

March 16, 2016

CH2M Hill PRC
Attn. Bruce Hey
[Bruce E Hey@rl.gov](mailto:Bruce_E_Hey@rl.gov)
509-373-7787

Subject: Scanning Electron Microscopy for Purex A-006 Air Filter sample, survey F16-027.

One sample of a charred filter material was received on March 10, 2016 for Scanning Electron Microscopy. The sample was collected on March 7, 2016 and was assigned laboratory ID W603042. The sample was analyzed using Scanning Electron Microscopy with Energy Dispersive Spectrometry on 03/16/2016.

The results provided in this report relate only to the items tested. Samples were received in acceptable condition unless otherwise noted in the comments above.

I certify that this data package is in compliance with the SOW. Both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or a designee) as verified by the signature on this report.



Laboratory Manager/Analyst, Dr. Heinz J. Huber

3/16/2016

Date

If you have any questions, contact Heinz Huber at 509-545-4989.

W603042 CHPRC Charred Filter



Figure 1. Quarter of the filter mounted on carbon tape.

The material received was made of an air filter, charred with visible holes. The filter was cut in half to be mountable on a 1" SEM stub. Carbon tape was used to mount the material and the stub was gold coated.

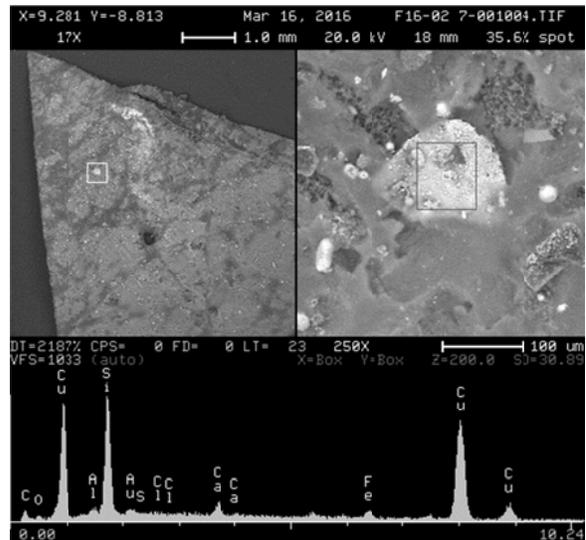
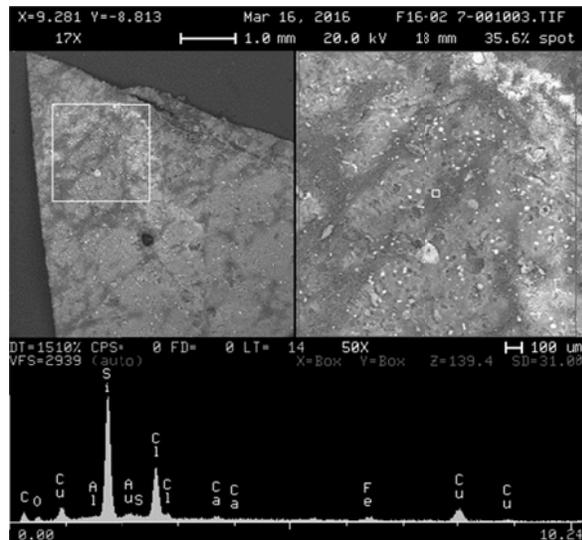
The compilation of spectra below shows two backscatter electron images and an energy dispersive spectrum for the spot indicated by a small square in the top right image. The top right image is a close up of the top left image.

The sample was analyzed with both spot analyses and scanning analyses. The aim was to identify the nature of the black charring and to cover the center as well as the rim of the filter. One hole was in particular investigated for any differences in composition.

