Occupational health and safety: main issues for EU workers
(with a focus on occupational cancers)

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Paris, 27 September 2018
Plan

- Portrait of the EU workforce
- Main work-related health and safety problems
  - Accidents
  - Musculoskeletal disorders (MSDs)
  - Psychosocial risks (PSRs)
  - Chemical risks and occupational cancers
- Occupational cancers
- EU Occupational Safety & Health (OSH) legislation
- EU legislation: marketing of chemicals
- Ongoing EU issue: revision of the Carcinogens Directive
- Conclusions
Portrait of the EU workforce (15-64y in 2015)

- 221 million people employed in the EU-28
- employment rate is 66% (71% men; 60% women)
- increased participation of women in the labour market
- gender segregation remains very high
- ageing of the workforce (31% of employed people >50 y)
- rise in part-time employment (33% women & 10 % men)
- indefinite contract (73%), fixed-term contract (12%), other contract types or no contract (8%)
- self-employed : 15 % of the EU workforce
- one-third of workers in the EU work to tight deadlines and at high speed
- one worker in five (22%) works in their free time to meet work demands several times a month.

Source: 6th EWCS, Eurofound, 2017
Portrait of the EU workforce (2008-2015)

Figure 5: Employment by sector, EU28, 2008–2015 (%)


Source: 6th EWCS, Eurofound, 2017
Some definitions

- **accident at work**: a discrete occurrence in the course of work which leads to physical or mental harm.

- **occupational health** means the absence of occupational diseases.

- **occupational disease** refers to cases for which the occupational origin has been approved by the national compensation authorities.

- **recognised occupational diseases**:
  - ✓ vary with national legislations and compensation practices
  - ✓ no harmonisation at EU level

- **work-related disease** includes disease where work played a role.
Main work-related health and safety problems
Accidents at work in the EU-28 (2015)

• over 3.2 million non-fatal accidents that resulted in at least four calendar days of absence from work (ex: wounds and superficial injuries; dislocations, etc.)

• 3 876 fatal accidents at work in the EU-28 during 2015, an increase of 102 deaths compared with the year before (a ratio of ~ 830 non-fatal accidents for every fatal accident)

• 1.83 fatal accidents per 100 000 persons employed in the EU-28 (incidence rates vary with countries: <1 in DE, SE and >5 RO)

• more than one fifth of all fatal accidents at work in the EU-28 took place within the construction sector

Source: European statistics on accidents at work (ESAW), 2015
Accidents at work in the EU-28 (2015)

Source: European statistics on accidents at work (ESAW), 2015
Recognised occupational diseases = tip of the iceberg

200 000 skin diseases self-declared in the EU

600 000 skin diseases self-declared in the EU

8 000 skin diseases recognised in the EU

10 000 skin diseases recognised in the EU

Source: Work and health in the EU, Eurostat, 2004
## Self-reported exposure to hazards at work 2005-2015

### Table 1: Physical environment index: proportion of workers in EU28 (%) and mean index scores (0–100), 2005–2015

<table>
<thead>
<tr>
<th>Hazard</th>
<th>2005</th>
<th>2010</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibrations from hand tools, machinery</td>
<td>24</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Noise so loud that you would have to raise your voice to talk to people</td>
<td>30</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>High temperatures which make you perspire even when not working</td>
<td>25</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Low temperatures whether indoors or outdoors</td>
<td>22</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Breathing in smoke, fumes (such as welding or exhaust fumes), powder or dust (such as wood dust or mineral dust)</td>
<td>19</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Breathing in vapours, such as solvents and thinners</td>
<td>11</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Handling or being in skin contact with chemical products or substances</td>
<td>14</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Tobacco smoke from other people</td>
<td>20</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Handling or being in direct contact with materials which could be infectious, such as waste, bodily fluids, laboratory materials, etc.</td>
<td>9</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Tiring or painful positions</td>
<td>46</td>
<td>46</td>
<td>43</td>
</tr>
<tr>
<td>Lifting or moving people</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Carrying or moving heavy loads</td>
<td>35</td>
<td>34</td>
<td>32</td>
</tr>
<tr>
<td>Repetitive hand or arm movements</td>
<td>62</td>
<td>63</td>
<td>61</td>
</tr>
</tbody>
</table>

### Mean index scores (0–100)

| Physical environment index | 82   | 83   | 84   |

Source: 6th EWCS, Eurofound, 2017
Self-reported work-related health problems in 2013

Have you suffered from one or more health problems caused or made worse by work in the past 12 months? Yes for 8 % of the EU workforce.

