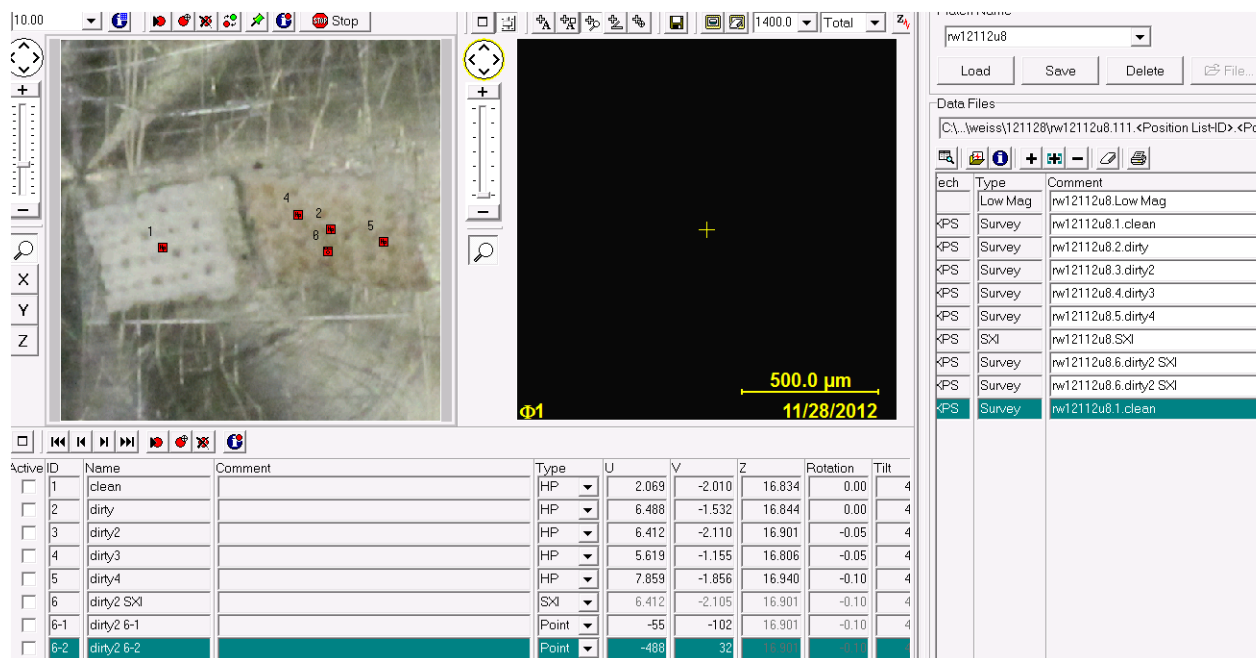


Optical image and analysis points

“Clean” and dirty fabric samples

optical image size 10 mm x 10 mm



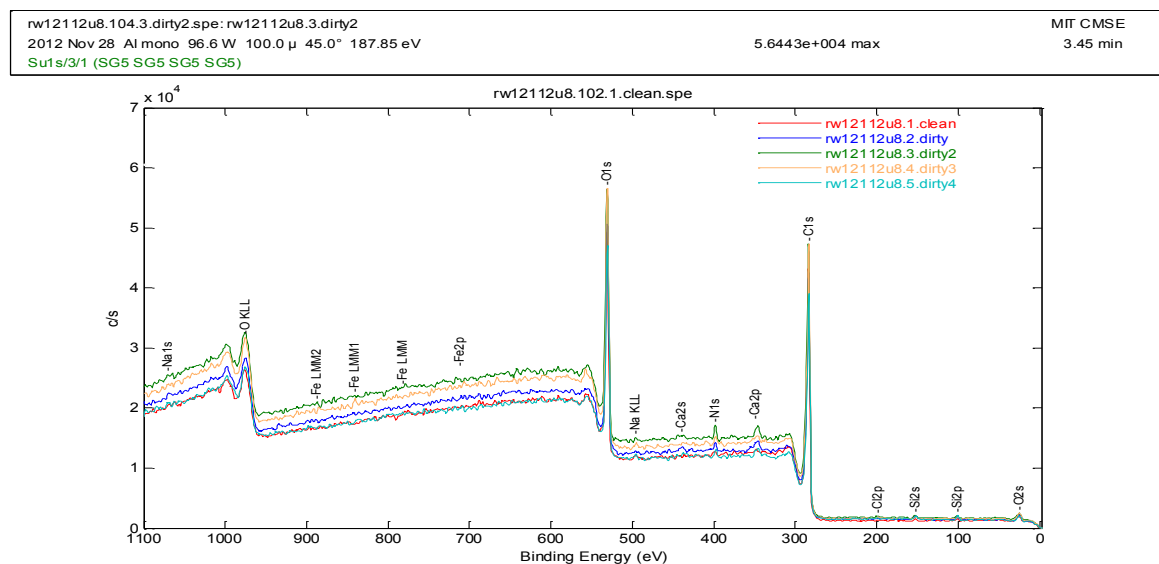
Survey spectra

“Clean” and dirty fabric (four areas on dirty fabric)

