

**MIT Air Toxics
Symposium
Endicott House
August 4, 2004**

**Jim Ball, Ford Motor
Company**

Ford Research Laboratory

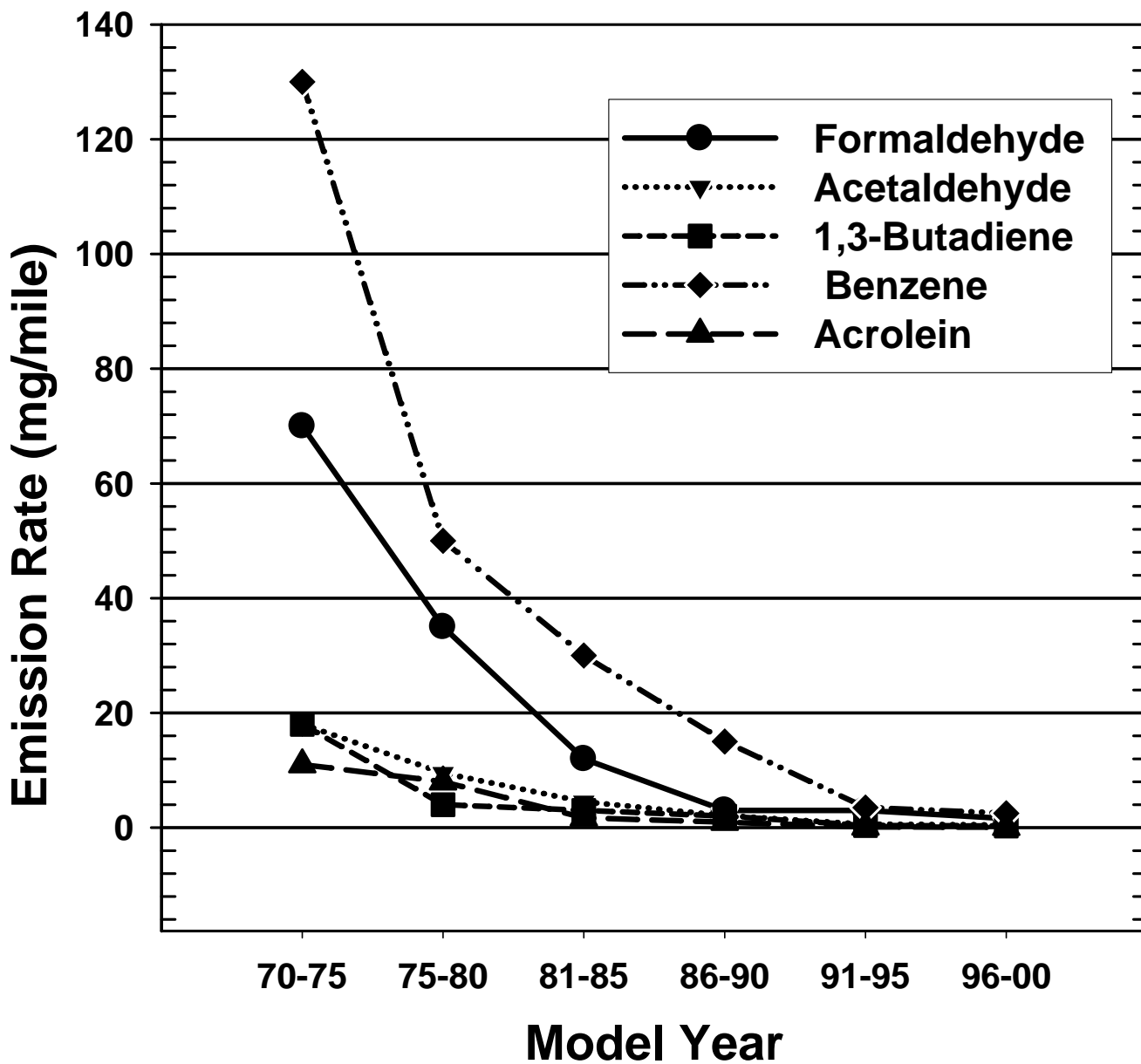
Panel Discussion, Day 2

Modern Gasoline Vehicles

Specific Questions To Be Addressed By The Panel

