

Proposed Regulation to Reduce GHG Emissions from Semiconductor Operations

SCAQMD Staff Testimony
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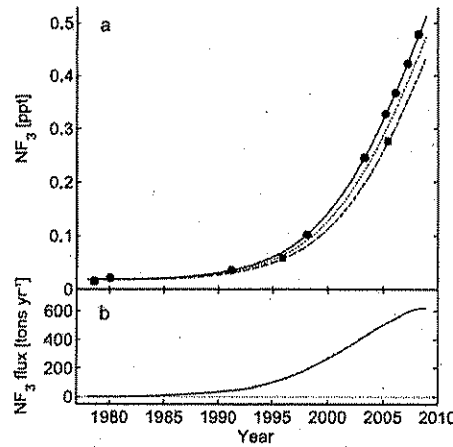
Nitrogen Trifluoride (NF₃)

- Currently 5% of weighted semiconductor emissions
- Can be used to comply with rule
- Not good option due to environmental tradeoffs
- Not good precedent

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Atmospheric Concentrations Increasing

- Exponential rise in concentration
- NF_3 production expected to increase



Weiss et al, "Nitrogen Trifluoride in the Global Atmosphere," Geophysical Research Letters, Vol. 35, L20821, doi:10.1029/2008GL035913, October 2008

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Global Warming Potential (GWP)

- Second highest GWP
- Long atmospheric life
- Production increasing
- Potential GHG impacts $> \text{SF}_6$ *

	100 yr GWP	Lifetime, years
SF_6	23,300	3,200
NF_3	17,000	550

*Prather and Hsu, " NF_3 , the Greenhouse Gas Missing from Kyoto," Geophysical Research Letters, Vol.35, L12810, doi:10.1029/2008GL034542, June 2008

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Past Regulatory Actions

- Moved from VOCs to ODCs
 - solvents
- Moved from VOCs to toxics
 - dry cleaners
- Future actions for NF_3 ?
 - Oropeza, SB104

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Environmental Tradeoffs

- HF produced from NF_3 use
 - acutely hazardous toxic
- Why switch from “worst” to “very bad” when other options exist?

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Recommendation

- Consider synergies and tradeoffs
- Do not allow use of NF_3 for new users or to comply with rule
- Transition current NF_3 users over time