<table>
<thead>
<tr>
<th>Work-related health problems</th>
<th>% respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>musculoskeletal disorders</td>
<td>60.1</td>
</tr>
<tr>
<td>stress, depression or anxiety</td>
<td>15.9</td>
</tr>
<tr>
<td>breathing or lung problems</td>
<td>3.6</td>
</tr>
<tr>
<td>heart disease or attack, or circulatory system</td>
<td>4.5</td>
</tr>
<tr>
<td>headache and/or eyestrain</td>
<td>4.8</td>
</tr>
<tr>
<td>infectious disease</td>
<td>1.0</td>
</tr>
<tr>
<td>hearing problem</td>
<td>1.1</td>
</tr>
<tr>
<td>skin problem</td>
<td>1.2</td>
</tr>
<tr>
<td>other types</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Source: compiled from data source of EU LFS ad hoc module 2013
Musculoskeletal Disorders (MSD)

Musculoskeletal Disorders (MSDs) represent the most common type of work-related disorder in Europe. A musculoskeletal disorder is a painful affliction of the muscles, tendons, sinews, cartilage, ligaments and nerves and is caused by tasks that lead to stress or injury. Work-related MSDs can be made worse by specific circumstances, such as work organisation and intensification or working time.

Factors that can MAKE THINGS WORSE

Work organisation
Work intensification
Working time

EU legislation gives you a right to risk assessment

Main MSD causes

- 63% Repetitive hand-arm movements
- 59% Sitting
- 56% Working with computers, laptops, etc.
- 45% Tiring or painful positions
- 32% Carrying or moving heavy loads
- 20% Vibrations from tools and/or machinery
- 9% Lifting or moving people

Source: European Working Conditions Survey 2017, European Foundation for the Improvement of Living and Working Conditions
* % of respondents reporting the given factor as cause for MSD
Psychosocial risks (PSR)

Psychosocial risks factors

- Work intensity and working time (e.g. excessive workloads, irregular or unpredictable hours)
- Emotional demands (e.g. contact with aggressive clients)
- Lack of autonomy and room for manoeuvre (e.g. lack of participation)
- Social relations in the workplace (e.g. lack of support, poor interpersonal relationships)
- Value conflict (e.g. about the quality of work, ethics)
- Insecurity of the job (e.g. precarity, job uncertainty)

Troubles

- Stress
- Burnout
- Depression and anxiety disorders
- Cardiovascular diseases
- Musculoskeletal disorders
- Addictions (alcohol, drugs, medicines)

Risks (or factors) vs. troubles: not to be confused!

https://www.youtube.com/watch?v=jyPP3Z_Lbro

scandella@etui 2018
Chemical risks

- 120,000 chemicals on the EU-market + millions of mixtures
- Workers exposed in all sectors: chemical/pharma, textile, automotive, construction, cleaning, health care, beauty, etc.
- Up to 50% of all recognised occupational diseases linked to chemical exposure
- Skin diseases (i.e. allergies), respiratory diseases (i.e. asthma), cancers (i.e. mesothelioms), reproductive risks (i.e. miscarriage)
- New risks: nanomaterials (i.e. Carbon nanotubes)

Chemical risks at the workplace: some examples

- **Disinfectants in hospitals**
- **Metal cutting fluids**
- **Fumigants in containers**
Occupational cancers
Cancers are the first cause of death at work!

Source: Takala J., ETUI, 2015 based on WHO and ILO data
In high income countries: cancers are the first cause of work related mortality

Source: Takala J., ETUI, 2015 based on WHO and ILO data
Distribution of occupational cancer deaths/year in the EU-28

Source: Jukka Takala, ETUI, 2015
Most frequent carcinogens at work

- Diesel engine exhaust
- Tetrachloroethylene
- Tabacco smoke
- Formaldehyde
- Chromium VI
- Asbestos
- Mineral oils
- Cytostatic drugs
- PAHs
- Solar radiation
- Wood dust
- Crystalline silica
- Shift work
- Aromatic amines
- Tetrachloroethylene
- Cd
- Ni
- Cd
- Ni
Social production of cancer

- Profits are considered as a priority, workplace prevention is described as a burden mainly when direct costs for employers are low.
- Most of the « public health » campaigns against cancer are concentrating:
  - On « individual behaviour »
  - On detection
  - Are not insisting on primary prevention at the workplace.
- For instance, Obama plan against cancer (2016) was focused on new treatments, possible vaccines, cancer detection and the genetic makeup of tumors. Primary prevention was not considered as an important issue.
an example of double profit: AstraZeneca

- big producer of pesticides
- main producer of Tamoxifen (drug massively used against breast cancer)

If people stop getting cancer, we stop making profits. So, we need to make sure everyone focuses on 'the cure', not the cause.
Science is not outside the conflict

Doubt is Their Product
How Industry's Assault on Science Threatens Your Health
David Michaels
Work-related cancers cause social inequalities in health

- For most cancers, social gradient in the incidence and mortality
- Blue-colars workers are more exposed to carcinogens than white-colars
- Workplace exposures are neglected and often there is a double standard: one for « public health », another for « occupational health »
NOCCA: a « mapping » of cancers by occupations

