CLAIMS:

1. An air contaminant collector device for use in an aircraft air contaminant analyzer comprising:

(A) an air contaminant collector comprising:

(a) a porous member having a thickness in a range of 50 micrometers to 200 micrometers, the porous member comprising metal electrical traces and microporous flow-through channels and a chemoselective zeolite coating, the porous member having a top surface and a bottom surface, wherein the porous member desorbs captured air contaminants while being uniformly heated for a controlled time period;

(b) a thin film resistive heater, capable of heating to a temperature that vaporizes captured air contaminants, wherein the heater is in contact with the top surface of the porous member and the heater receives current through metal electrical traces on the porous member and metal electrical traces on one or more tethers; and;

(B) an air contaminant collector base comprising:

(c) a first substrate, wherein the porous member and the thin film resistive heater are associated with the first substrate, the porous member and the heater being thermally insulated from the base, wherein the first substrate has channels providing one or more tethers connecting the porous member to the first substrate, the one or more tethers having metal electrical traces.

2. A method for capturing and desorbing captured air contaminants, the method comprising:

(A) passing aircraft air through an air contaminant collector comprising:

(a) a porous member having a thickness in a range of 50 micrometers to 200 micrometers, the porous member comprising metal electrical traces and microporous flow-through channels and a chemoselective zeolite coating, the porous member having a top surface and a bottom surface, wherein the

porous member desorbs captured air contaminants while being uniformly heated for a controlled time period;

(b) a thin film resistive heater, capable of heating to a temperature that vaporizes captured air contaminants, wherein the heater is in contact with the top surface of the porous member and the heater receives current through metal electrical traces on the porous member and metal electrical traces on one or more tethers and;

an air contaminant collector base comprising:

(c) a first substrate, wherein the porous member and the thin film resistive heater are associated with the first substrate, the porous member and the heater being thermally insulated from the base, wherein the first substrate has channels providing one or more tethers connecting the porous member to the first substrate, the one or more tethers having metal electrical traces;

(B) capturing air contaminants by the porous member; and

(C) heating the porous member to a temperature sufficient to vaporize the captured air contaminants and desorb the captured air contaminants.

3. The method of claim 2, wherein the air contaminants comprise aerosols.

4. The method of claim 2 or 3, wherein the air contaminants comprise particulates.

5. The method of any one of claims 2-4, wherein the air contaminants comprise gases.