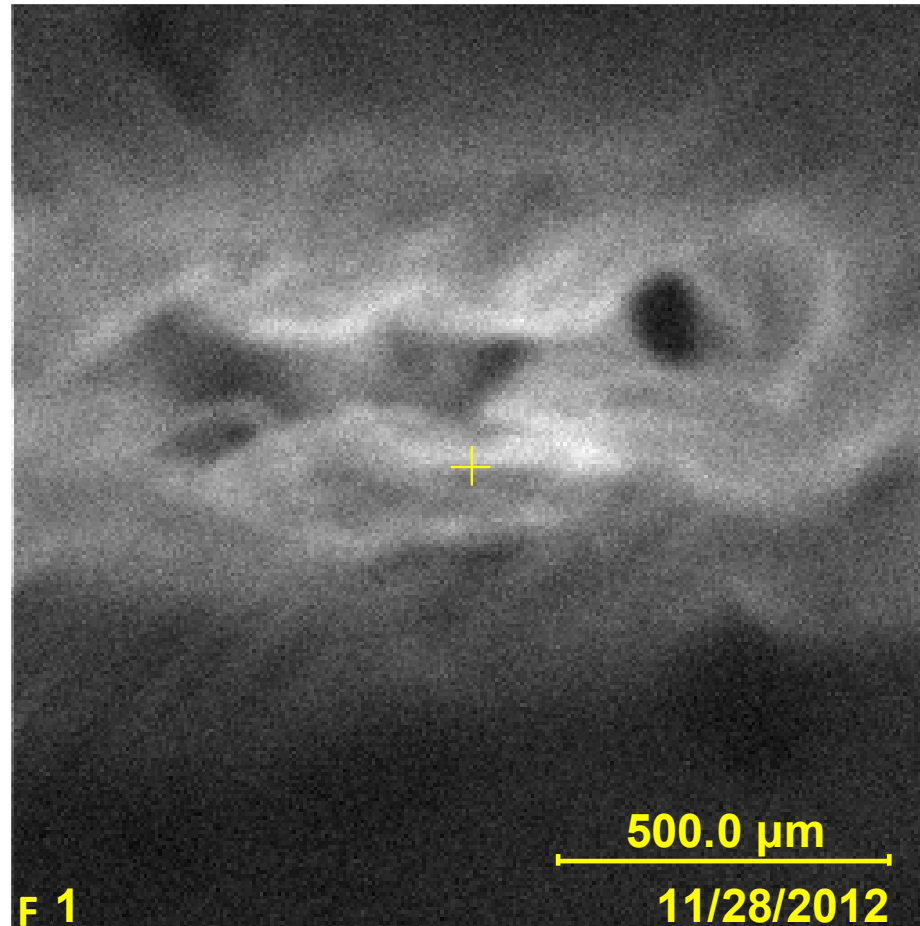
analysis areas 100 μm x 1400 μm

C and O major components, Ca, Na, and Si very minor components

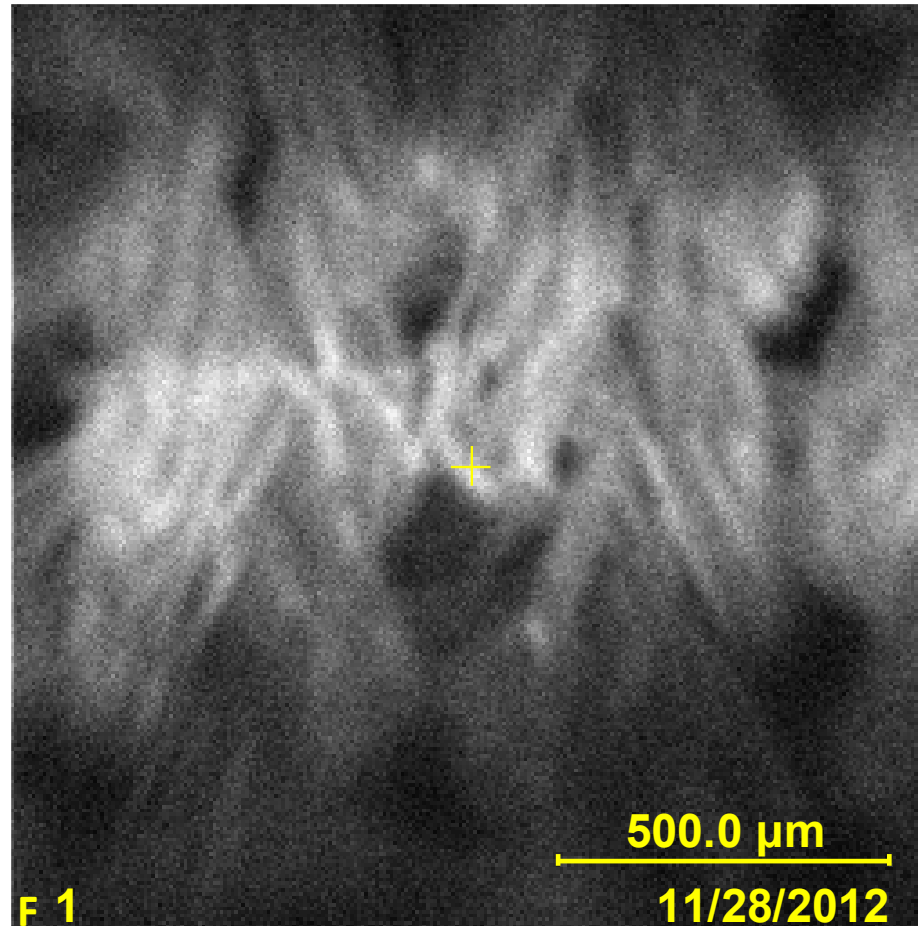
Fe and Cl were not detected in these 3.5 minute survey scans



