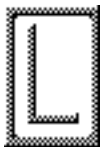


*A single cigar was smoked for 75-minutes in a large living room.
The CO accumulated to a peak then slowly dissipated over several hours.*

Cigars, Cigarettes — CO, Smoke

Bear Facts -- #77

Smoking is a habit whose time has passed for many.
Still the allure of a good cigar welcomes the sophisticate.
Just how does this enjoyment impact on the air around us?
A second-hand cigar creates CO and particles, as shown.

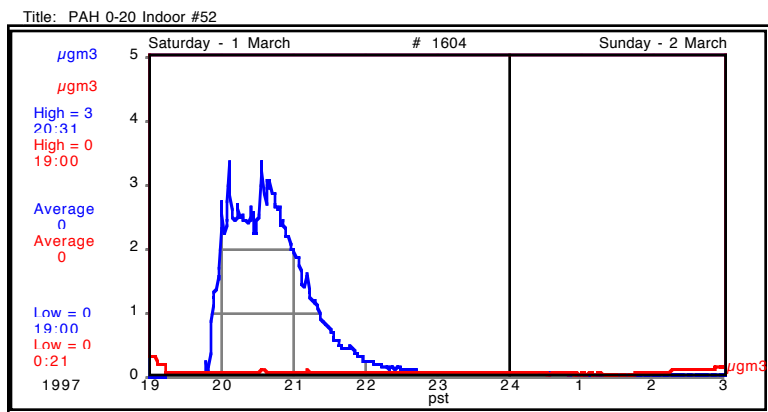


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the DataBear

Bear Facts are published to provide useful insights into the operation and applications for the DataBear™ Measurer and associated complete instruments.



PAH plotted inside the room where cigar is smoked and just outside within the house. Polycyclic Aromatic Hydrocarbons (PAH) are particulates associated with combustion.

Whether you enjoy a good cigar or not, whether you are allergic to tobacco smoke or not, whether you are tolerant or not, whether you prefer to sit on the sidelines of this debate or not, it is of value to attempt to quantify the impact of a good cigar on the health of those not smoking (and those who do). It behooves the smoker to enjoy his or her pleasure with others that do. The taste and relish of a good cigar is probably less habitual than the cigarette habit, or it just may seem so. In any event, strong feelings exist that this is a pleasure that is personal and beyond the public debate over the once-ubiquitous cigarette. Cigar smokers tend to disdain the *weed*.

Many studies have been conducted on the effect of second-hand smoke from cigarettes. The particulates, adhered tars and carbon monoxide impact so much on the

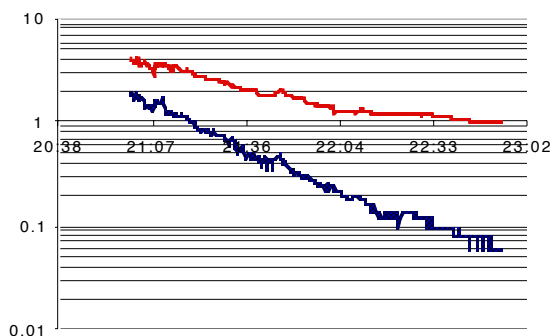
health of the nearby non-smoker that laws now prohibit smoking in public places and many private establishments. In light of these constraints, cigar smokers have been pressed to congregate for special occasions, in private clubs or parties or in private offices or homes. Hanging outside the office for a quick puff, is not their style.

A simple experiment was conducted to observe the second-hand impact of a good cigar. CO and particulates were observed in a large living room with nearly 12-foot ceilings while a single cigar was enjoyed; the lighted cigar lasted 75-minutes; the second-hand effect lasted several hours. For this experiment, the room's two doors were closed (normally the case to keep the room comfortable); an open fireplace (with no damper) was the principle opening. The corona-style cigar (it

measured 6-inches long, 46-ring; size 150-mm long, 17-mm diameter) was smoked casually while consuming wine and a light snack.

The result: CO levels approximating California freeway commutes were reached. If the doors were open the level would have been less; if more cigars were being smoked, the levels would increase. Mathematical models exist to calculate this, in fact.

An interesting fall-out of this experiment is that a cigar is a reasonable source for creating CO which, then, can be used to measure the 'air-exchange rate' of a room of any reasonable size! Many cigars could provide data to observe the air exchange rate of a ballroom. If people will accept the aroma, and after odor, then here is a valuable CO source.



The CO resulting from this cigar was used to calculate the rate at which the air within the room was completely replaced. A natural logarithm plot of particles (lower trace) and CO (top) shows the exponential decay after the source has stopped

The best fit to the CO provides a twenty-minute residence time or about 0.35 air changes per hour. For the particles, the calculation is about 0.25 changes per hour for this 3,350 cubic-foot room.

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Langan CO Instruments provide a very convenient way to measure ambient air quality. Using the retrieval and display software, graphics (as shown) can be copied for immediate use. These can be scaled, skewed and/or combined to show results. The data gathered about one cigar are published to give factual insight into its relative impact.

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