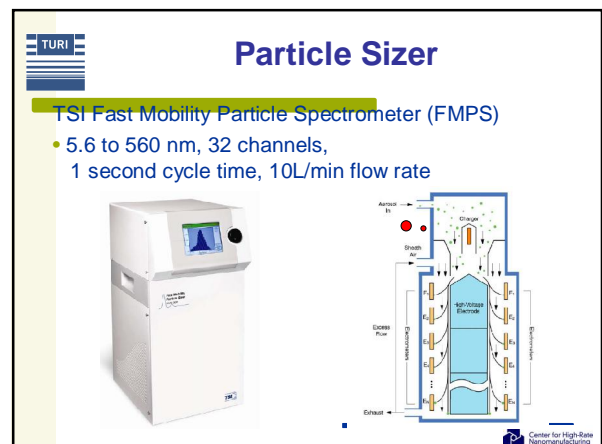
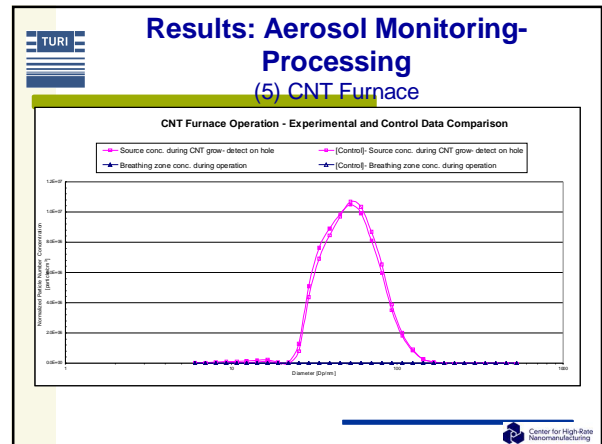


- 
- Outline**
- Brief overview of toxicology data
  - Routes of exposure for nanoparticles
  - Review of exposure data collected at CHN
  - Working safely with nanoparticles
- Center for High-Rate Nanomanufacturing



## Results: Aerosol Monitoring- CNT Furnace

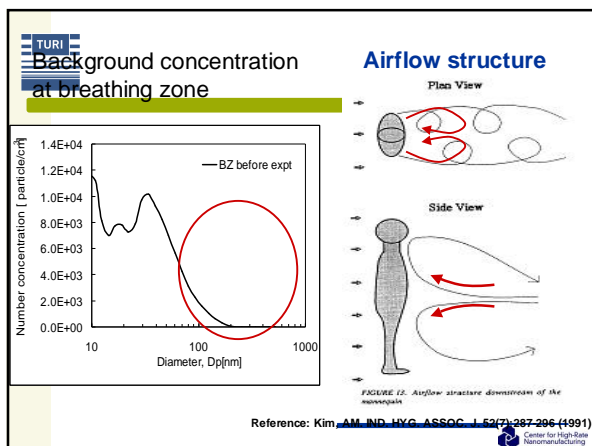
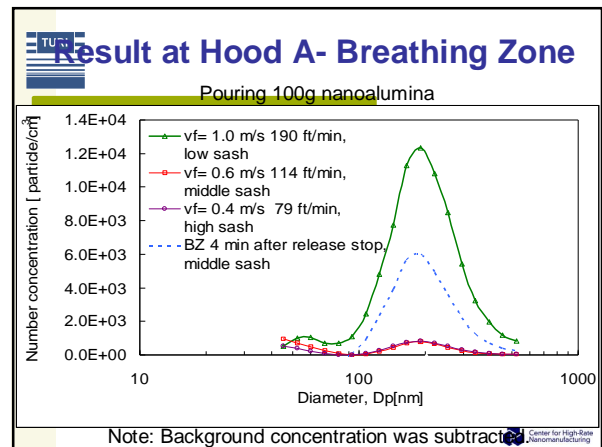
Center for High-Rate Nanomanufacturing



## Handling Nanoparticles

- Material: nanoalumina 100g, avg. size-45nm
- Method: transferring and pouring
- Ventilation used: fume hood
- Two different hoods/labs
- Variables:
  - face velocity (sash location)
  - worker's height
- Measurement:
  - Source- upstream, downstream,
  - Breathing zone, Lab background