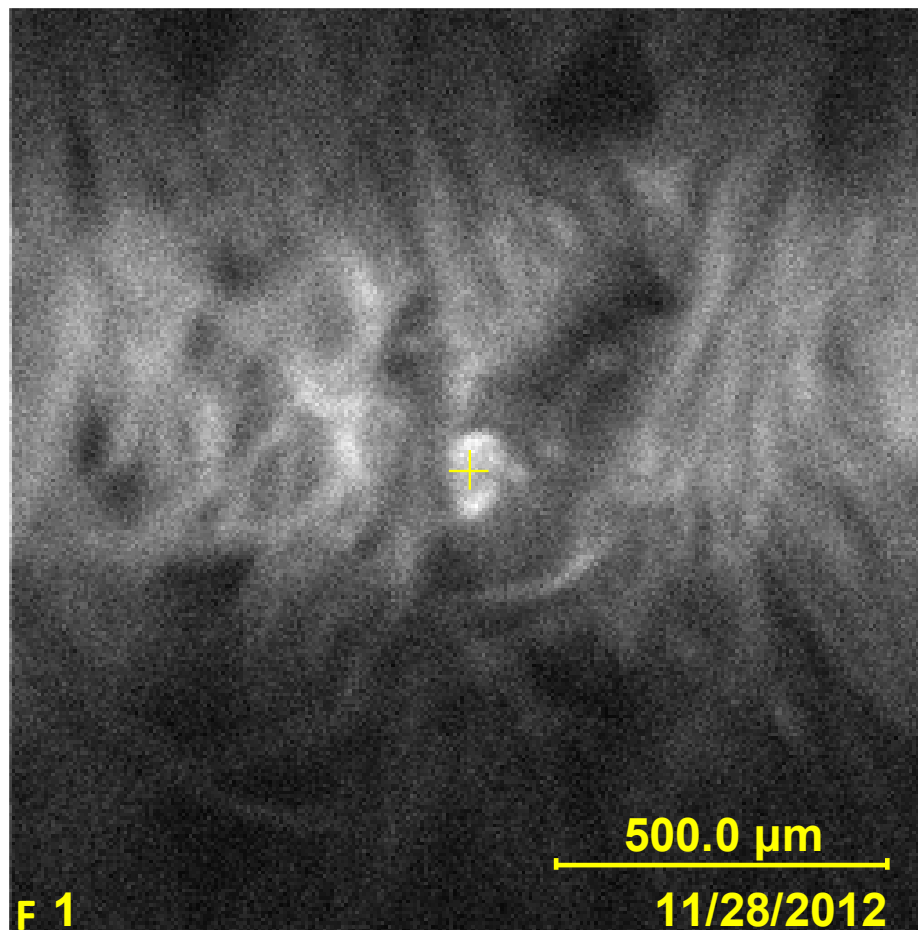
SXI image of “clean” sample
dark spots are holes in fabric



SXI image
sample position Dirty2
dark spots are holes in fabric



SXI image
sample position Dirty4