- NOCCA = Nordic Occupational Cancer Study
- 2.8 million cases of cancer in five countries: Iceland, Norway, Sweden, Finland and Denmark
- Relates localization of cancers to the patients’ professional activities. It takes account of the professions exercised by 15 million persons in the last four decades (from the early 60s to the end of the 90s)
- In certain cases, results confirm ties that are already known, such mesothelioma and professions involving exposure to asbestos (plumbers, sailors, etc.), skin cancers and fishermen and farmers who work outdoors, cancers of the nasal fossae and workers in the wood industry, a very large number of cancers in the building industry where workers are subjected to multiple exposure.
- In other cases, the results of the project have brought new data. For example, the project identified a greater prevalence of cancers of the mouth and the vagina among women working in the chemical industry; skin cancers and breast cancers (in both men and women) and ovarian cancers in people working in the printing industry; thyroid cancers among women working in agriculture

Source: https://astra.cancer.fi/NOCCA/full-article.html
Gender inequality and work related cancer

- Work related cancer among women largely neglected by the epidemiological studies (with a strong impact on the estimation based on « attributable fractions »)
- Strength of stereotypes linking work related cancer with males
- Patterns of exposure can be different
- Levels of control are often different (cleaning sector, hairdressers, etc…)
- Biological impact can be different
Among nurses, the risk increased by 50%. It is 4 times higher among professionals. New associations have become apparent in recent research. The risk is 5 times higher in the hairdressing and cosmetics sectors, as also among food and beverage production workers. It is 4.5 times higher among dry cleaning and laundry workers. It is 4 times higher among workers in the paper and printing industry and among those making rubber and plastic products.

Which causes? Risks mainly stem from a series of chemicals such as benzene and other solvents, polycyclic aromatic hydrocarbons (PAHs), pesticides and numerous other endocrine disruptors. Night work and ionising radiation are also at the root of breast cancer. Stress might be a risk factor.
Attributable fraction (AF) of work-related cancers

- AF: the proportion of cancer cases that would not have occurred in the absence of occupational exposure

**Incidence AF for the 25 carcinogenic agents (reference year: 2015)**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Central-low</th>
<th>Central-core</th>
<th>Central-high</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF – Both genders</td>
<td>6%</td>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td>AF – Women</td>
<td>3%</td>
<td>5%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Cost of occupational cancers in the EU-28

- Total cost of occupational cancer registrations between €270 and €610 billion each year
- 1.8%-4.1% of EU GDP

Which costs have been monetised?
- **Direct costs**: e.g. healthcare, transport, etc.
- **Indirect costs**: e.g. productivity losses due to absence from work or premature death, etc.
- **Intangible/human costs**: non-financial human losses, e.g. reduced quality of life, pain & suffering, etc.

Who bears the costs?
- **Workers and their families** (> 98 % of costs)
- Employers
- **Public health care system / social security**

EU OSH legislation

- **Aim:** establish an equal level of safety and health for the benefit of all EU workers

- **Scope:** all sectors of activity (private + public) but **not** military/police & domestic workers

- **Minimum requirements:** Member States are free to adopt stricter rules for the protection of workers when transposing EU Directives into national law (requirements can vary across MS)

- **Obligations for employers:**
  - evaluate all the risks to the safety and health of workers
  - take appropriate preventive measures to make work safer and healthier on the basis of general prevention principle
  - take the necessary measures for first aid, fire-fighting, etc.
  - keep a list of occupational accidents and report it to authorities
  - inform and consult workers and allow them to take part in discussions on all questions relating to safety and health at work
  - provide training to workers

- **Obligations for workers:** make correct use of production tools and PPE, inform, collaborate with employers
General principles of prevention in Dir 89/391/EEC

- avoiding risks
- evaluating the risks
- combating the risks at source
- adapting the work to the individual
- adapting to technical progress
- replacing the dangerous by the non- or the less dangerous
- developing a coherent overall prevention policy
- prioritizing collective protective measures (over individual protective measures)
- giving appropriate instructions to the workers
### 23 “daughter” directives under the OSH “Framework Dir”

