European Federation of Building and Woodworkers

EFBWW POLICY ON THE PROTECTION OF WORKERS EXPOSED TO DANGEROUS CHEMICALS AT WORKPLACES

"Cancer induced by working conditions kills over 100,000 people in the European Union each year. Cancer accounts for 53% of work-related deaths compared to just 2% for work-related accidents. Every one of these deaths can be prevented." [1]

INTRODUCTION

Stop cancer at work!

Workers in the construction and wood sectors are still being exposed to dangerous chemical substances in the workplace. Regulations and prevention are lagging behind.

Carcinogenic and mutagenic chemicals in particular are putting construction workers under strain. Workers are exposed to substances leading to occupational cancers, including crystalline silica dust, asbestos, wood dust, diesel engine exhaust emissions, and some types of welding fumes. Workers may also be exposed to other possible carcinogens like formaldehyde, chromium VI, and PCB. Nanomaterials like carbon nanotubes (CNT) show carcinogenic potential too.

The European Federation of Building and Woodworkers pays great attention to working conditions but also to the development of new products and processes and the prospects of the various industries we represent.

In this context, we are facing a growing dynamic of change and innovations, affecting various aspects of the work of millions of people, as well as customers and the environment. These aspects include new product characteristics, new skills and qualifications at work, possible reductions in the use of raw materials and new material processing methods, but also new hazards to workers, customers and the environment. Industrial use of products and chemicals plays an important role in these innovative processes. While innovation and progress do not conflict with worker protection, they should be based on the principles of replacement and precautionary measures, fostering sustainability and well-being. The classic example of the two-sided nature of this kind of evolution is asbestos fibres: it gave products completely new characteristics, allowed new applications and was used in thousands of products, yet ended up killing hundreds of thousands of people who were exposed to it in workplaces, in homes or just in the environment.

[1] Jukka Takala, President of ICOH-CIST and former director of the European Agency for Safety and Health at Work

The EFBWW's general aim is to promote more and better jobs, and to secure safe and sustainable processes that are guided by the precautionary principle. The EFBWW supports the introduction of the highest level of worker protection. To preserve health and workability, all workers should enjoy effective protection from risks from dangerous substances, including carcinogenic and mutagenic substances.

Eliminating occupational cancer should become a primary goal for EU policy in the field of occupational safety and health and should be streamlined in all related EU policy areas such as public health and environment.

This policy paper shall contribute to the necessary discussion about the revision of the relevant Directive, i.e. the Carcinogens and Mutagens Directive (2004/37/EC).

After providing some information about the EU Directive and the ongoing discussion process, this document discusses several substances of high concern, i.e.:

- asbestos
- creosotes
- crystalline silica
- dichloromethane in paint strippers
- diesel exhaust emissions
- formaldehyde
- man-made mineral fibres
- nanomaterials
- wood dust

EU REGULATION ON OHS

In the field of workplace safety and health, EU law is the key instrument for setting minimum requirements on occupational health and safety and specific hazards and their reduction/elimination. The concept and its outcome are largely welcomed by trade unions and employer organisations at European and national levels. The 1989 Framework Directive[2] defines the general principles for the prevention of occupational risks and the protection of the safety and health of workers in companies and serves as a background structure for specific European action.

The Carcinogens and Mutagens Directive aims to protect workers from the risks related to exposure to carcinogens or mutagens at work. This sixth "individual Directive", based on Article 16 of the Framework Directive and first adopted in 1990, is a minimum directive that allows Member States to set a more stringent level of protection. The Carcinogens Directive operates with Binding Occupational Exposure Limit Values (BOELVs).