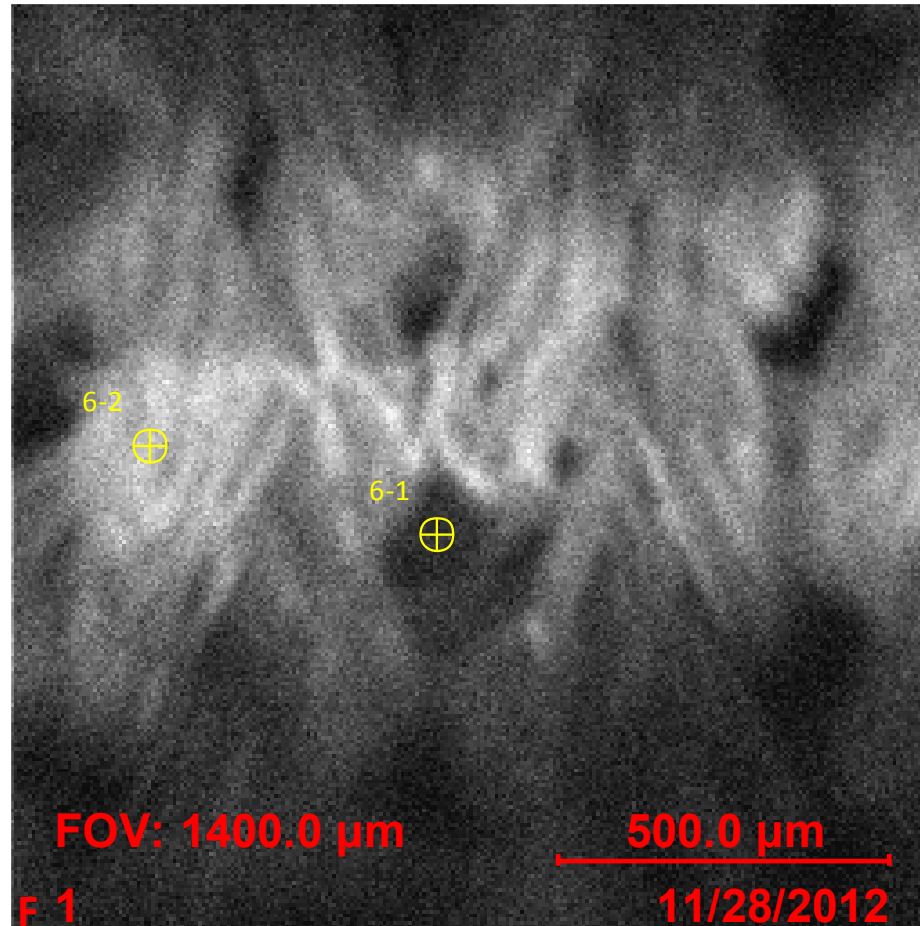


Atomic concentration ratios, initial results from survey spectra “Clean” sample and dirty sample position Dirty2 analysis areas 100 um x 1400 um

