
Asbestos

 **Fermilab** **ES&H- Construction Safety** *Asbestos and Lead*

Overview & Learning Objectives

- What is Asbestos?
- Uses of Asbestos
- Hazards associated with Asbestos
- Fermilab's Asbestos Program
- Do's and Don'ts
- Help/Assistance

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What is Asbestos?

- Naturally occurring mineral
- 95% of Asbestos found is either Amosite or Chrysotile
- Fibrous Silicate
- Heat Resistance



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Uses of Asbestos

- Ceiling tiles
- Vibration dampers
- Drywall taping compound
- Cement sheet (transite)
- Brakes
- Adhesives and mastics
- Floor tile
- Thermal & Electrical system insulation
- Valve packing and Pipe insulation

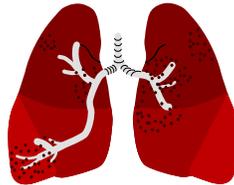


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Hazards associated with Asbestos

- Target Organ - Lungs
- Asbestosis
- Lung Cancer (Link To Smoking)
- Mesothelioma



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Fermilab's Asbestos Program

- Inventory – ES&H Share Volume – IH Folder – Asbestos Folder – Inventory
- Buildings built on or before 1980 (handout)
- Thermal System Insulation, Surfacing Materials, Floor Tile
- Materials grouped into “homogeneous areas”
- Positive result – one sample in the homogeneous group (1% or more)



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Damage or Deterioration

- Water leaks, cutting or bumping, strong air currents, age
- Evidence
 - Debris
 - Ripped or cracked
 - Delamination
- Report to ES&H Group immediately



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Examples – Friable Material Locations

Thermal System Insulation

- Lab A
- PS-4
- IB2
- Wilson Hall Ground Floor and Below
- CUB and tunnel
- Transfer Gallery
- Cross Gallery
- Linac
- Site 68

Surfacing Material

- Lab A (enclosed)
- Cross Gallery
- Linac Gallery
- Transfer Gallery



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DO's

- Do presume that all pipe insulation, surfacing material and floor tile built before 1980 DO contain asbestos.
- Do check the Fermilab Asbestos Inventory
 - call Tom Gibbs at X8001
- Do notify contractors of the presence, location and quantity of asbestos containing material or potential asbestos containing material at the worksite.
- Do contact ES&H before working with suspicious material

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DON'TS

- Don't use pipes lined with asbestos as a platform to work from
- Don't cut through pipe insulation
- Don't disturb sprayed on materials
- Don't disturb non-friable material
- Don't clean up, repair or dispose of suspicious looking material
- **Only Certified Professionals shall remove Asbestos!**



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Procedures

- In building built before 1980, assume all pipe insulation, surfacing material, and floor tile **DO** contain asbestos whether or not labeled.
- Contact ES&H Group personnel
- May request that the material be sampled
- Contact Tom Gibbs in ES&H Section for help if material must be removed.



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Asbestos Concern Contact Numbers

- | | |
|--|---|
| • Accelerator Division
– Richard Rebstock (3499) | • FES Section
– Mike Bonkalski (8448) |
| • ESH Section & WDR Section
– Tom Gibbs (8001) | • Technical Division
– Richard Ruthe (5424) |
| • Particle Physics Division
– Rob Bushek (2399) | • Computing Division
– Amy Pavnica (8493) |

Note: Tom Gibbs is the Task Manager for all Asbestos removal projects at Fermilab. Phone (8001) Cell Phone (630) 432-4420



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Lead



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Overview & Learning Objectives

- What is Lead?
- Sources of Lead at Fermilab
- Health effects of lead exposure
- Symptoms of Lead Overexposure
- OSHA Lead construction standard (1926.62)
- Help/Assistance



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What is Lead?

- Heavy, ductile, gray-white solid element
- Comes in many forms (lead acetate, lead chloride, lead chromate, lead nitrate, lead oxide, lead phosphate, and lead sulfate)
- Properties
 - high density
 - resistance to corrosion
 - softness
 - opacity to gamma and x-rays
 - low melting point



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Sources of Lead at Fermilab

- Bricks
- Wool
- Plates/Sheets
- Slabs
- Paints
- Batteries
- Solder
- Ceramics



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Health effects of lead exposure

- Absorbed by inhalation and ingestion
- Most enters the bloodstream; can accumulate in bone and organs
- Some excreted, some stored
- Acute exposures to high levels - seizures, coma, cardio-respiratory arrest
- Chronic exposure to low levels - anemia, damage to nervous, urinary, blood, bone and reproductive systems.



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Symptoms of Lead Overexposure

- Blue line on the gums
- Headache
- Constipation
- Hyperactivity
- Excessive tiredness
- Muscle and joint pain
- Poor appetite
- Weakness
- Nausea
- Reproductive difficulties
- Sleeplessness
- Numbness
- "Wrist drop"
- Metallic taste in mouth
- Pallor
- Dizziness
- Fine tremors
- Irritability/anxiety



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Lead Exposure Regulations, 29 CFR 1962.62, Affect:

Any work involving construction, alteration and/or repair, including painting and decorating. It includes, but is not limited to:

- Demolition or salvage of structures where lead or materials containing lead are present
- Removal or encapsulation of materials containing lead
- New construction, alteration, repair, or renovation of structures that contain lead



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29 CFR 1926.62 Affects:

- Installation of products containing lead
- Lead contamination/emergency cleanup
- Transportation, disposal, storage, or containment of lead or materials containing lead
- Maintenance operations associated with the construction activities described above



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Monitoring

The contractor is responsible for monitoring their employees if there is a possibility of exposures reaching or exceeding the action level ($\geq 30 \text{ ug/M}^3$).

- Can use monitoring data from previous jobs
 - must be obtained from the past twelve months
 - workplace conditions must closely resemble the present job at hand



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Medical Surveillance

- In accordance to 29 CFR 1926.62
- Contractors must provide:
 - blood samples and analysis when exposures meet or exceed the action level on any day

 - full surveillance program for exposures at or above the action level ($\geq 30 \text{ ug/M}^3$) for more than 30 days a year



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Training

- Contractors must provide
- Must meet requirements of 29 CFR 1926.59 (Hazard Communication Standard for Construction Industry)
- At or above the action level:
 - meet training requirements of 29 CFR 1926.62
 - annual training



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Personal Protective Equipment

Proper PPE must be supplied by the contractor.



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Disposal

- **Hazardous, Special or Scrap?**
 - if unsure, call the divisional ES&H section



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 - Richard Rebstock (3499)
- **ESH Section & WDR Section**
 - Dave Baird (3945)
- **Particle Physics Division**
 - Rob Bushek (2399)
- **FES Section**
 - Mike Bonkalski (8448)
- **Technical Division**
 - Richard Ruthe (5424)
- **Computing Division**
 - Amy Pavnica (8493)



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