



# Hazards of exposure to «chemicals»

...the less regarded chemicals

# Content

- What are chemicals
- Classification and labeling of chemicals
- Exposure to chemicals
- Determinants of exposure
- Occupational exposure limits and dose response

# What are chemicals







# Products releasing chemicals



# Saw dust



Associated with health issues due to the natural chemicals in the wood, or substances in the wood such as bacteria, moulds, or fungi.

**Carcinogenic to humans (Group 1)** according to the International Agency for Research on Cancer (IARC).

- nasal cavity (nose area)
- paranasal sinuses (spaces in and around the nasal cavity)
- nasopharynx (upper part of the throat, behind the nose).

## **Other toxic effects**

- irritation of the eyes, nose and throat,
- Dermatitis
- respiratory system effects which include decreased lung capacity
- allergic reactions.

# Sawdust cont.

## Expsoure limit values

- EU SCOEL (Hard wood): 1-1.5mg/m<sup>3</sup>
- ACGIH<sup>®</sup> TLV<sup>®</sup> – Western Red Cedar  
TWA: 0.5 mg/m<sup>3</sup>
- ACGIH<sup>®</sup> TLV<sup>®</sup> – All other species  
TWA: 1 mg/m<sup>3</sup>



# Flour



## Health challenges

- **Bakers' Asthma**
  - Caused mainly by inhalation of cereal flour, particularly wheat flour, and grains dust (rye, barley, rice, maize, and oats)
  - One of most common occupational asthma
  - Flour contains (enzyme)  $\alpha$ -amylase, glucose oxidase, protease, cellulase, xylanase
- **Protein contact dermatitis (Eczema)**
  - Handling wet flour in 20 minutes /day
  - Hyperkeratotic eczema with erythema
  - Dry vesicles and scaling
  - Possible contact urticaria (CU)
  - Gluten (protein) suspected as the cause of the eczema

<https://www.medicaljournals.se/acta/content/html/10.2340/00015555-1365>

**Finnish study: 13% (n=570) of PCD/CU caused by wheat flour**

# Hyperkeratosis eczema



Mild



Moderate

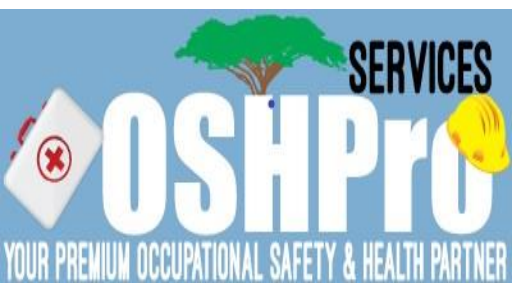


Severe

# Exposure limit values

- Inhalation
- 1-3 mg/m<sup>3</sup>

# Fumes from cooking oil



# Nuts