 Atomic Concentration Table

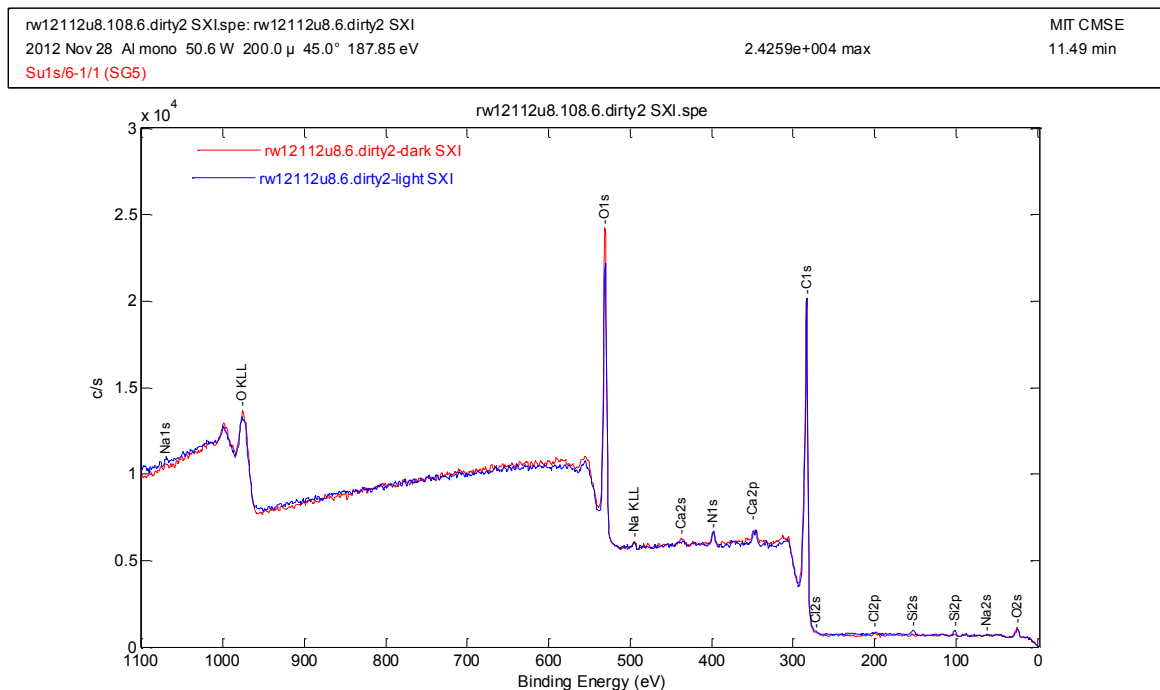
C1s ,	N1s ,	O1s ,	Si2s ,	Ca2p ,	
0.314 ,	0.499 ,	0.733 ,	0.347 ,	1.927 ,	RSF
58.791 ,	93.486 ,	137.408 ,	64.921 ,	400.017 ,	CorrectedRSF
72.38 ,	0.47 ,	26.62 ,	0.48 ,	0.05 ,	rw12112u8.1.clean
69.41 ,	1.84 ,	27.63 ,	0.55 ,	0.56 ,	rw12112u8.3.dirty2
70.90 ,	1.16 ,	27.12 ,	0.52 ,	0.31 ,	Mean
2.10 ,	0.97 ,	0.72 ,	0.05 ,	0.36 ,	Standard Deviation

Dirty2 SXI image
showing dark (hole) and light (fibers) analysis areas
selected for further analysis



