

# **Intoxication during unloading containers**

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# Proloog

- **Place** : warehouse / logistic centre
- **What** : unloading containers with household goods (refrigerators, washing machines, vacuum cleaners, microwave ovens)
- **How** : Goods packed in cardboard boxes
- **Problem**: three incidents in ten months

# Working conditions

- Regularly the cardboard boxes were wet, especially in the back and in the top of the container leading to difficulties with unloading
- No personal safety measures were taken
- Before the incidents a few measurements
- After the first incidents at random measurements by employees of the warehouse: mostly benzene, 1,2 dichloroethane, phosphine and toluene

# Incidents

- A** Container with washing machines, behind the doors the container is sealed with plastic
  
- B** Container with vacuum cleaners
  
- C** Container with refrigerators

# Incidents

- A : employees 1 and 2 were seen two months after the incident
- B : employee 3 was seen on the day of the incident
- C : employees 4 and 5 were seen three days after the incident

# Problems

- Incident A: no measurements
- Incident B: measurement two hours after opening: nil
- Incident C: measurement: styrene 10 ppm, toluene 2 ppm, VOS 39 ppm (not suitable for 1,2 dichloroethane)
- Wet boxes: solvents of the products vaporize and condensate during transporting

# Incident A

## Employee 1

immediately after removal of the plastic develops dizziness, nausea, dry mouth and difficulty to breath and irritated eyes and vomiting

## Employee 2

after 5 minutes in the container: nausea, dizziness, vomiting, irritation of the eyes and upper airways. The complaints persisted for 4-5 days and were followed by tiredness and decrease in muscle strength. Lab: impaired liverfunction tests

# Incident B

## Employee 3

within ten minutes after the start of unloading  
dizziness, paresthesia, loss of muscle tonus,  
headache, visual disturbances and chestpain.  
After a week the symptoms diminished. Lab:  
disturbed liverfunction tests and increased  
muscle enzymes persisting for more than a  
month



# Incident C

## Employee 4

10 minutes after entering the container he felt sick, headache, irritated throat and non-productive cough; after 20-30 minutes nausea and vomiting. After three days cardiographic abnormalities, hypoxia and encephalopathy.

## Employee 5

drove the truck, after 3 – 5 minutes he got sick also, headache, irritated upper airways, irritated eyes, nausea, vomiting and encephalopathy. Lab: hypoxia. Persisting encephalopathy

# Health complaints

- Immediate effects related to organic solvents
- Intermediate effects comparable with exposure to phosphine
- Mostly combined exposure

# Pattern of exposure related to toxic substance

- A** phosphine and organic solvent(s)
- B** phosphine and organic solvent(s)
- C** organic solvent(s)

# Follow up

- Exposure to organic solvents led to disturbed liver function tests and cognitive dysfunction persisting for weeks
- Exposure to phosphine led to hypoxia and muscle damage persisting for weeks
- Exposure to 1,2 dichloroethane led to disturbed liver function tests, hypoxia and cognitive dysfunction persisting for weeks