Investigation of center part:

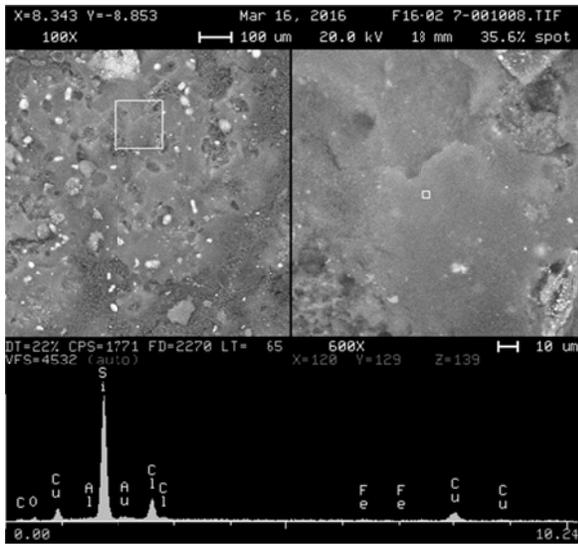
(left) Base material contains Si, Cl., minor Cu &Fe.

(right) Globule made of Si, Cu, minor Ca, Fe, Al.

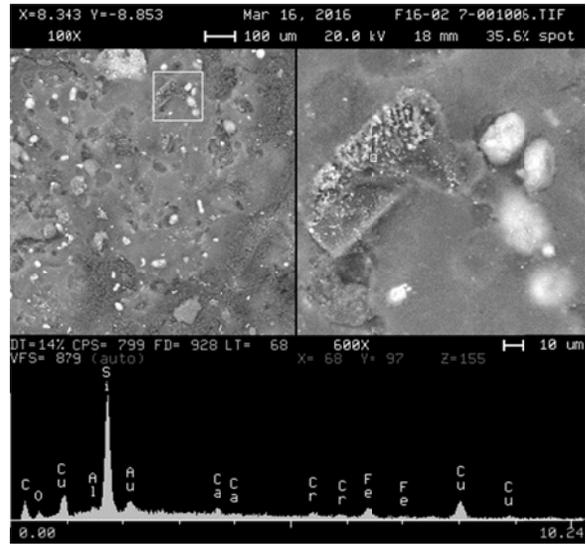


Investigation of middle part:

(left) Base material contains Si, Cl, minor Cu.



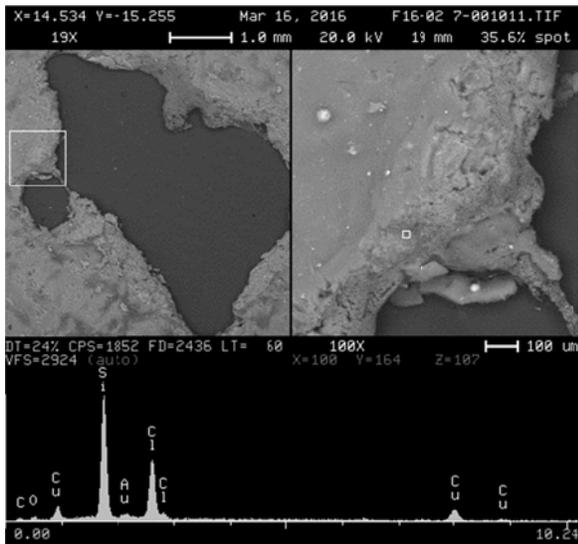
(right) Particle made of Si, Cu, minor Ca, Fe, Cr.



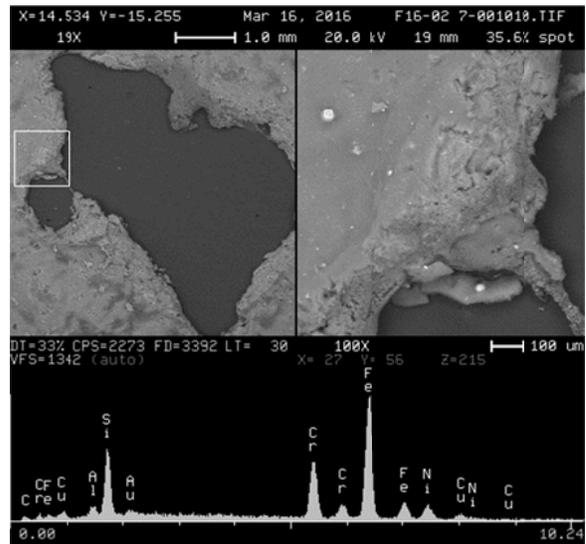
Note: spectrum above is aerial scanning over the whole region of the top right image.