Survey spectra

Dirty2 hole (dark) and Dirty2 fibers (light)
analysis areas 200 μm diameter



Higher S/N spectra

Dirty2 hole and fibers

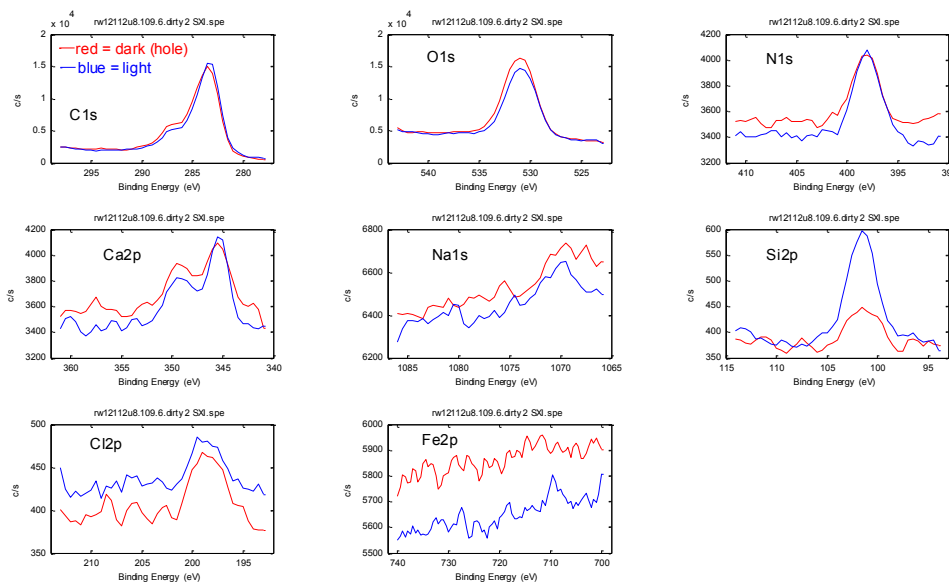
60 sweeps Cl2p and Fe2p

Possible hint of iron on fibers (blue) , none on hole (red).

rw12112u8.109.6.dirty2 SXI.spe: rw12112u8.6.dirty2 SXI
 2012 Nov 28 Al mono 50.6 W 200.0 μ 45.0° 117.40 eV
 C1s/6-1/1 (SG5)

1.4923e+004 max

MIT CMSE
 6.15 s

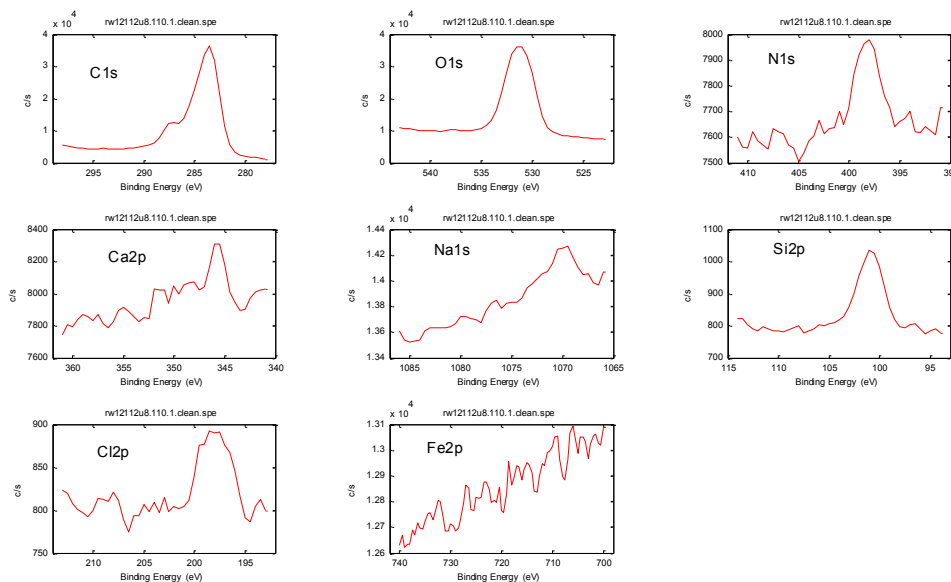


Higher S/N spectra “Clean” fabric 60 sweeps Cl2p and Fe2p no hint of iron on clean fabric

rw12112u8.110.1.clean.spe:rw12112u8.1.clean
2012 Nov 28 Al mono 96.6 W 100.0 μ 45.0° 117.40 eV
Fe2p/1/1 (SG5)

