Fire Damage Restoration and Electronics Industry

Test	Purpose	Method	Media	Flow Rate	Notes
Combustion-by Products					
Screening	Analysis for combustion-by-products (Presumptive/Screening)	Light Microscopy, ASTM D6602-13 (Mod)	Tape lifts; micro-vacuum; grab/bulk; alcohol prep wipes; spore trap PCM, TEM cassette	Spore trap: 15L/min; max 150 L PCM/TEM: 0.5-16L/min min 400 L	Analysis for Char, Ash; Soot/black carbon presumptive; Presence/Absence
Level 1	Analysis for combustion-by-products	Light Microscopy, ASTM D6602-13 (Mod)	Tape lifts; micro-vacuum; grab/bulk; alcohol prep wipes; spore trap PCM, TEM cassette	Spore trap: 15L/min; max 150 L PCM/TEM: 0.5-16L/min min 400 L	Analysis for Char, Ash; Soot/black carbon presumptive
Level 1 PLUS	Analysis for combustion-by-products	Light Microscopy, ASTM D6602-13 (Mod)	Tape lifts; micro-vacuum; grab/bulk; alcohol prep wipes; spore trap PCM, TEM cassette	Spore trap: 15L/min; max 150 L PCM/TEM: 0.5-16L/min min 400 L	Char, Ash; Soot/Black carbon confirmatory, other common components of environmental dust
Level 2	Analysis for combustion-by-products	Light Microscopy; Electron microscopy (TEM/EDX) ASTM D6602-13	Micro-vacuum; grab/bulk; alcohol prep wipes;	–	Char, Ash; Soot/Black carbon confirmatory (TEM analysis)
Level 3	Analysis of combustion-by-products and other common components of environmental dust	Light Microscopy; Electron microscopy (TEM/EDX) ASTM D6602-13	Micro-vacuum; grab/bulk; alcohol prep wipes	–	Char, Ash; Soot/Black carbon confirmatory, other common components of environmental dust; SEM /EDX of particulate
Level 4	Analysis of combustion-by-products and other common components of environmental dust, corrosivity of dust	Light Microscopy; Electron microscopy (TEM/EDX; SEM/EDX) ASTM D6602-13	Micro-vacuum; grab/bulk; alcohol prep wipes	–	Char, Ash; Soot/Black carbon confirmatory, other regular components of environmental dust, SEM/EDX of particulate, pH of dust to assess corrosivity

Fire Damage Restoration and Electronics Industry

Test	Purpose	Method	Media	Flow Rate	Notes
Carbon Black	Presence of carbon black, soot/black carbon in air	NIOSH 5000, gravimetric only	37 mm pre-weighed PVC cassettes Pump	1-2 liter/minute 30-570 liters	The method is nonspecific. The presence of any other particulate in the air being sampled will be a positive interference. Information on any other particulate materials present should be assessed.
		NIOSH 5000 with TEM/ EDX confirmation	37 mm pre-weighed PVC cassettes, pump	1-2 liter/minute 30-570 liters	Presence of carbon black by TEM/EDX is assessed.
Anions Scan: Fluoride, Chloride, Nitrate, Nitrite, Bromide, Ortho-Phosphate, Sulfate	Assessment of corrosivity associated with acids	EPA 300 (Mod)	Gauze moistened with DI water; grab sample/bulk; micro-vacuum	–	Anions by Ion Chromatography
		NIOSH 7903 Air	WW SGT	0.2-0.5 liters/min 3-100 Liters	Anions by Ion Chromatography
pH	Assessment of overall corrosivity	ASTM D4972-13 (mod)	Gauze moistened with DI water; grab sample/bulk; micro-vacuum	–	None
Metals Scan: **Lead (Pb)** **Arsenic (As)** **Mercury (Hg)** **Cadmium (Cd)** **Tin (Sn)** **Chromium (Cr)** **Vanadium (V)** **Zinc (Zn)** **Manganese (Mn)** **Aluminum (Al)** **Nickel (Ni)** **Titanium (Ti)**	Assessment of metal-based dust	EPA 6010B	Gauze moistened with DI water; grab sample/bulk; micro-vacuum	–	Additional element (metals) can be added by request for additional charge.
		NIOSH 7300 Air	0.8 um MCE filter, pump	1-4 liters/min 250-500 liters	Additional element (metals) can be added by request for additional charge.

Test	Purpose	Method	Media	Flow Rate	Notes
Polycyclic Aromatic Hydrocarbons (PAH's)	Assessment of residual aromatic hydrocarbons	EPA625/8270C	Gauze moistened with acetone/hexane mix or alcohol prep wipe; grab sample/bulk; micro-vacuum	–	None
		NIOSH 5506 Air	37 mm PTFE XAD-2 Tube, pump	2 liters/min 200-1000 liters	None
Aldehyde scan	Assessment of presence of aldehydes	NIOSH 2016 (Mod) Air	DNPH treated silica tube pump	0.03-1.5 liter/min 1-15 liters	None
VOCs (C2-C7) **Normal alkanes (C24-C30)** **Benzene** **Toluene** **Methyl chloride** **Naphthalene** **Substituted Naphthalene** **Substituted Furans**	Assessment of volatiles and semi-volatiles	EPA TO-15 w/library search Air	Minican/TO canister	<1-24Hr 0.4--6 liters	None