Investigation of hole:

(left) Base material contains Si, Cl, minor Cu.

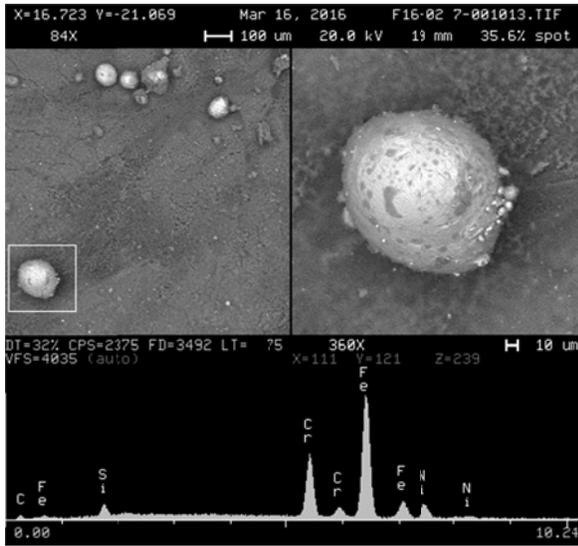


(right) Particle made of Fe, Si, Cr, minor Fe, Ni.

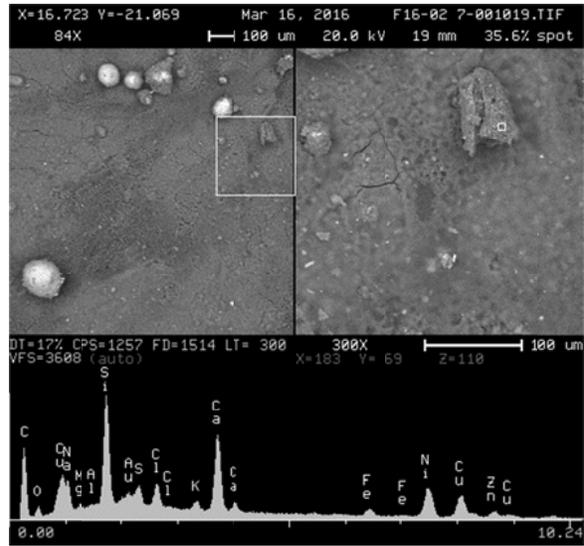


Investigation of globules/particles:

(left) Example of spherical particle.

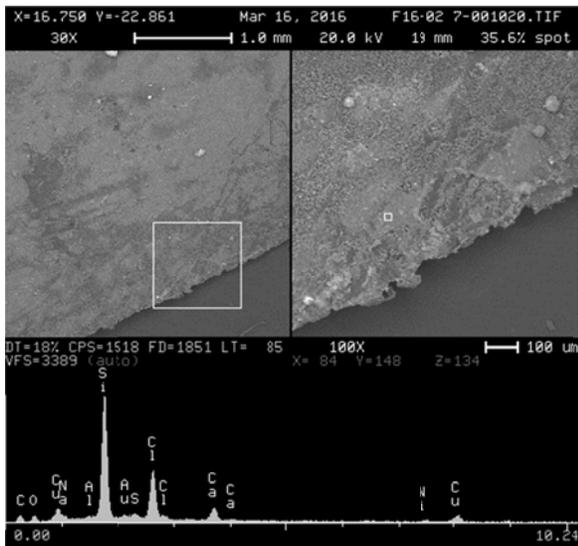


(right) Example of irregularly shaped particle.

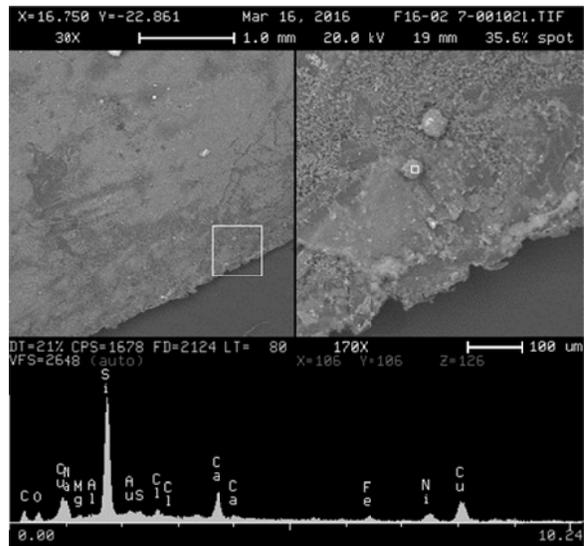


Investigation of rim area:

(left) Base material contains Si, Cl, minor Ca.



