

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

September 14, 2021

Attachment 5 –Parker Aerospace AMS FM-13 Fuel Line Fire Sleeve

Chemical Analysis Report

POWERPLANTS

DCA18LA163

LR 253984 Analysis of the fire sleeve from FM-13 (A330, PW4000 engine) fuel line



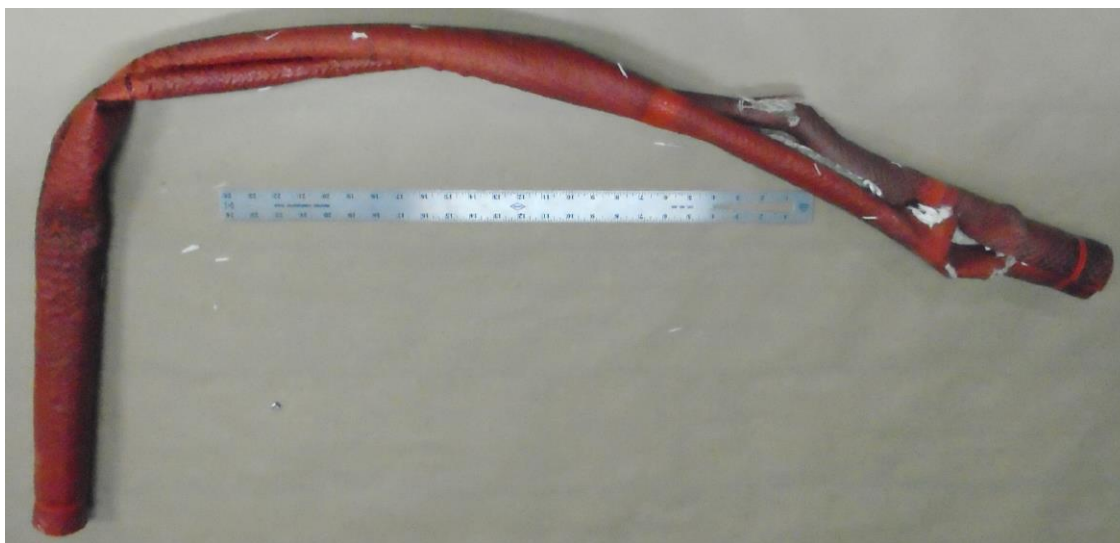
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Irvine, Ca (Alton Facility)
Date: 2-14-2020**

For investigation Purposes Only

Background:

- Fire sleeve from FM-13 (A330, PW4000 engine) fuel line was removed due to leaking fuel. Subsequent flight a/c had an engine fire, evidence of fuel and hydraulic fire. The fire sleeve was submitted to Material Science, Research and Development on January 29, 2020 for analysis to determine presence of Skydrol/Hyjet exposure.
- A piece of a brand new fire sleeve, 2650-20, Lot # 0565231 was also submitted as analysis control.

As-received photograph of the fire sleeve hose



As-received photographs:



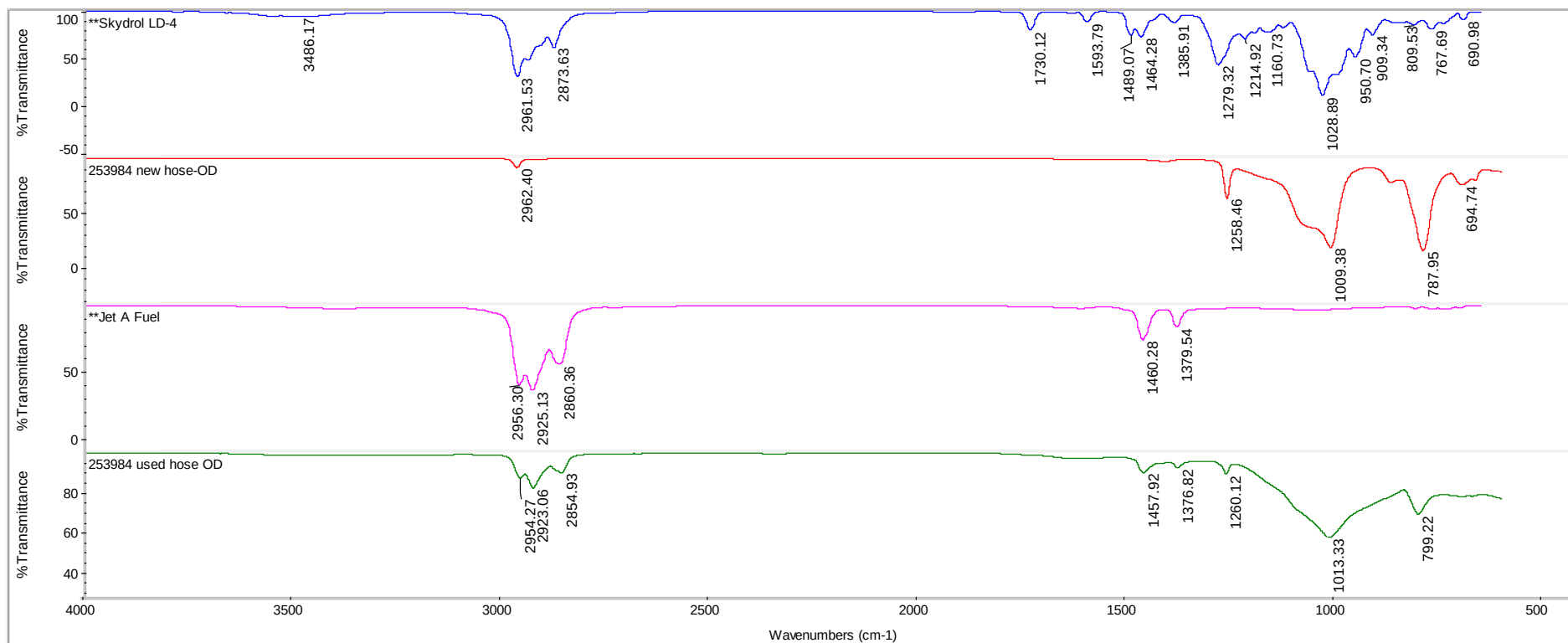
Samples were taken from various areas of the hose including the exterior and interior surfaces.