This Directive has been revised three times, most recently in 2004 (Directive 2004/37/EC)[3]. To date, this Directive encompasses limit values for three substances only: benzene, vinyl chloride monomer and hardwood dust. However, a number of other substances also fall within the scope of the Carcinogens and Mutagens Directive as they have also been classified as carcinogens and/or mutagens (category 1A or 1B) according to the criteria established under the CLP (Classification, labeling and packaging of substances and mixtures) Regulation. After a promising start, activities came to a standstill. No further binding exposure limit values for other carcinogenic substances have been incorporated, nor has the Directive been enlarged to include substances that are toxic for reproduction.

The EFBWW wholeheartedly supports the principles set by the European Framework Directive and the Carcinogens and Mutagens Directive:

- carcinogenic substances or suspected carcinogens, in particular, need to be eradicated from the work environment (the substitution/replacement principle);
- only substances proven to be harmless should be permitted;

[2] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31989L0391
[3] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:229:0023:0034:EN:PDF

- if substances cannot be replaced, they should be processed in closed systems, remaining emissions should be reduced as much as (technically) possible;
- Binding Occupational Exposure Limit Values should be set.

With regard to prevention measures, the EFBWW advocates the highest level of protection offered by legislation, as well as complementary sectoral prevention activities in the form of good practices and prevention measures offered by social partners.

THE REVISION OF THE CARCINOGENS AND MUTAGENS DIRECTIVE

In all sectors represented by the EFBWW, chemical substances are being used in the workplace to a large extent and with increasing frequency. In many cases, workers are subjected to multiple exposures to chemicals, the combined effect of which has an impact on their health. Without corresponding prevention policies, a health time bomb is ticking away.

In 2014, the International Journal of Cancer published a study[4] which found that 20% of all masons are exposed to silica, 6% to diesel fumes and 5% to asbestos. All three of these substances are carcinogens. In this context, the EFBWW and many other stakeholders are still calling for more substances to be included in the Carcinogens and Mutagens Directive and have proposed specific limit values for various substances. Consequently, the European Commission launched an initial consultation for a further revision in 2004 and a second consultation phase in 2007. Nothing has happened since then and everything was blocked by the European Commission's REFIT agenda, but the process has now been reopened.

However, despite the EU's excellent legislative framework in the field of occupational safety and health and scientific evidence showing that many workplace carcinogens are still in use, only workplace limit values for three substances are covered in the Directive, which is truly scandalous – all the more so since all or most EU Member States have already set BOELVs for many substances. It is clear that the Carcinogens and Mutagens Directive is failing because it is not up to date.

The European Federation of Building and Wood Workers:

- calls on the European legislator to present a revised Carcinogens and Mutagens Directive as soon as possible, including BOELVs for the most common dangerous substances;
- supports the European Trade Union Confederation's list of carcinogens that should be covered by Directive 2004/37 and stresses the need to include more than 50 substances in the Directive[5];
- urges, in particular, that increased levels of protection are set for the following substances, which are common in the construction and wood sectors:
  - asbestos
  - creosotes
  - crystalline silica
  - dichloromethane in paint strippers
  - diesel engine exhaust emissions
  - formaldehyde
  - man-made mineral fibres (old fibres, i.e. non-soluble fibres);
  - nanoparticles
  - wood dust
- encourages policymakers at all levels to advance the revision process and work on the issue with stakeholders;
- invites European institutions and other interested parties to discuss with us the required changes to the current Directive and support an improved version.

[4] Quoted from: https://www.etui.org/fr/Themes/Sante-et-securite/Actualites/Risque-eleve-de-cancer-du-poumon-chez-les-macons

[5] See https://www.etui.org/Publications2/Reports/Carcinogens-that-should-be-subject-to-binding-limits-on-workers-exposure

ASBESTOS

Despite the ban on its production and use in the EU, asbestos continues to pose a significant health threat to this day. This is particularly true for workers in the construction sector. Asbestos is present in millions of buildings (mainly built between 1950 and 1990) and in infrastructure. With an estimated 47,000 annual asbestos-related deaths in Europe alone, the substance takes a greater toll on human life than traffic-related deaths (25,000-30,000 a year).