<table>
<thead>
<tr>
<th>Hazard-specific OSH Directives</th>
<th>Dir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibration Directive</td>
<td>2002/44/EC</td>
</tr>
<tr>
<td>Noise Directive</td>
<td>2003/10/EC</td>
</tr>
<tr>
<td>Electromagnetic Fields Directive</td>
<td>2004/40/EC</td>
</tr>
<tr>
<td>Artificial Optical Radiation Directive</td>
<td>2006/25/EC</td>
</tr>
<tr>
<td>Explosive Atmosphere –ATEX Directive</td>
<td>1999/92/EC</td>
</tr>
<tr>
<td>Carcinogens &amp; Mutagens Directive</td>
<td>2004/37/EC</td>
</tr>
<tr>
<td>Chemical Agents Directive</td>
<td>98/24/EC</td>
</tr>
<tr>
<td>Asbestos Directive</td>
<td>2009/148/EC</td>
</tr>
<tr>
<td>Biological Agents Directive</td>
<td>2000/54/EC</td>
</tr>
<tr>
<td>Manual Handling Directive</td>
<td>90/269/EEC</td>
</tr>
<tr>
<td>Display Screen Equipment</td>
<td>90/270/EEC</td>
</tr>
</tbody>
</table>
### 23 “daughter” directives under the OSH “Framework Dir”

<table>
<thead>
<tr>
<th>Type-of-worker OSH Directives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary workers Directive</td>
<td>Dir 91/383/EEC</td>
</tr>
<tr>
<td>Pregnant/Breastfeeding workers Directive</td>
<td>Dir 92/85/EEC</td>
</tr>
<tr>
<td>Young People Directive</td>
<td>Dir 94/33/EC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector-specific OSH Directives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Directive</td>
<td>Dir 92/57/EEC</td>
</tr>
<tr>
<td>Mine and Quiries Directive</td>
<td>Dir 92/57/EEC</td>
</tr>
<tr>
<td>Drilling Directive</td>
<td>Dir 92/91/EEC</td>
</tr>
<tr>
<td>Medical Treatment on Board Vessels Directive</td>
<td>Dir 92/29/EEC</td>
</tr>
<tr>
<td>Fishing Vessels Directive</td>
<td>Dir 93/103/EC</td>
</tr>
</tbody>
</table>
23 “daughter” directives under the OSH “Framework Dir”

<table>
<thead>
<tr>
<th>General OSH Directives</th>
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</thead>
<tbody>
<tr>
<td>Workplace Directive</td>
<td>Dir 89/654/EEC</td>
</tr>
<tr>
<td>Work Equipment Directive</td>
<td>Dir 2009/104/EC</td>
</tr>
<tr>
<td>Use of Personal Protective Equipment (PPE)</td>
<td>Dir 89/656/EEC</td>
</tr>
<tr>
<td>OSH Signs Directive</td>
<td>Dir 92/58/EEC</td>
</tr>
</tbody>
</table>

**Remark**: no specific EU OSH Directive on MSDs or PSRs!
Chemical Agents Directive (98/24/EC)

- **Aim:** protection of workers from risks related to chemicals at work
- **Scope:** all chemicals used at the workplace (regardless of volume)
- **Obligations for employers:**
  - Determine whether any hazardous chemical agents are present in the workplace
  - Assess any risk to the H&S of workers arising from their use
  - If risks do exist, mandatory hierarchy of prevention and protection measures (substitution > exposure reduction > protective equipmt)
  - Monitor the workers‘ health
  - Comply with existing Occupational Exposure Limit Values (OELVs); up to now ~ 150 substances with indicative OELVs at EU level
  - Keep risk reduction measures up to date
  - Provide information and training to workers

- adopted in 1990 as one of the first individual directives under the 1989 OSH “Framework Directive”. CMD was since updated and extended to become 2004/37/EC = consolidated version

- aim: protection of workers from risks related to carcinogens and mutagens at work

- scope: all carcinogens and mutagens (category 1A or 1B)

- obligations for employers:
  - Eliminate/Replace with a substance which is not or less dangerous (mandatory if the alternative is available & regardless of cost)
  - If substitution is not technically feasible, use a closed system
  - Reduce workers' level of exposure as low as is technically possible
  - Training and information of workers
  - Collecting systematic data on exposure

- **Annex I** includes the list of identified “Process Generated Substances” and clarifies the scope. Today only for 5 PGSs (i.e. work involving exposure to hardwood dust)

- **Annex II** includes practical recommendation for the health surveillance of workers (non-binding measures !)

- **Annex III** includes Binding Occupational Exposure Limit Values (BOELVs). Only 3 carcinogens in 25 years (1990-2016):
  - Benzene
  - Vinyl Chloride Monomer
  - Hardwood dust
EU Chemicals legislations
(marketing and use)
For all substances (& mixture) marketed in the EU
- Criteria for C&L laid down in CLP Regulation (Reg No 1272/2008) to implement Globally Harmonised System.
- Industry to self-classify all substances or mixtures placed on market;
- Some substances with EU harmonised classification (Annex VI of CLP Regulation – CMR substances and sensitisers)
- ECHA to maintain an C&L inventory publicly available
The objectives & principles of REACH- Reg No 1907/2006

- ensure a high level of protection for human health (workers + consumers) and the environment from the risks that can be posed by chemicals (→ close the data gap)
- enhance the competitiveness of the EU chemicals

- burden on proof shifted on industry
- no data no market
- progressive substitution of SVHCs with safer alternatives
- precautionary principle
**REACH regulation (EU 1907/2006)**

- **Registration**: Manufacturers and importers of chemicals > 1 tpa are required to register their substances to demonstrate they can be used safely.