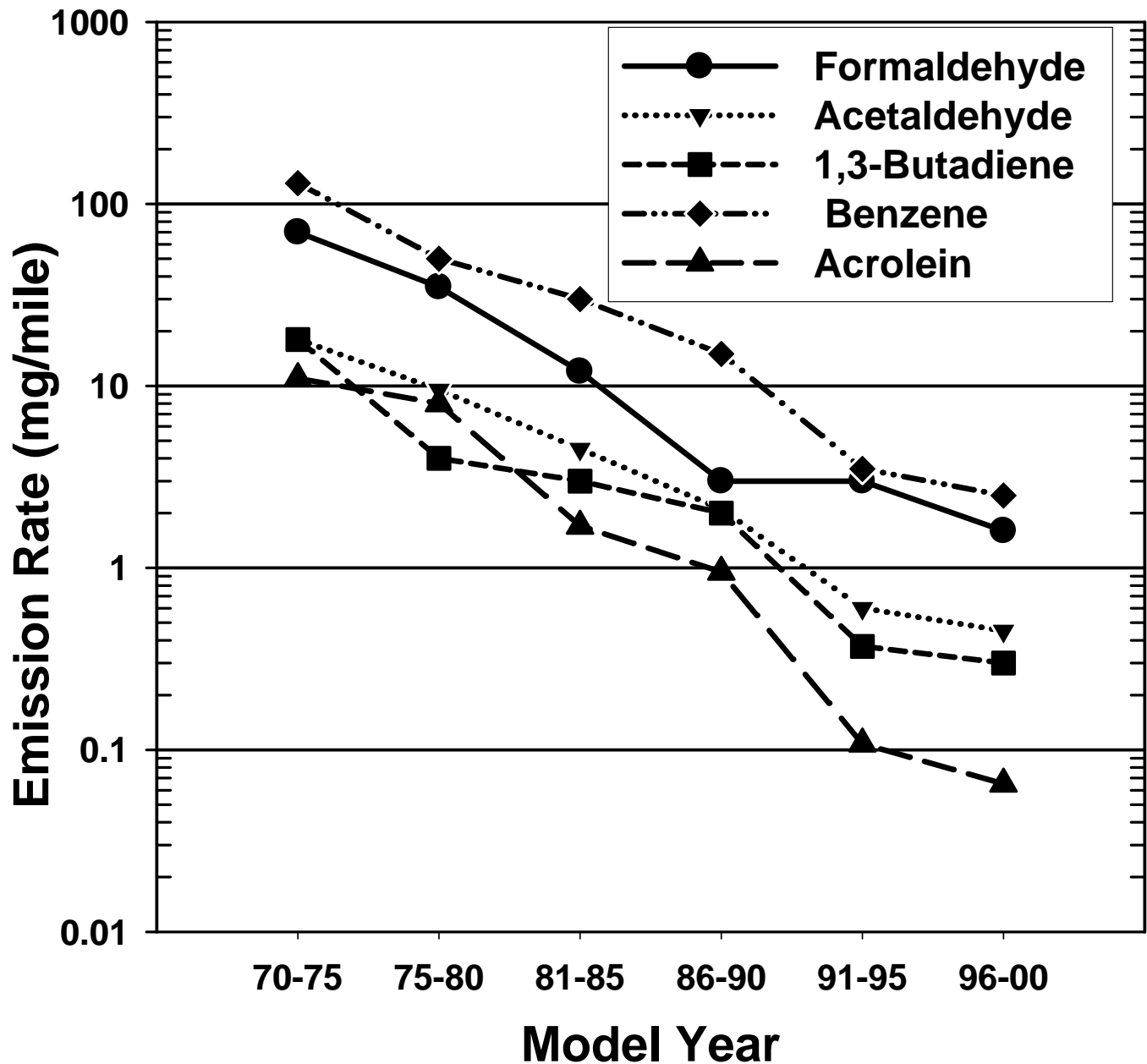
1. Air Toxics (from Gasoline Vehicles) – What should we do/change?
 - Current focus of a review by EPA:Transportation & Air Quality (Ann Arbor).
 - Difficult to get much lower.
 - Since Early 70's emissions reductions have resulted in lower air toxic emissions.

