Contaminant	Principle	Apparatus	Collecting Agent	Sampling Rate (Lpm)	Collection Efficiency (per cent)	Remarks
Combustible gases or vapors that are not water soluble but are slowly reactive with absorbing agents	Combustion and absorption	Quartz or ceramic furnace with absorbers 1 or 2 above	Water, acid, or alkali	1—5	90—100	Can also be used for organic halogenated fumes
Gases or vapors that are not water soluble but are slowly reactive with absorbing agent	Condensation	Freezing traps or low temperature condensers Glass or metal	Dry	1—5	90—100 (Depends on vapor pressures at reduced temperature)	Can be packed with glass beads or other extended surfaces
Dust, fumes, smokes or mists	Filtration	Filter papers or webs, sugar tubes, silicic acid, glass beads, sand	Dry	1—50	85—100 (Depends on particle size of aerosol Values stated for usual encountered)	Wide variety of media now available in plastic, refractory or soluble fibers
	Impingement or impaction on dry or greased surface	Konimeter, Owens, Bausch & Lomb, Impactor	Dry or greased slides Silicone coating may be used	1—30	80—100	Sonic velocity can result in high efficiencies
	Impingement with washing	Impinger — large or midget	Water, acid, organic reagents	1—37	60—100 (Depends on particle size and velocity employed)	Same as above
	Electrical precipitation	Electrostatic precipitator	Metal or glass surface	1—85	95—100	Inefficient for particles 10μ
	Thermal precipitation	Thermal precipitator	Glass surface		90—100	Efficiency falls off on particles greater than 6μ
	Settling	Settling chamber	Metal or glass surface	Instantaneous	99—100	Limited to small sample volumes Efficiency highly dependent on particle size and inlet velocity
	Centrifugal	Midget cyclone or labyrinth	Metal or glass surface	1—50	60—100	

From *Air Sampling and Analysis of Contaminants in Work Places* Silverman, Leslie (Harvard University, School of Public Health, Boston, Mass.) Part A-1 of *Air Sampling Instruments*, published by American Conference of Governmental Industrial Hygienists. Adapted with permission of ACGIH.