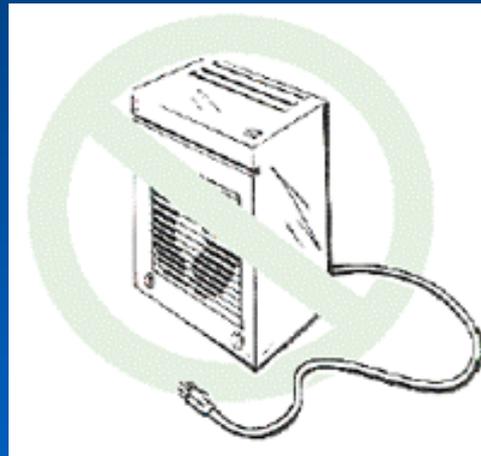


Health Update: Ozone Generators Sold as “Air Purifiers”



ARB Board Meeting
January 20, 2005

What Are Ozone-generating “Air Purifiers”?

- Portable electronic appliances
- Some generate ozone by design: “ozone generators”
- Some generate ozone as a by-product
 - Ionizers
 - Electrostatic Precipitators (ESPs)



Background

- **Studies show harmful levels of indoor ozone can result (> 90 ppb)**
 - Ozone generators: 300 - 400 ppb
 - Personal air purifiers: ~ 100 ppb
- **Marketed aggressively in California**



A Sample Ozone Generator Advertisement

The air purifier safely generates ozone to destroy household air pollution.

... Studies have proven that the air purifier can reduce airborne bacteria and fungus in an average size room in less than an hour.

Those suffering from allergies, sinus and other respiratory ailments have reported significant relief using the air purifier. ... in our opinion, the best air purifier on the market.



Ad Copy Taken 1-19-05 from:

http://www.biotechresearch.com/catalog/product_info.php?products_id=71



Background (cont.)

- **Ozone generators are ineffective at cleaning indoor air**
 - Don't remove indoor pollutants
 - Don't eliminate airborne microbes
 - Increase levels of aldehydes, ultrafine PM, other pollutants
- **Deadens sense of smell**
- **No regulatory authority to control ozone emissions**

Study with Test Home Measurements

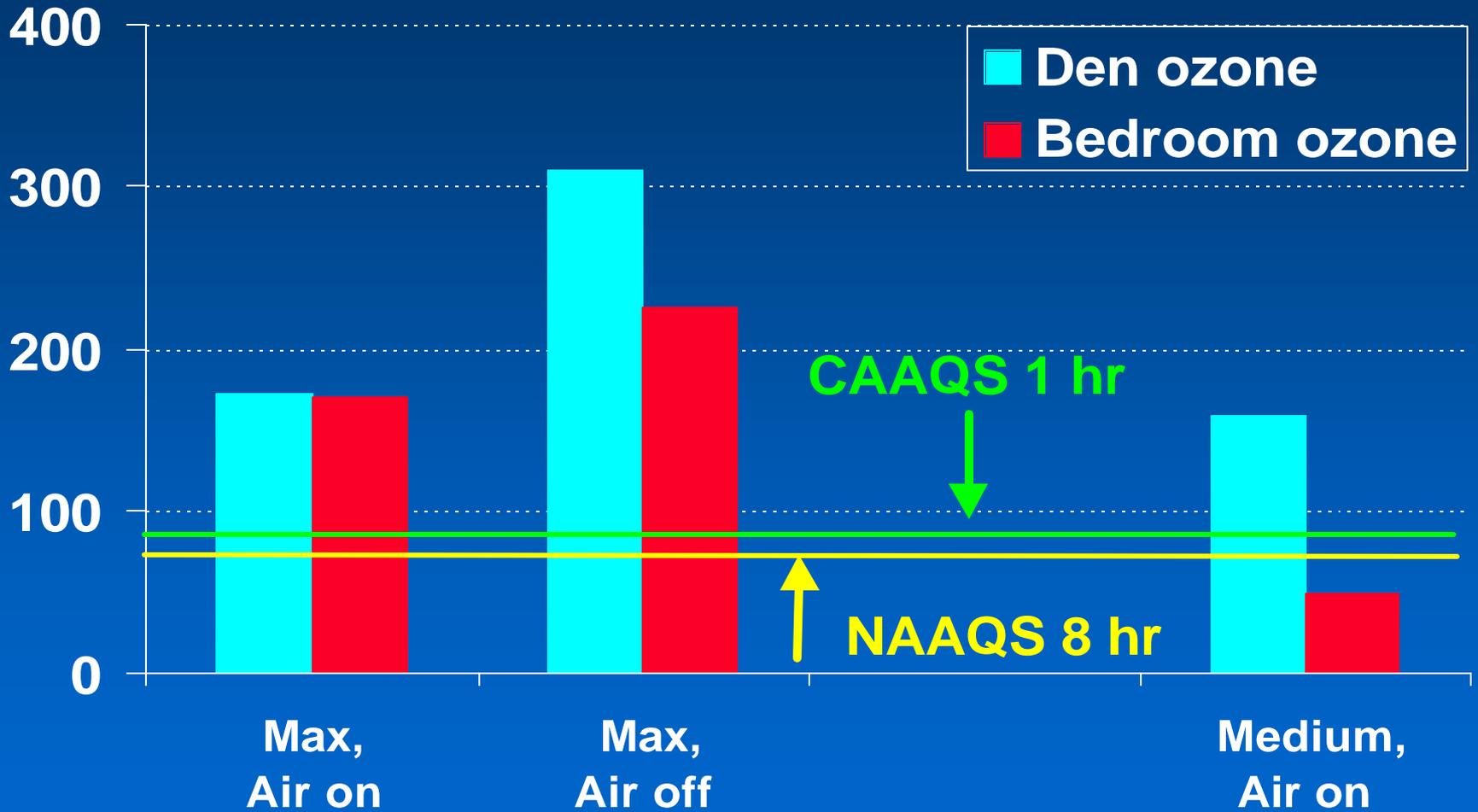
- Mason *et al.*, 2000 (U.S. EPA researchers)*
- 4 models tested in chamber
- Highest emitter tested in home
- Ozone measured in den and bedroom
- Test conditions:
 - maximum ozone and medium settings
 - central air system on and off
 - ozone sensor on and off

* *Proc. Engineering Solutions to Indoor Air Quality Problems Symposium*, VIP-98, A&WMA, July 2000, p. 254-269.



Impact of Ozone Generator in Test Home

INDOOR OZONE (PPB)



Findings and Implications

- Findings

- Indoor levels above health standards
- Sensor limited ozone to 50 ppb
(but long-term effectiveness not known)
- Test home results agreed with models

- Implications

- Vulnerable populations are targeted
- Growing use in California: 34% increase in air cleaner sales last 5 years
- Counters progress in reducing outdoor ozone



Previous Actions

- **ARB**
 - cease-and-desist letters
 - assisted UL attempt to set air cleaner standards
 - tested personal air purifier, published article
 - fact sheet on air cleaners, recommend against ozone generators
- **DHS: press release and warning**
- **Federal Trade Commission: lawsuit succeeded**



Conclusions

- Ozone generators pose an unnecessary risk to public health
- They negate the gains California has made in reducing outdoor ozone levels
- Alternatives are available
- Ozone emissions should be regulated



Partial List of Ozone Generators*

Prozone

Alpine Living Air XL-15

Kleenair 2500R

RainbowAir

SurroundAir Multi-tech

Pure 'n Natural Odor Zapper

Ecoquest Classic, Flair, Fresh Air, others

Biozone

Air-Zone XT-120

SpringAir Classic

Jenesco

Windchaser

* Some brands include multiple models