Identifying asbestos-containing products can be a tricky business. Sometimes they are easily detectable and located in plain sight, as in the case of asbestos-cement roofs. All too often, however, they remain hidden in virtually every part of a building or structure, such as its flooring, windows, insulation and heating and cooling systems. This puts workers conducting maintenance, renovation or demolition work at risk of exposure to asbestos fibres on a regular basis, yet they are often unaware of the dangers and in most countries lack the necessary awareness training and safety precautions.

Even though the amount of fibres inhaled on a given day might be small, the scientific community agrees that there are no safe exposure limits and, based on the accumulated exposure over a working career, the risk of falling ill with mesothelioma, lung cancer, asbestosis or another asbestos-related disease is very high. In light of these dangers, the construction sector will have to face the challenge of eradicating asbestos from the European building stock and protecting workers from its hazards during the course of their working career.

Considering the high number of cases of asbestos-related cancer and existing unsafe working practices, European policymakers should help to minimise the risk by launching Europe-wide action for the safe removal of asbestos.

EFBWW position:

- *Directive 2009/148/EC on the protection of workers from the risks related to exposure to asbestos at work should be improved, in particular by establishing a clear distinction between workers who work with asbestos in a professional capacity and those in other occupations and by adding annexes regarding the minim qualifications of these two types of workers.*
- *The binding threshold value of 0.1 fibres per cm^3 as an 8-hour time-weighted average (TWA) (= 100,000 asbestos fibres per $m^{3)}$, as set in Directive 2009/148, should be lowered to 0.01 fibres per cm^3 as an 8-hour time-weighted average (TWA) (= 10,000 asbestos fibres per $m^{3)}$.*
- *The EFBWW calls for a total ban of asbestos in the EU. There need to be clearer restrictions on the remaining exemptions laid down in Annex 17 of the REACH Regulation, which allow Member States to put products that were produced before 2005 and have asbestos containing components on the market.*
- *We call on the European Commission to establish programmes with the combined aims of ensuring energy efficiency in buildings and safely removing asbestos.*
- *Europe-wide training programmes should be designed for workers who are not expected to work with asbestos but may nevertheless be exposed to the substance, such as repair workers, electricians, heating installers or workers in the recycling sector.*

CREOSOTES

Creosote or pitch oil is a coal tar distillation product that is an efficient but toxic wood preservation chemical. It is used for the industrial impregnation of items such as railway sleepers and poles. Creosote oil consists of hundreds of organic compounds, most of which are detrimental to the environment or human health.

The use of timber treated with creosote oil is restricted under an amendment to Annex XVII to the REACH Regulation (552/2009). According to the amendment, creosote-impregnated timber is only intended for professional users. Creosote-treated wood may only be used in overhead wire structures (electric power line and other poles) in permanent ground contact, railway sleepers or bridges and other corresponding load-bearing exterior structures. The use of creosote in the preservation of other timber (such as fence poles) is no longer permitted.

Creosote can cause skin, eye and respiratory irritation. It may also cause allergic skin reactions, particularly in sunlight. Long-term or high-level exposure may have carcinogenic or mutagenic effects. Creosote is classified as Carcinogen 1B, according to the harmonised classification under the EU CLP Regulation.

Exposure may take place when breathing in creosote oil fumes (e.g. when impregnating timber). Particular care must be taken when working with or otherwise handling creosote-impregnated wood.

Creosote is also covered by the EU Biocidal Product Regulation (BPR). It has been approved as an active biocide substance for wood preservation. However criteria have recently changed and now substances that fall under the so-called “exclusion criteria” (= namely CMR, PBT, vPvB, endocrine disruptors) can no longer be approved as an active substance under the BPR, unless:

- the risk from exposure is negligible in a realistic worst-case scenario
- it is essential to prevent or control a very dangerous situation, or
- not approving it would have disproportionate negative impacts on society when compared with the risks incurred from using it (e.g. job losses).