- **Evaluation of some substances** by Member States / European Chemicals Agency.

- **Authorisation only** for substances of very high concern.

- **Restrictions** when risks are unacceptable.
Timeline for REACH registration

- Existing phase-in substances
  - Pre-registration for existing (phase-in) starts
  - Pre-registration ends

- New "non phase-in" substances registration: No Registration? No Sell!
  - Immediate Registration for existing "Phase-in" substances which have not been pre-registered

- PHASE 1 Registration
  - CMRs - Carcinogens, Mutagens or Reproductive toxicants (≥1 tonne/year)
  - Very toxic to aquatic organisms (R50/53) (≥100 tonnes/year)
  - ≥1000 tonnes/year

- PHASE 2 Registration
  - 100-1000 tonnes/year

- PHASE 3 Registration (before deadline: 31 May 2018)
  - 1-100 tonnes/year

~ 21,500 unique substances registered by May 2018
What is REACH registration information used for?

**Regulatory Decisions**
- Authorisation
- Restriction
- Harmonised classification

**Information to users of Chemicals**
- Safety data sheets and exposure scenarios
- Uses that are advised against
- Advice to consumers
- Dissemination advice on ECHA website
REACH authorisation: main aim is substitution of SVHC

Substances of very high concern:
PBTs, vPvBs, CMRs (1&2), equivalent concerns

Candidate List
Information obligations for suppliers

In Sept 2018: 191 substances

Authorisation List (Annex XIV)
Substance can no more be used without authorisation

In Sept 2018: 43 substances

MS or COM Annex XV dossier

Prioritisation

Authorisation’ applications by industry

http://www.echa.europa.eu/web/guest/candidate-list-table
Granting authorisations – The 2 routes

Application (substance & use specific)

- risks adequately controlled
  - NO
  - YES
    - Adequate control
    - Socio-economic route
      - no alternatives
      - AND
      - YES
      - Authorisation granted
      - NO
        - Authorisation NOT granted
### Examples of SVHC & authorisations granted by COM

<table>
<thead>
<tr>
<th>SVHC (use)</th>
<th>Classification</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEHP (plastisizer)</td>
<td>Repr 1B</td>
<td>Socio-economic</td>
</tr>
<tr>
<td>DBP (plasticizer)</td>
<td>Repr 1B</td>
<td>Socio-economic</td>
</tr>
<tr>
<td>Diarsenic trioxide (metal plating)</td>
<td>Carc 1A</td>
<td>Socio-economic</td>
</tr>
<tr>
<td>Lead (sulfo)chromate (road marking paint)</td>
<td>Carc 1A &amp; Repr 1B</td>
<td>Socio-economic</td>
</tr>
<tr>
<td>HBCDD (flame retardant)</td>
<td>PBT</td>
<td>Socio-economic</td>
</tr>
<tr>
<td>Trichloroethylene (solvent)</td>
<td>Carc 1B</td>
<td>Socio-economic</td>
</tr>
</tbody>
</table>
Marketing/Use of Chemicals

- CLP
- REACH

High level of protection for human health & env + competitiveness

Protection of workers exposed to Chemicals

- Chemical Agents Directive
- Carcinogens & Mutagens Directive

Risk assessment & Substitution

REACH, Art 4 (2) : This Regulation shall apply without prejudice to Dir 89/391, Dir 98/24, Dir 2004/37, [....]
Chromium VI

- Main uses: chrome plating but also present in welding fumes
- Carcinogenic to humans
- CMD: binding OEL
- REACH authorisations:
  Only those companies who were granted authorisation can keep using CrVI for plating
  Only uses applied for are permitted
Bisphenol-A (BPA)

- Main uses: epoxy resins, polycarbonates, thermal paper
- Toxic for reproduction and endocrine disruptor for humans (risk for the unborn children of female workers)
- CAD: indicative OEL
- REACH restriction: BPA shall not be placed on the market in thermal paper in a concentration equal to or greater than 0.02 % by weight after 2 January 2020.
Endocrine disruptors: a gap in the EU legislation

Marie-Anne Mengeot, journalist
with Tony Musu and Laurent Vogel, ETUI
Effects of endocrine disruptors on humans

- Non monotonic dose response curve/ low dose effects
- Adverse effects possible on the next generation
- Window of vulnerability (ex: pregnancy)
Occidental exposure to endocrine disruptors

- Dioxins
- Bisphenol A
- Solvents
- Phtalates
The revision of the Carcinogens Directive

- Adopted in 1990
- (Modestly) amended in 1997 and 1999
- Revision was considered as a priority by 2002
- It was completely paralysed by the « better regulation » offensive
- By 2016, the Commission was obliged to adopt a first proposal for the revision of the directive during the Dutch presidency
- The proposal was minimalist
- It was improved by the agreement between European Parliament and Council and adopted in December 2017
Binding OELs are one of the essential tools for minimizing the exposure levels.