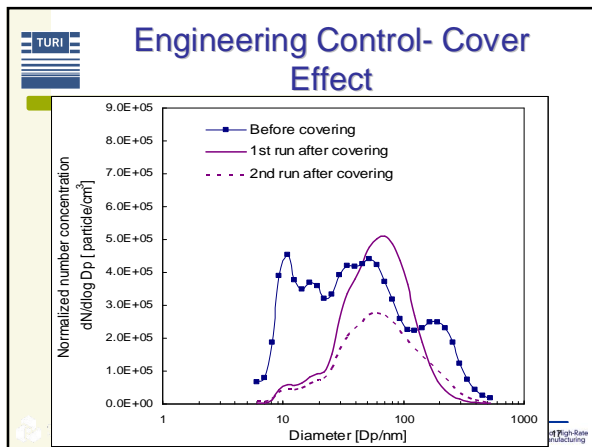
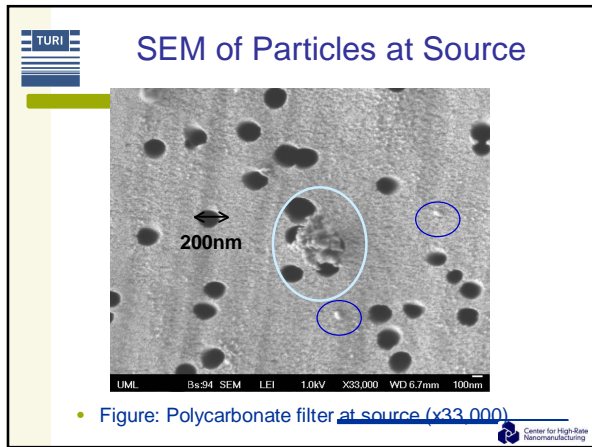
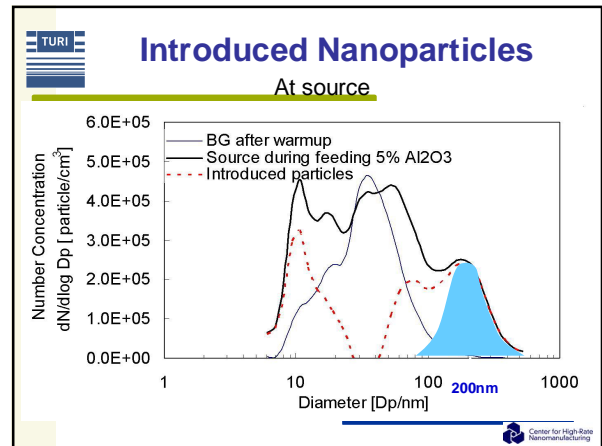
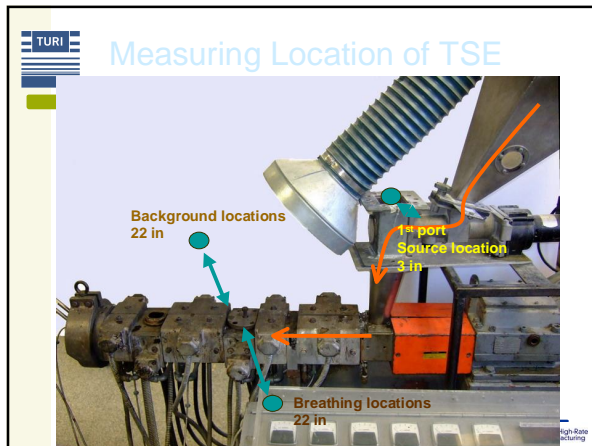
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## Nanocomposite Compounding

- Machine: Twin Screw Extruder (TSE)
- Materials: Polymer (5lb) + Nanoalumina (0.10-0.25lb)
- Temperature: > 200 degree C
- Ventilation used: Local hood (poorly designed)

Center for High-Rate Nanomanufacturing




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Toxics Use Reduction Institute

## Best Practices for Working Safely with Nanoparticles in University Research Laboratories

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 Toxics Use Reduction Institute





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## Document Outline

1. Introduction
2. Basic Premises
3. Occupational Hygiene Resources Available to CHN Researchers
4. Routine R&D Laboratory Operations
5. Management of Nanomaterials
6. Management of Nanomaterial Spills

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**THANK YOU and QUESTIONS!**

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