



2008 NIOSH Direct-Reading Exposure Assessment Methods (DREAM) Workshop

November 13 - 14, 2008 ♦ Hilton Crystal City in Washington, D.C.



NIOSH

Rapporteur Report

Hazard Session: Gases and Vapors

Monitor: Jay Snyder
National Institute for Occupational Safety & Health

Co-Monitor: Dr. Ted Zellers
University of Michigan

Rapporteur: Jason Ham
National Institute for Occupational Safety & Health

Invited Speakers

Dr. Dean R. Lillquist, (**Director, OSHA Salt Lake Technical Center**) - History of OSHA's use of direct reading instruments, the Agency's current applications, and possible future directions.

Mr. Mark Spence, (**Manager, North American Health and Safety Regulatory Affairs, Dow Chemical**) – Experiences and needs for direct reading methods and instrumentation from a broad chemical producer's perspective.

Mr. Mark Spence, (**International Isocyanate Institute**) -Current direct readings instrumentation and anticipated future challenges and needs for the polyurethanes industry.

Dr. Rebecca Blackmon, (**Technical Support Working Group**) - Instrumentation for gas and vapor detection currently under development.

Dr. Ted Zellers, (**Professor of Environmental Health Science, U of Michigan**) – Development of the micro gas chromatograph.

Mr. Jay Snyder, (**Sensor Project Officer, NIOSH**) - Application of MEMs sensors



Top Five Research Priorities

1. GC miniaturization – worth pursuing
2. Worker ability to measure own exposures
 - a. Simple, cheap, high-throughput; inaccurate “ok”. More data!!
3. Refinement of existing technologies (improved sensitivity, selectivity)
 - a. e.g., toxic gases, H₂S, CO (existing products not great).
4. Make devices multi-functional
 - a. Chemicals, temperature, gps, heart rate, etc.
5. Development of self-calibrated systems (no need for gas transport)
6. DRI for HCHO, HF, chloramines (poultry), nicotine, R-N=C=O, needed
 - a. Small-volume need, won't be commercially successful
7. NIOSH-OSHA collaboration on transitioning new DRIs to compliance-acceptable status
8. Development of DRIs for unknown chemical components in mixtures
9. Worker empowerment (behavior modification, feedback to worker)



Direct Reading Instruments

(Usage & Implementation)

- What do you see as the most important impediments to more widespread use of DRIs?
- Where are they needed most?:
 1. Personal Monitoring for Compliance
 2. Personal Monitoring for Exposure Assessment
 3. Emergency Response
 4. Warnings for Life-Threatening Exposures