The ETUC calls on the EU to urgently update the Carcinogens and mutagens directive and adopt binding OELs for at least 50 priority carcinogens.
Since the adoption of the CMD in 1990 only 14 (3 +11) carcinogens with Binding Occupational Exposure Limits (BOELs)

Commissioner Thyssen commitment: 50 carcinogens in total with BOELs in CMD Annex III by 2020
Co-legislators have the possibility to amend COM proposal

Ordinary Legislative Procedure is now the new name of Codecision
<table>
<thead>
<tr>
<th>Chemical agents</th>
<th>Proposed OELs</th>
<th>Relevant sectors</th>
<th>Types of cancer caused/other illnesses</th>
<th>No. of exposed workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2- Epoxyp propane</td>
<td>2.4 mg/m³</td>
<td>Chemical manufacture; synthetic lubricants, oil field drilling chemicals; polyurethane systems.</td>
<td>Lymphopoietic cancer, haematopoietic cancer, increased leukaemia risk</td>
<td>485-1,500</td>
</tr>
<tr>
<td>1,3-Butadiene</td>
<td>2.2 mg/m³</td>
<td>Manufacture of refined petroleum products, manufacture of rubber products</td>
<td>Lymphohaemopoietic cancer</td>
<td>27,600</td>
</tr>
<tr>
<td>2-Nitropropane</td>
<td>18 mg/m³</td>
<td>Manufacture of basic chemicals, manufacture of aircraft and spacecraft (downstream use)</td>
<td>Liver tumours</td>
<td>51,400</td>
</tr>
<tr>
<td>Acrylamide</td>
<td>0.1 mg/m³</td>
<td>Manufacture of chemicals and chemical products, education, research and development, other business activities, health and social work, public administration and defence.</td>
<td>Pancreatic cancer</td>
<td>54,100</td>
</tr>
<tr>
<td>Bromoethylene</td>
<td>4.4 mg/m³</td>
<td>Chemicals and allied production; rubber and plastic production; leather and leather production; fabricated metal production for wholesale trade</td>
<td>Liver cancer</td>
<td>n/a</td>
</tr>
<tr>
<td>Chromium (VI) compounds</td>
<td>0.005 mg/m³</td>
<td>Production and use of chromium-containing pigments, paints and metal (conversion) coatings. In terms of downstream use, chromate compounds, including barium chromate, zinc chromate, and calcium chromate, may be used as basic primers and top coats in the aerospace sector.</td>
<td>Lung cancer and sinonasal cancer</td>
<td>916,000</td>
</tr>
<tr>
<td>Ethylene Oxide</td>
<td>1.8 mg/m³</td>
<td>Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction; Manufacture of food products, textiles, chemicals, chemical products, medical, precision and optical instruments, watches, clocks; Hospital and Industrial sterilization; R&amp;D; Public Administration and Defence; Education; Health and Social Work</td>
<td>Leukaemia</td>
<td>15,600</td>
</tr>
<tr>
<td>Hydrazine</td>
<td>0.013 mg/m³</td>
<td>Chemical blowing agents; agricultural pesticides; water treatment</td>
<td>Lung and colorectal cancer</td>
<td>2,124,000</td>
</tr>
<tr>
<td>o-Toluidine</td>
<td>0.5 mg/m³</td>
<td>Manufacture of chemicals, chemical products and man-made fibres; Manufacture of rubber products; Research and development; Public administration and defence; education; health and social work.</td>
<td>Bladder cancer</td>
<td>5,500</td>
</tr>
<tr>
<td>Respirable Crystalline Silica (RCS)</td>
<td>0.1 mg/m³ (to be reviewed)</td>
<td>Mining, glass manufacturing, construction and electricity, gas, steam and hot water supply industries.</td>
<td>Lung cancer, silicosis</td>
<td>5,300,000</td>
</tr>
<tr>
<td>Refractory Ceramic Fibres (RCF)</td>
<td>0.3 f/ml</td>
<td>Manufacturing (fibre production, finishing, installation, removal, assembly operations, mixing/forming)</td>
<td>Adverse respiratory effects, skin and eye irritation; possibly lung cancers</td>
<td>10,000</td>
</tr>
<tr>
<td>Vinyl Chloride Monomer (VCM)</td>
<td>2.6 mg/m³</td>
<td>Manufacture of chemicals and chemical products (VCM and PVC production)</td>
<td>Angiosarcoma, hepatocellular carcinomas</td>
<td>15,000</td>
</tr>
<tr>
<td>Hardwood dusts</td>
<td>2 mg/m³</td>
<td>Wood working industry, furniture manufacture sectors and construction.</td>
<td>Sinonasal and nasopharyngeal cancers</td>
<td>3,333,000</td>
</tr>
</tbody>
</table>