The EU is currently preparing a report concerning a possible re-authorisation of creosote as an active biocidal substance at EU level and will try to demonstrate that the third bullet point above applies to some production processes using creosotes.

EFBWW position:

- *Carcinogens used at work (such as creosote) must be phased out and replaced with safer alternatives*
- *Today, the replacement of creosotes is technically feasible in all applications*
- *We oppose any re-authorisation of the use of creosotes*

CRYSTALLINE SILICA

Respirable Crystalline Silica (RCS) is found in sand, gravel, clay, stone, and so on. Exposure to RCS occurs frequently on construction sites. The dust is generated by working with sand and earth and drilling, cutting, grinding or otherwise processing building materials such as concrete, mortar, lightweight concrete, bricks, cement roofing sheets, tiles and granite.

Currently, RCS is not covered by the EU Carcinogens Directive. For several years the Commission has been considering making proposals to include RCS in the Directive. Back in 2003, the EU Scientific Committee for Occupational Exposure Limits (SCOEL) published a report on RSC. The SCOEL recommends the following threshold values: *"It arises that an OEL should lie below 0.05 mg/m³ of respirable silica dust"*. [6]

In 1997, the International Agency for Research on Cancer (IARC) published a report (Monograph 100c)[7] on quartz. IARC classifies crystalline silica as carcinogenic to humans, concluding in its report that *"there is sufficient evidence in humans for the carcinogenicity of crystalline silica in the form of quartz or cristobalite. Crystalline silica in the form of quartz or cristobalite dust causes cancer of the lung. There is sufficient evidence in experimental animals for the carcinogenicity of quartz dust. There is limited evidence in experimental animals for the Carcinogenicity of tridymite dust and cristobalite dust."*[8]

In 2011, the Scottish Institute of Occupational Medicine (IOM) published a report on RCS-related health effects and policy options[9]. This IOM report estimates that approximately 5.3 million employees in the EU are exposed to RCS, and that about 4 million of these work in the construction industry. This means that construction accounts for 75% of occupational exposure to RCS. In the report, the IOM assesses technical options for setting a threshold value for RCS of 0.05, 0.1 or 0.2 mg/m^3.

IOM states in the report[10] that:
63% of exposed construction employees are exposed to more than 0.05 mg/m^3, 48% are exposed to more than 0.1 mg/m^3 and 32% are exposed to more than 0.2 mg/m^3. In 2010, there were approximately 6,870 deaths from lung cancer and 7,645 registered cases of lung cancer caused by exposure to RCS in the EU. It is estimated that the number of deaths in 2060 due to exposure to RCS will be 5,685.

- A threshold value of 0.05 mg/m^3 would reduce the number of expected deaths from lung cancer in 2060 to 337.
- A threshold value of 0.1 mg/m^3 would reduce the number of expected deaths from lung cancer in 2060 to 818.
- A threshold value of 0.2 mg/m^3 would reduce the number of expected deaths from lung cancer in 2060 to 1,721.

The report estimates that the greatest costs of compliance with a threshold value for RCS would be borne by the construction industry: €17 billion at a threshold value of 0.05 mg/m^3 with 485,000 construction companies affected.

EFBWW position:

- *The legislative framework should be improved at EU level.*
- *A binding occupational exposure limit value for crystalline silica (RCS) should be added to the Carcinogens and Mutagens Directive in order to minimise exposure levels.*
- *A binding exposure limit value for RCS should follow SCOEL's recommendation from 2003 (0.05 mg/m³).*

[6] SCOEL/SUM/94-final, November 2003, p. 8
[7] http://monographs.iarc.fr/ENG/Monographs/vol100C/index.php
[8] "Crystalline silica in the form of quartz or cristobalite dust is carcinogenic to humans (Group 1)."
[9] http://www.iom-world.org/pubs/iom_tm9508.pdf
[10] IOM, Health, socio-economic and environmental aspects of possible amendments to the EU Directive..., Respirable crystalline silica, 2011 (pp. 21-22)

DICHLOROMETHANE IN PAINT STRIPPERS

Paint strippers, or paint removers, are products designed to remove paint and other finishes and clean the underlying surface. They come in the form of a liquid or a gel. The molecules of their active ingredient penetrate the paint film, causing it to swell; this volume increase causes internal strains and weakens the layer's adhesion to the underlying surface, causing the layer of paint to break away from the surface.