1.3094e+004 max

MIT CMSE
4.05 min



Atomic concentration ratios from higher S/N analyses

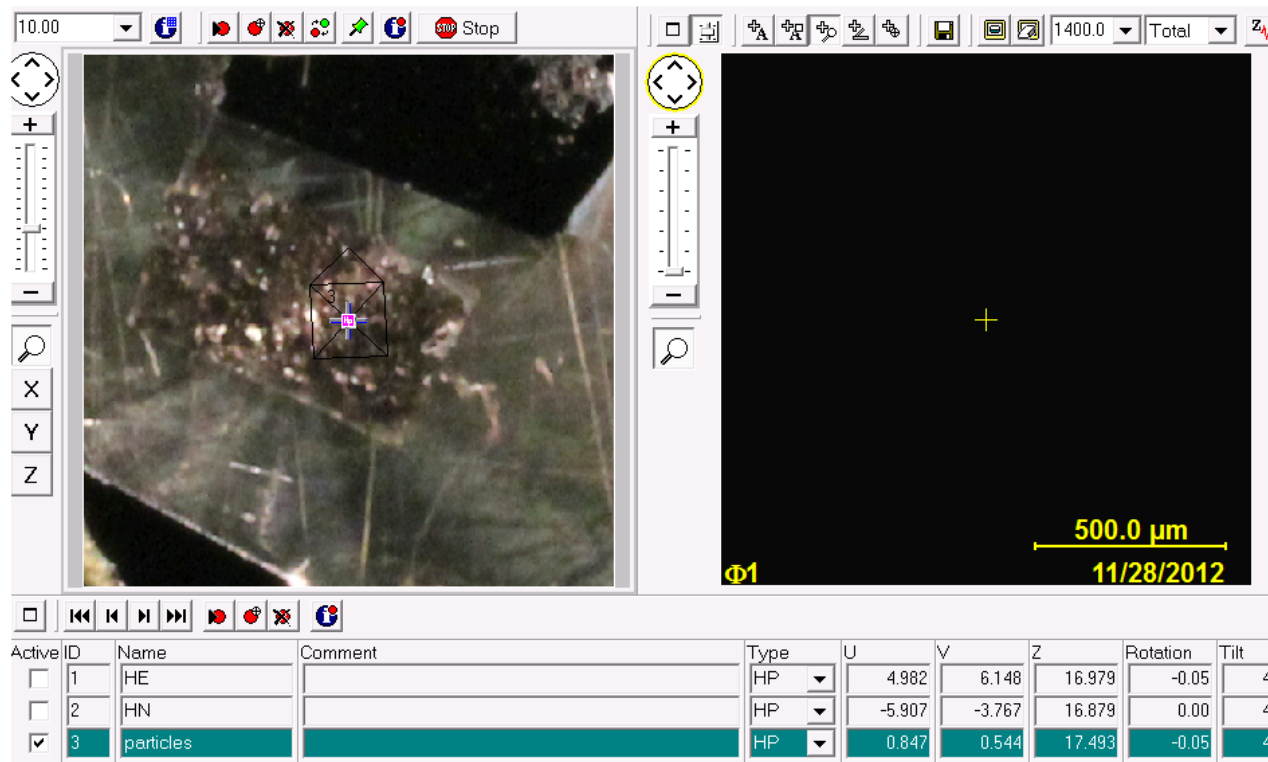
Dirty2 hole and fibers and “Clean” fabric

