



Environmental Analysis Associates, Inc.

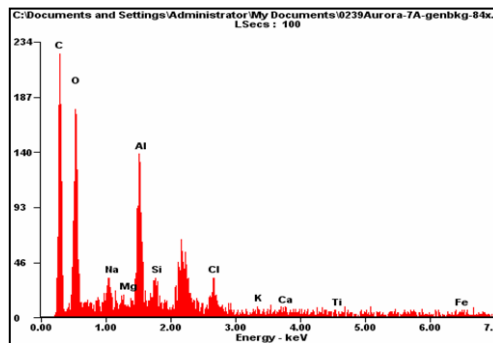
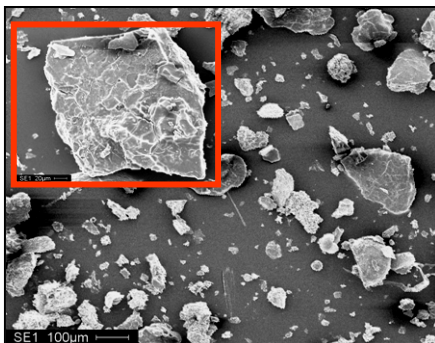
Identifying HVAC system component corrosion and abrasion particles in indoor air quality samples

The observation of black dust accumulating on supply diffusers and interior surfaces can sometimes be the result of HVAC system component corrosion or abrasion. This condition can most effectively be identified by first using light microscopy to categorize and enumerate the concentration of optically opaque (black) debris. Scanning electron microscopy & X-ray analysis can then be used to determine the composition and likely source of the debris. Examples of common corrosion particles encountered in indoor air samples are shown by Scanning Electron Microscopy below.



HVAC ducting corrosion :

Characteristic aluminum oxide particles derived from the oxidation and corrosion of metal ducting due to moisture exposure. (Note the presence of sodium & magnesium chloride salts)

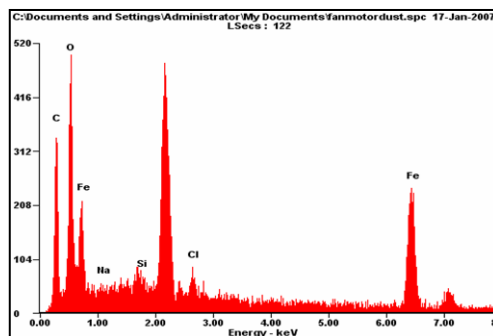
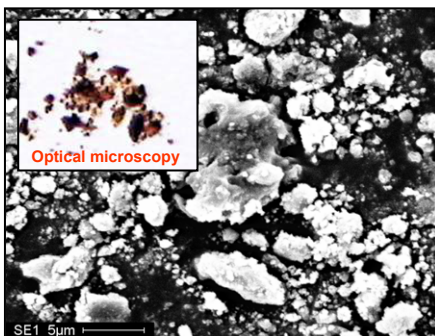


HVAC motor abrasion :

Characteristic iron oxide particles generated from the frictional abrasion of an HVAC fan motor. (Note the relative absence of sodium & magnesium chloride salts)

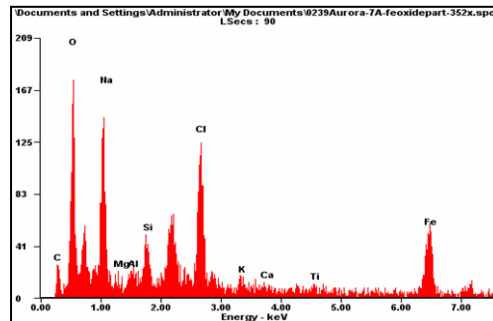
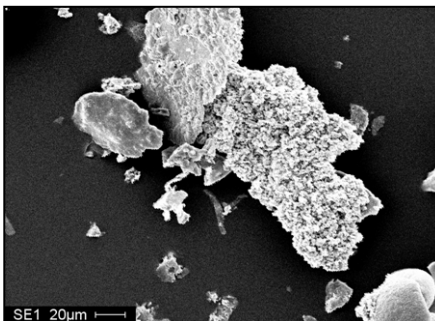


Fan motor



Metal component corrosion from exposure to water :

Characteristic iron metal corrosion particles derived from moisture exposure. (Note the abundance of sodium & magnesium chloride salts)



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