Air Toxics From Gasoline Vehicles Over Time



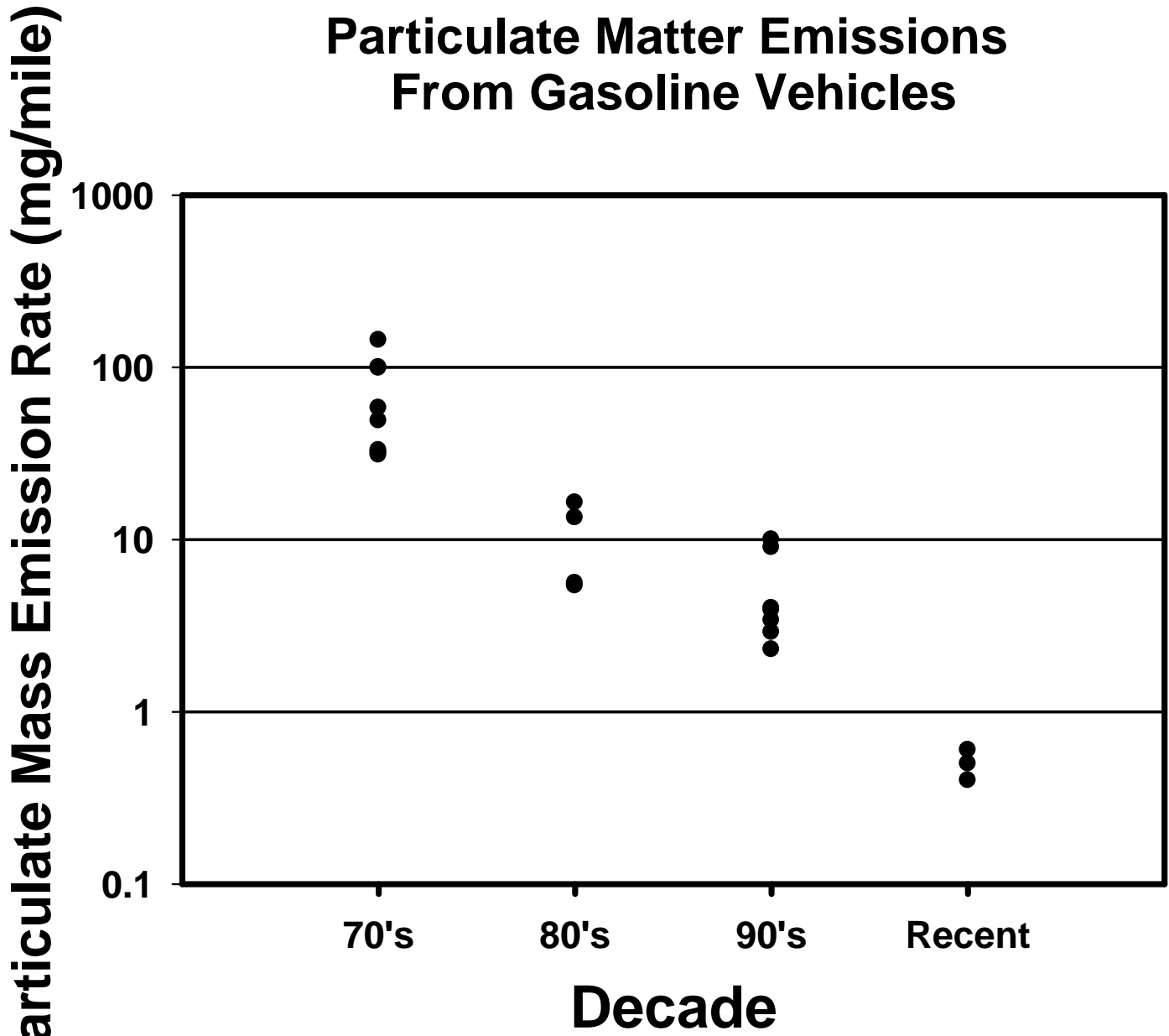
Modified from Norbeck et al., 2004

Air Toxics From Gasoline Vehicles Over Time



Modified from Norbeck et al., 2004

Particulate Matter Emissions From Gasoline Vehicles



SAE papers

Other Questions

2. How much danger do air toxics pose?

- Negligible risk from modern gasoline vehicles.

3. What is the relative risk of PM and Ozone?

- What about CO? NO₂?
- Latest risk estimates are based on epidemiology studies – need mechanistic validation.

4. Spending Priorities.

- Uncontrolled emissions.
 - Non-road sources.
 - Old stationary sources.
 - Mal-functioning vehicles.