(right) Particle made of Si, Ca, minor Cu, Na.



COLLECTOR: *Chad Bedingfield*
 COMPANY CONTACT: MEDLEY, HA
 TELEPHONE NO.: 373-6909
 PROJECT COORDINATOR: MEDLEY, HA
 PRICE CODE: C05
 DATA TURNAROUND: 7 Days / 7 Days

SAMPLING LOCATION: *Chad Bedingfield*
 PROJECT DESIGNATION: Purex Air Filter A-006 sampling
 FIELD LOGBOOK NO.: *NA*
 ACTUAL SAMPLE DEPTH: *NA*
 SAF NO.: FIG-027
 AIR QUALITY:

ICE CHEST NO.: *102A*
 OFFSITE PROPERTY NO.: *N/A*
 BILL OF LADING/AIR BILL NO.: *N/A*

SHIPPED TO: *RT Lee Group, Inc/Center for Laboratory Sciences*
 PRESERVATION: None
 HOLDING TIME: 6 Months
 TYPE OF CONTAINER: P
 NO. OF CONTAINER(S): 1
 VOLUME: 1 sample
 SPECIAL HANDLING AND/OR STORAGE: *Generic Testing (No CAS)*

MAATRIX*
 A=Air
 B=Bottom
 L=Liquor
 D=Drum
 S=Soil
 T=Tissue
 V=Vegetation
 W=Water
 X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
 *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/LATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SAMPLE NO.: 299A1-1602-A
 MATRIX*: OTHER SOLID
 SAMPLE DATE: 3/7/16
 SAMPLE TIME: 0908

RECEIVED BY: *L.D. Wall*
 DATE/TIME: *3-9-16 1505*
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 DATE/TIME: *3-9-16 1505*

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March 16 2016

W603042

SPECIAL INSTRUCTIONS
 ** the test to be performed is SEM.
 * IN FOR MATIN AND TIME DATE TRANSFERRED FROM PLATEAU AND SERVICES. EFFLUENT SAMPLING CHAIN OF CUSTODY KERN-A-6003-SS3 (red) 3-9-16. B.

Sample Shipping Authorization Form

Project Coordinator	Project Location or Description	Survey or SAF Number	CACN	Sample Media	ASBESTOS		RADIOLOGICAL		Comments
					Frtable ¹	Type ²	RSR Number	Rad Tie Sample Number	
Heather Medley	Purex A-006 Air Filter	FI6-027	300250	Air Filter	N/A	N/A	N/A	N/A	Sample 291A1-1602-A

Note: This form must accompany all sample deliveries to the 6269 5-Bay. Samples submitted without this form will not be accepted. Approvals are required from the Sample Shipping SME and IH PC as applicable prior to delivering samples. 1 - Yes / No 2 - e.g., white, blue, brown (if known)

Transportation / Shipping instructions: Samples associated with these projects are authorized to be transported / shipped as non-regulated material to on- and offsite laboratories and shipping facilities. RCT surveys of samples are required for transportation. If RCT survey results are above background, please contact Larry Cole (376-7183 / 366-2368) for guidance prior to transport. Do not package this sample with any other samples containing any amount of radioactive material or transport any other samples containing radioactive material with this sample to R. J. Lee Group.

Shipment authorization basis: Radcalc computation using historical data supplied with sample authorization request. Samples contain Radioactive Material at concentrations that are not regulated for transportation per 49 CFR 173.403 but are not releasable per DOE Order.

APPROVALS

Larry L. Cole 3/10/2016  Sample Shipping SME (print and sign)/Date	Heather Medley  IH Project Coordinator (print and sign)/Date
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