First batch adopted in December 2017 (Dir 2017/2398)
## COM proposal of 10 Jan 2017 (2017/0004 COD) = batch 2

<table>
<thead>
<tr>
<th>Chemical agents</th>
<th>Proposed OELs</th>
<th>Relevant sectors</th>
<th>Types of cancer caused/other illnesses</th>
<th>No. of exposed workers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4,4’-methyleneedianiline (MDA)</strong></td>
<td>0,08 mg/m³ (+ skin notation in Annex III)</td>
<td>Production of polyurethane foams</td>
<td>Liver and thyroid cancer in animal studies. Also: suspected of causing genetic defects, causes damages to organs,...</td>
<td>390,000 – 3,900,000</td>
</tr>
<tr>
<td><strong>Trichloroethylene (TCE)</strong></td>
<td>54,7 mg/m³ (+ skin notation in Annex III)</td>
<td>Degreasing and cleaning of metal parts Used in adhesives, Used as a solvent and for synthesis in the chemical industry.</td>
<td>Liver cancer, Kidney cancer. Also: suspected of causing genetic defects, causes serious eye irritation, causes skin irritation, ...</td>
<td>74,000</td>
</tr>
<tr>
<td><strong>Epichlorohydrin (1-Chloro-2,3-epoxypropane)</strong></td>
<td>1,9 mg/m³ (+ skin notation in Annex III)</td>
<td>Chemical industry (production of resins) Paper production</td>
<td>Lung cancer. Also: toxic if inhaled, toxic in contact with skin, toxic if swallowed…</td>
<td>40,000</td>
</tr>
<tr>
<td><strong>Ethylene dibromide (EDB) (Dibromoethane)</strong></td>
<td>0,8 mg/m³ (+ skin notation in Annex III)</td>
<td>Chemical industry Preparation of dyes and pharmaceuticals</td>
<td>Caused tumours in animal studies. Also: toxic if swallowed, toxic in contact with skin, toxic if inhaled</td>
<td>7,600</td>
</tr>
<tr>
<td><strong>Ethylene dichloride (EDC) (1,2-Dichloroethane)</strong></td>
<td>8,2 mg/m³ (+ skin notation in Annex III)</td>
<td>Production of plastic and vinyl products Also used as a solvent and added to leaded gasoline to remove lead.</td>
<td>Caused tumours in animal studies. Also: harmful if swallowed, causes serious eye irritation, causes skin irritation…</td>
<td>&lt; 3,000</td>
</tr>
<tr>
<td><strong>Complex PAH mixtures with benzo[a]pyrene as an indicator</strong></td>
<td>None (skin notation in Annex III only)</td>
<td>Coal liquefaction, coal gasification, coke production and coke ovens, coal-tar distillation. Roofing and paving (involving coal-tar pitch) Wood impregnation and preservation. Aluminium production Carbon-electrode manufacture. Chimney sweeping</td>
<td>Tumours in animal studies. Also: may cause an allergic skin reaction, genetic defects, damage fertility &amp; the unborn child.</td>
<td>7,000,000</td>
</tr>
<tr>
<td><strong>Used engine oils</strong></td>
<td>None (entry in Annex I + skin notation in Annex III)</td>
<td>Used in automobile and motorcycle engines, diesel rail engines, marine engines, aeroengines, and in portable machinery including chain saws and lawn mowers</td>
<td>Skin cancer</td>
<td>1,000,000</td>
</tr>
</tbody>
</table>
Diesel Engine Exhaust Emissions (DEEE) added in batch 2?

