Construction Hazards and Risks Control

Lecture Title: Recap of the construction hazard and risk control

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Undergraduate Diploma in Occupational Health and Safety

Bitumen

What is Bitumen

- Bitumen is natural, not a residue of petroleum refining
- Used as a biding agent
- A blend of various chemical compounds (over 10,000) whose precise composition is impossible to list.
- Compounds known as polycyclic aromatic hydrocarbons
- Exposure • respiratory, through inhalation of emissions • cutaneous, through direct contact with the products, substance clothing residues settling on the skin or possibly through

- Exposure
- Respiratory, through inhalation of emissions •
- Cutaneous, through direct contact with the products, substance clothing residues settling on the skin or possibly through contact from soiled clothing

Health Effects

- International Agency for Research on Cancer
- Exposure to oxidised bitumen and its emissions during waterproofing procedures as probably carcinogenetic.
- Exposure to bitumen and its emissions during the application of bituminous asphalt.

Legislation

Amended by:
L.N. 197 of 2015;
L.N. 318 of 2019.

SCHEDULE I

[Regulation 2(*c*)]

List of substances, mixtures and processes

1. Manufacture of auramine.

2. Work involving exposure to polycyclic aromatic hydrocarbons present in coal soots, coal tar or coal pitch.

3. Work involving exposure to dusts, fumes and sprays produced during the roasting and electro-refining of cupro-nickel mattes.

4. Strong acid process in the manufacture of isopropyl alcohol.

5. Work involving exposure to hardwood dust.

6. Work involving exposure to respirable crystalline silica dust generated by work process

Legislation

Polycyclic aromatic hydrocarbons mixtures, particularly those containing benzo[a]pyrene, which are carcinogens within the meaning of this Directive	-	-	-	-	-	-	-	-	skin (10)	-

Threshold

- American Conference of Governmental Industrial Hygienists (ACGIH) currently recommends a Threshold Limit Value (TLV) of 5 mg/m^3 as an 8-hour time weighted average.

Actions

- Reduce exposure level (avoid contact to skin, eyes and inhalation)
- Provide forced ventilation in confined areas (garages, tunnels)
- Use PPE
- Good hygiene (change clothes, wash hands, shower)
- Avoid smoking
- Proper risk assessment

Wood Dust

Hard Wood vs Soft Wood

- Hardwood is a dense and heavy wood that is known for its strength and durability. Unlike softwoods, which come from coniferous trees, hardwoods have a more complex structure and are generally more difficult to work with.

Some Examples

Tree		Health Effect
Aggru	Maple	Rhinitis, asthma, Maple Bark Stripper's disease (mould in bark)
Betula	Birch	Irritant dermatitis (A2)
Cirasa	Cherry	
Fagu	Beech	Dermatitis (wood cutter's disease) due to lichens growing on the bark of beech trees, rhinitis, asthma, nasal cancer (A1)
Fraxnu	Ash	
Gewz	Walnut	Skin irritation, rhinitis, possible asthma(A2)
Iroko		
Kewba	Mahogony	Dermatitis, sensitizer (A2)
Ruvlu / Ballut / Luq	Oak	Nasal cancer (A1)
Tikk	Teak	Toxic, dermatitis, sensitizer (A2)

Legislation

- S.L 646.14 – Protection of workers from the risk related to exposure to carcinogens, mutagens or reprotoxic substances at work regulations.
- 3mg/m³ till 17th January 2023
- 2mg/m³ thereafter

Name of agent	EC No (1)	CAS No (2)	Limit values						Notation	Transitional measures
			8 hours (3)			Short-term (4)				
			mg/m³ (5)	ppm (6)	f/ml (7)	mg/ m3 (5)	ppm (6)	f/ml (7)		
Hardwood dusts	-	-	2 (8)	-	-	-	-	-	-	Limit value: 3 mg/m3 until 17 January 2023

Why is Wood Dust Dangerous?

- Natural Chemicals
- Bacteria
- Fungi & Moulds

- Harwood tends to generate a finer dust, hence more respirable.

How can exposure be reduced?

- Know which type of wood is being used and all hazards associated with that wood.
- Reduce dust generation.
- Use appropriately designated ventilation systems. Including local ventilation exhaust and the use of high- efficiency particulate (HEPA) filters. The design will depend on the equipment being used (sanders, shapers, routers saws etc.)
- Use on-tool extraction system.
- Keep tools and blades sharp. As tools dull, they may release more dust into the air.

- Be aware that significant exposure can happen when cleaning such as when emptying the dust bags or maintaining equipment.
- Practice good housekeeping. Keep surfaces and floors clear.
- Use cleaning methods that reduce reintroducing the dust into the air. Use wet clean-up methods (e.g wipe surfaces with a wet rag or mop) or use vacuum with HEPA filter.
- Provide appropriate education and training.
- Wear respiratory protection when appropriate.
- Use protective clothing and gloves to reduce skin exposure

- Practice good personal hygiene (example was hands or shower to remove dust from the skin)
- Wash hands and face when finished a task, and before eating, drinking or smoking. Clean clothes by washing or using a vacuum when washing facilities are not available.
- Bag and seal dust waste to prevent dust from re-entering the air.
- DO NOT use compressed air to blow dust off of furniture, equipment or clothing. hidden areas, etc.
- To prevent a combustible dust explosion, DO NOT allow wood dust to accumulate, including on ledges, ceiling beams, light fixturues.

- IARC Publications Website - Wood Dust and Formaldehyde

Questions?