   - o Fabrication (assembly) related

8. Poor Field Assembly:
   - o Insufficient preparation (training, packaging, tools, weather, other)
   - o Recommended procedures not followed
   - o Poor engineering judgment

9. Transportation or Handling Damage:
   - O In transit
   - O On job site

10. Unknown:
   - O Unable to determine based on existing information
   - O Insufficient evidence

PART 4. Please provide as much Project Specific Information below as you are comfortable with sharing.