Paint strippers consist of various organic compounds, many of which are detrimental to the environment or human health. The principal active ingredient in the historically most common solvent paint strippers is dichloromethane (DCM), also called methylene chloride, which can cause serious health risks (it can damage the central nervous system and is carcinogenic). IARC classifies dichloromethane as a Group 2a carcinogen.

The use of DCM containing paint strippers is restricted under the REACH Regulation (Annex 17).[11] However, Article 2 of the REACH Regulation sets out conditions for derogations that still allow the use of DCM-containing paint strippers for "certain activities" by "specifically trained professionals".

This concept is not appropriate for the construction and woodworking industry. In the many professions using paint stripping-products, the number of self-employed workers varies from country to country but is generally high. These workers have limited access to information on prevention, little access to training and cannot afford appropriate prevention systems. Additionally, paint stripping is a very common DIY activity and it is not possible to stop these users from using a product already available on the market.
Paint strippers are often used professionally in temporary workplaces, meaning that independent-air-supply Respiratory Protective Equipment (RPE) is not used in practice. Furthermore, Personal Protective Equipment (PPE) often does not fully protect workers. Protective gloves exist, but may not give adequate protection or may lose their ability to protect too quickly. Additionally, gloves only protect against skin exposure and not against inhalation.

Only independent-air-supply Respiratory Protective Equipment will guarantee safe working conditions, but these devices are expensive. As a result, employers tend not to invest in this PPE in most of the activities in our sectors in which DCM products are used.

Non-DCM paint strippers are readily available on the market, so there is no further argument against a general and total ban of the DCM paint stripper product family. A ban would also be in line with the general EU-OSH policy, focusing on the substitution of dangerous substances.

EFBWW position:

- *Only a comprehensive substitution of DCM-containing paint strippers is appropriate.*
- *In order to achieve a high level of health protection, all use of paint strippers containing DCM should be restricted and a general ban introduced at EU level*
- *DCM-containing paint strippers must be covered by the Carcinogens and Mutagens Directive (2004/37/EC)*
- *EU action should be taken to promote harmless substitutes for DCM-containing paint strippers.*
- *Specific action should be undertaken to target the area of DIY, especially DIY markets*
- *The European Commission and the EU legislators are invited to examine other potentially hazardous chemicals in paint strippers*

[11] http://echa.europa.eu/documents/10162/0ea58491-bb76-4a47-b1d2-36faa1e0f290

DIESEL EXHAUST EMISSIONS

So-called non-road mobile machinery covers a wide variety of combustion engines installed in machines ranging from small hand-held lawn trimmers, chainsaws or leaf-blowers to bigger construction machines and excavators or locomotives and inland waterway vessels. These engines are predominantly diesel or two-stroke engines. The main concern with these engines/machines is their emissions.

Diesel engine exhaust emissions are harmful to health. IARC has classified diesel engine exhaust emissions as carcinogenic to humans (Group 1).
According to the Commission, the non-road mobile machinery sector is responsible for around 15% of all nitrogen oxide emissions and 5% of all particulate matter emissions in the EU. In bigger cities, it most likely accounts for a much higher share of total fine dust emissions.

Directive 97/68 sets limit values for various classes of engines and is now undergoing revision due to technological developments and greater concerns about the effects of emissions on the environment. In 2014, the European Commission presented a draft for the Directive's revision and transformation into a Regulation (COM[2014]581 final)[12].