Representative FTIR Analysis Result

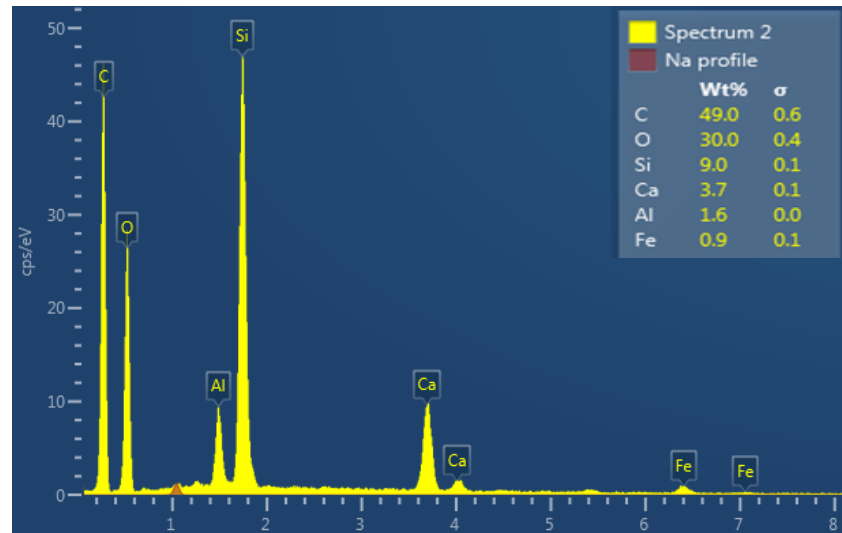
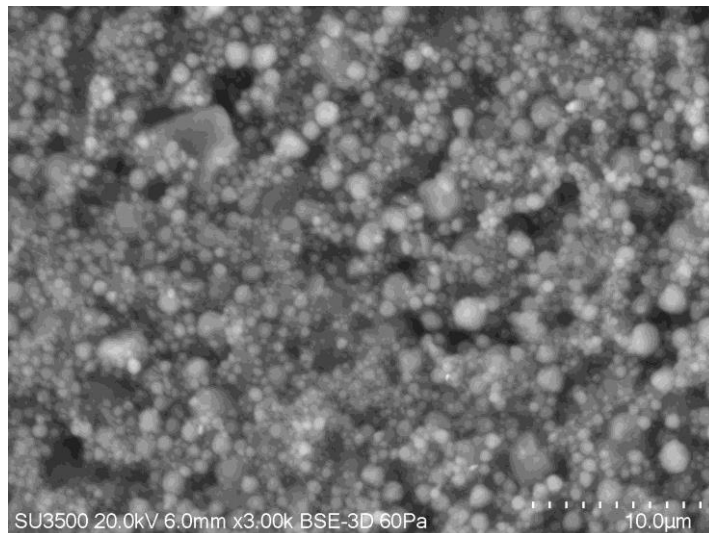
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253984 new hose-OD



Representative SEM/EDS Analysis Result of the Residue Extracted from the Used Hose:



Conclusion:

Based on the FTIR and SEM/EDS analyses results, the used hose contained jet fuel but no residual phosphate ester type hydraulic fluid was detected on all the samples collected.