Fe quantities for dark area and “clean” sample are noise only – see spectra

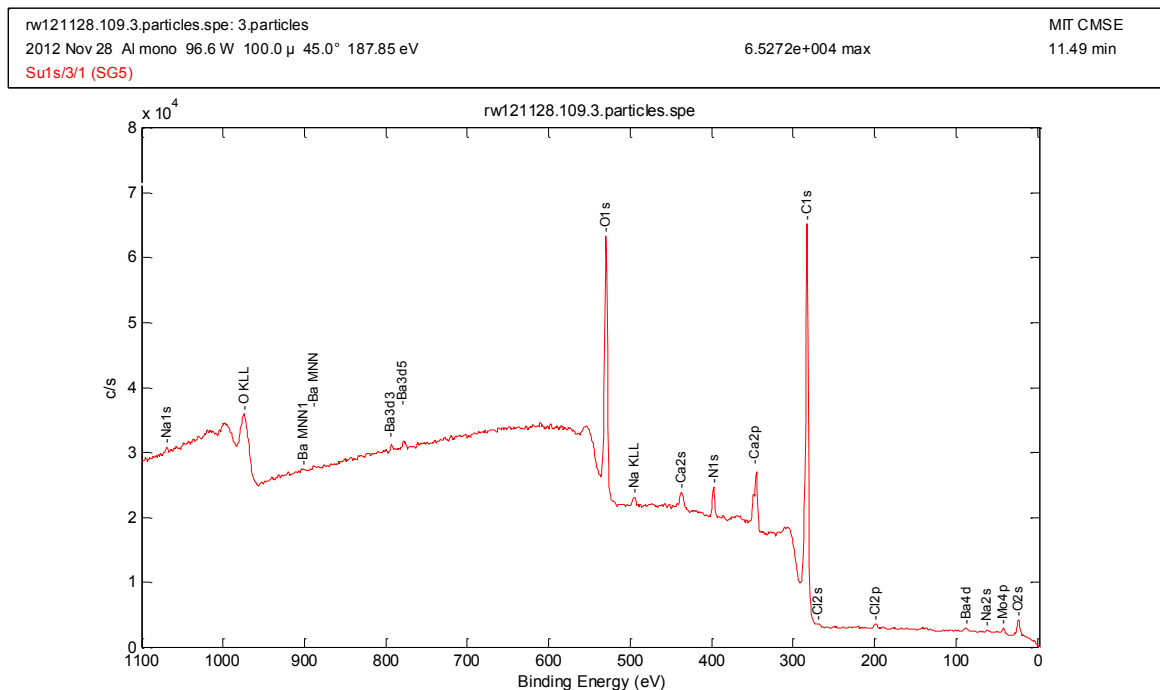
Atomic Concentration Table

C1s ,	N1s ,	O1s ,	Na1s ,	Si2p ,	Cl2p ,	Ca2p ,	Fe2p ,	
0.314 ,	0.499 ,	0.733 ,	1.102 ,	0.368 ,	0.954 ,	1.927 ,	2.946 ,	RSF
36.557 ,	58.185 ,	85.599 ,	129.246 ,	49.718 ,	125.468 ,	248.859 ,	375.382 ,	CorrectedRSF
70.08 ,	1.35 ,	27.35 ,	0.21 ,	0.28 ,	0.12 ,	0.59 ,	0.02 ,	dark area (hole)
71.49 ,	2.10 ,	24.75 ,	0.18 ,	0.70 ,	0.08 ,	0.63 ,	0.07 ,	light area
73.60 ,	0.46 ,	25.24 ,	0.18 ,	0.37 ,	0.06 ,	0.06 ,	0.04 ,	clean sample

Optical image particles collected from fabric image size 10 mm x 10 mm



Survey spectrum
particles collected from fabric
analysis area 100 μm x 1300 μm
no Fe detected, Ba unambiguously detected



Atomic concentration ratio from survey analysis particles collected from fabric

Atomic Concentration Table

C1s , N1s , O1s , Na1s , Cl2p , Ca2p , Mo3d , Ba3d5 ,
0.314 , 0.499 , 0.733 , 1.102 , 0.954 , 1.927 , 3.544 , 7.343 , RSF
58.791 , 93.486 , 137.408 , 206.930 , 201.927 , 400.017 , 753.704 , 1580.932 , CorrectedRSF

74.98 , 2.96 , 19.65 , 0.23 , 0.25 , 1.87 , 0.02 , 0.05

