

Fray Release Study in Process Hoses

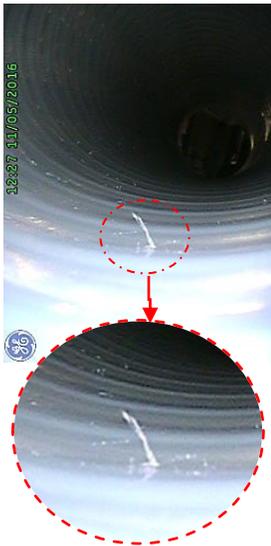
THE CHALLENGE:

BPI was approached by a client who was concerned about possible process contamination and cleanability risk caused by PTFE frays in PTFE lined hoses which they were using. BPI guided the client to test the hose brand in question alongside another commercially-available hoses in order to assess:

- the cleanability/entrapment risk of hoses with frays versus those without frays;
- whether PTFE frays had the capability of being released from the lined hoses into the process; and
- whether long-term thermal exposure of another brand's hose to 500 SIP exposure cycles would result in similar surface imperfections.

OUR SOLUTION:

BPI designed a series of test methods to assess the PTFE lined hoses. The cleanability and entrapment risks were tested by first soiling frayed hoses with a UV-fluorescing soiling medium and then performing a cleanability study on them. Under what conditions could the soiling media be removed from the PTFE liner? Did the frays cause a higher cleanability and entrapment risk?



The evaluation on the release of frays from the PTFE liners was completed with three individual tests involving air, water at turbulent flow rates, and air/water combined. Prior to exposure, the hoses were visually inspected to locate frayed areas for comparison post-exposure.

BPI's facility is uniquely equipped to test both multi-use and single-use equipment used in the BioProcess industry. Its flexible design features custom computer controlled process systems, which are configured and programmed to the clients' specific needs. These custom-designed systems utilize BPI's high quality support systems including clean/pure steam, deionized water, and clean compressed air. BPI's staff utilized high precision instrumentation to evaluate the results of the performance test.

THE RESULTS:

BPI's testing determined that the hoses in question have surface imperfections, including frays of PTFE on their liners. Additional findings included:

- a. More frays form on the hoses with increased use/duty;**
- b. Frays pose a cleaning risk; using routine cleaning measures, hoses with frays require additional cleaning over hoses without frays to become clean; and**
- c. Frays pose a particulate risk, as frays are released from the hoses with typical use/rinsing.**

BPI also identified additional commercially-available hoses that do not have measureable PTFE frays on their liner surface and have much less entrapment/process contamination risks.

For more information on testing and analysis or marketing claim support, please contact:

The BioProcess Institute

376 Dry Bridge Rd, Unit H-3
North Kingstown, RI 02852
401.294.9000

www.bioprocessinstitute.com

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