- Diesel current hot topic at EU level (Diesel gate)
- DEEE are a complex mixture of substances in the gaseous and particulate phases generated from the combustion of diesel fuel in diesel engines
- IARC group 1 (carcinogenic to humans) and also
  - inflammatory lung effects
  - cardiovascular effects
- over 3.6 million workers exposed in the EU: mining, construction workers, woodworking, professional driving, agriculture, car repair shops, etc.
- Controversy about carcinogenicity of Old vs New Diesel engines
- DEEE might be included in the Carcinogens Directive with a occupational exposure limit value to protect exposed workers (230,000 deaths could be avoided over the coming 60 years)
<table>
<thead>
<tr>
<th>Chemical agents</th>
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<th>Relevant sectors</th>
<th>Types of cancer caused/other illnesses</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Cadmium and its inorganic compounds</td>
<td>0,001 mg/m³ (7 y transition at 0,004 mg/m³)</td>
<td>Cadmium production and refining, nickel-cadmium battery manufacture, cadmium pigment manufacture and formulation, cadmium alloy production, mechanical plating, zinc and copper smelting, mining of non-ferrous metal ores, etc...</td>
<td>Lung cancer, bladder cancer, kidney cancer and prostatic cancer, Proteinurea, osteoporosis and respiratory effects</td>
<td>2,900 – 300,000</td>
</tr>
<tr>
<td>Beryllium and inorganic beryllium compounds</td>
<td>0,0002 mg/m³ (5 y transition at 0,0006 mg/m³)</td>
<td>Foundries, glass sector, laboratories.</td>
<td>Lung cancer, Chronic beryllium disease, allergy or asthma symptoms, beryllium respiratory and skin sensitisation, cardiovascular, renal effects, etc.</td>
<td>14,000 - 74,000</td>
</tr>
<tr>
<td>Arsenic acid and its salts, as well as inorganic arsenic compounds</td>
<td>0,01 mg/m³ (2 years extra transposition for the copper smelting sector)</td>
<td>Copper and zinc production, glass, electronics and chemical sectors</td>
<td>Lung cancer, skin cancer, liver cancer, lung cancer, bladder cancer, kidney cancer, Peripheral neuropathy, cardiovascular effects and immunotoxicity, skin changes, etc</td>
<td>7,900 - 15,300</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0,37 mg/m³ (+ notation on dermal sensitisation)</td>
<td>Formaldehyde manufacturing, building and construction works, manufacturing of leather and fur, pulp, paper and paper products, textile and wood and wood products, autopsy rooms</td>
<td>Nasopharyngeal cancer, leukaemia tumor induction Sensory irritation, potential cancer precursor effects</td>
<td>990,000 – 2,200,000</td>
</tr>
<tr>
<td>4,4-Methylene-bis(2-chloroaniline) MOCA</td>
<td>0,01 mg/m³ (+ skin notation in Annex III)</td>
<td>Plastics sector</td>
<td>Lung cancer, bladder cancer</td>
<td>350</td>
</tr>
</tbody>
</table>
Scope of application of CMD need to be extended to reprotoxic substances

- Repprotoxic substances cause severe health impact
- From relatively invisible exposures (latency period, situations lived as private drama, the link with working conditions is rarely investigated by doctors)
- With no business case for companies (most of the costs are supported by victims and society)
- Consistency with all the other field of EU legislation: REACH, pesticides, cosmetics, biocides, etc… *Stop the double standard when workers health is at stake!* 
- Global approach is needed in workplace prevention against the most highly hazardous substances
Impact of including reprotoxic substances

- Health impact: reduce infertility, miscarriages, congenital malformations, childhood developmental disorders and ill health (including cancers)

- Equality impact: for chemical exposures – much more effective than the « pregnant workers » directive (where prevention starts only after the individual woman declaration that she is pregnant)

- 134 R 1A or 1B which are not classified as C or M 1A/1B. Among them many endocrine disruptors.

- Possibility to transform 11 existing Indicative OELs in Binding OELs in EU legislation
From reprotoxins to all substances of very high concern

- The same approach should apply to all substances of very high concern
  - Endocrine disruptors
  - Chemical sensitiser
  - Nanomaterials (NM)
  - ...
Plan the future developments of the Carcinogens Directive
Other fields of legislation (asbestos, non ionizing radiation, night work, ionizing radiation, long term effects of electromagnetic fields, etc…)
Improve the applicability of EU legislation
  - Enforcement
  - Transparency of BOELs
  - Methodology for measuring BOELs
  - Taking into account combined exposures
Dynamic synergy with market legislation
Combining legislative and non legislative tools
Conclusions

- cancer is the first cause of death at work
- occupational cancers (and the huge associated costs for society) can be avoided
- EU legislation: a major battleground for eliminating work related cancer and other occupational diseases (asbestos, non ionizing radiation, night work, ionizing radiation, long term effects of electromagnetic fields, etc…)
- No EU specific legislation on MSDs or PSRs
- Legislative gaps for endocrine disruptors and NM
- Empowerment of workers is key for OSH improvements
Coming activities

- Brussels, 4-5 December: ETUI Conference « Women, work and cancer »
- On going initiatives on specific dimensions
  - Skin cancers
  - Cytostatic substances in the health sector
  - Breast cancer (important project in France)
- ETUI HESAMAG n° 18: thematic issue on cancer at the workplace (4th quarter 2018)
- Book “Work & Cancer: understanding occupational cancers and taking action to eliminate them” (December 2018)

More information

- https://www.etui.org/Publications2/Guides/Preventing-work-cancers.-A-workplace-health-priority
- https://www.etui.org/Topics/Health-Safety-working-conditions/Occupational-cancers
- https://echa.europa.eu/
Thank you for your attention!

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www.etui.org

https://www.etui.org/Topics/Health-Safety-working-conditions