



Biozone® Air Purifiers Neutralize Toxic Chemicals and Reduce Respirable Particulate Produced by Environmental Tobacco Smoke

Tests recently conducted by the Chinese Government's Environmental Research Center confirm that Biozone Scientific's Air Purifiers are effective in reducing the harmful constituents contained in environmental tobacco smoke (ETS).

Tests were conducted in a 10 ft. by 10 ft. (100 sq. ft.) chamber with no ventilation. 2 smokers smoked cigarettes for 20 minutes inside the chamber and air samples were taken at several time intervals to establish the levels of chemicals and particulates in the air. The conditions were repeated a second time but with the inclusion of a Biozone Air Purifier in the chamber.

Carbon monoxide, formaldehyde, and benzene were measured along with 4 sizes of particulate – PM10, PM7, PM2.5, PM1. The ETS constituents in the chamber were typical of what are normally measured in smoky environments such as clubs, pubs, bars, casinos, etc., with the noted exception that the levels of formaldehyde and benzene appeared higher than typically reported in such environments.

The Biozone Air Purifier reduced carbon monoxide levels by an average of 74%, formaldehyde by 27% and benzene by 80%. Respirable particulate (10 micron and smaller) was reduced by an average of 66%. All resulting levels for chemicals and particulates tested were below government requirements for workplace safety.

carbon monoxide	TWA*: 25ppm – 50ppm	with Biozone: .15 ppm
formaldehyde	TWA*: .75ppm	with Biozone: .0355 ppm
benzene	TWA*: .5ppm – 1ppm	with Biozone: .0026 ppm
respirable particulate	TWA*: 1.5ppm-2.5ppm	with Biozone: .068 ppm

These test results confirm that engineering and work practice controls can provide safe work environments for those exposed to potentially harmful toxins.

* TWA – total weighted average based on an 8 hour work day, i.e. it is deemed safe for a worker to breath these substances at these average levels for 8 hours of exposure.

National Research Center for Environmental
Analysis and Measurements

Report of Laboratory Services

Sequential Number: 190

Page 1 of 2

Client: L B Enterprise

Sample type: Biozone Air Purifier (1500)

Delivering sample Date: October 24th, 2003

Date of report: November 3rd, 2003

Laboratory services: PM₁₀, PM₇, PM_{2.5}, PM₁

Laboratory manager: _____



Ouyang Ne

(Designated seal for laboratory services)

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Sequential Number: 190

Page 2 of 2

Sample name	Biozone Air Purifier (1500)
Client	L B Enterprise
Delivering Sample date	October 24 th , 2003
Laboratory Services	PM ₁₀ 、PM ₇ 、PM _{2.5} 、PM ₁
Analytical method	《The Monitoring and Analytical Method of Gas and Waste Gas》 (Ver. 4)

Determination results:

Testing time	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM ₇ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	PM ₁ ($\mu\text{g}/\text{m}^3$)
the purifier is not opened				
10min	166	164	148	77.8
20min	118	116	102	60.6
the purifier is opened				
10min	131	128	115	66.7
20min	40.2	39.9	33.5	22.5

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DATE: November 3rd, 2003

Operator: *Diljian*

Inspector: *Huang*