The proposed Regulation is a piece of environmental legislation, so even though the majority of the engines covered by the Regulation are installed in work equipment, it makes no reference to workplace safety. This might be logical in terms of the legislation's classification but in practice, it neglects the specific situation and perils faced by millions of workers.

In addition to technical emission regulations, the significance of fuels and lubricants should also be considered. The use of benzene-free petrol, also called alkylate-based petrol or environmentally-friendly petrol, should be taken into account in the Regulation as it enables carcinogenic benzene to be completely avoided and nitrogen oxides can be reduced in (hand-held) engines.

The EFBWW opposes the removal of agricultural and forestry vehicles from the scope of this Regulation. As such, the new Regulation will not sufficiently protect workers against the exposure of emissions from the various types of engine.

EFBWW position:

- *The legislative framework should be improved at EU level by adding a binding occupational exposure limit value for diesel engine exhaust in order to minimise exposure levels.*
- *The European Commission in particular is asked to conduct research into how many workers (working directly with and close to the engines) are exposed to emissions from NRMM equipment and to what extent.*
- *With reference to scientific studies, lubricants for engines should also be examined in detail with respect to the particles they contain.*
- *The use of benzene-free petrol, also called alkylate-based petrol or "environmentally friendly petrol", should become mandatory as it enables carcinogenic benzene to be completely avoided and nitrogen oxides can be reduced in (hand-held) engines.*
- *With regard to carbon monoxide (CO), the limit values in the NRSh (hand-held engines) and engines of NRS categories (610 to 805 g/kWh) must be checked in particular. Since workers (such as those involved in forestry and plant-cutting) are exposed to the immediate exhaust plume of hand-held engines, the state of technology should be carefully determined.*
- *The Commission is requested to specify whether the topic is to be covered in an existing directive (for example the work Equipment Directive or Chemical Agents Directive) or whether a separate directive is needed.*

[12] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2014:0581:FIN

FORMALDEHYDE

On the basis of various studies, the International Agency for Research on Cancer (IARC) in Lyon classified the chemical formaldehyde in group I for human carcinogens[13]. Furthermore, formaldehyde also has other serious health effects, including burning sensations in the eyes, nose and throat, wheezing, nausea and skin irritation.

The European Commission's Scientific Committee on Occupational Exposure Limits (SCOEL) proposed an indicative occupational limit value of 0.3 ppm for formaldehyde. Following this, the Advisory Committee on Safety and Health at Work (ACSHW) in Luxembourg also decided to recommend this limit value to the Commission.

These moves occurred against the backdrop of a consensus in the scientific community concerning the carcinogenic effects and a catalogue of health risks associated with formaldehyde (e.g. allergies, disorders or irritation of the skin and airways, burns, toxicity if swallowed). It has not yet been scientifically proven whether a limit value can be set which, if complied with, would guarantee the safety of workers and, if so, what level it should be set at. The matter is still under investigation.

The EFBWW warmly welcomes the discussions taking place on a substance which is used in the workplace and constitutes a health hazard for workers. Formaldehyde affects workers in sectors represented by the EFBWW. In the wood panel industry in particular, formaldehyde is widely used in the production process and is becoming an integral part of most types of panel.

Moreover, consumers should be protected as well as workers.

However, the EFBWW firmly believes that legislation can encourage firms to apply reduction measures that are technically feasible. Together with the European Panel Federation and the European Confederation of Woodworking Industries, the EFBWW has devised a project to define technical solutions for some of the panel-production work processes where workers suffer the most exposure. The results of this project clearly show that feasible technical solutions exist.

Even though it is not easy to substitute formaldehyde, various options have been used successfully, especially in the wood panel industry, which is one of Europe's biggest users of formaldehyde.

EFBWW position:

- *The legislative framework should be improved at EU level by adding a binding occupational exposure limit value for formaldehyde to the Carcinogens and Mutagens Directive to minimise exposure levels.*
- *To prevent all possible adverse health effects resulting from exposure to formaldehyde, the EFBWW calls upon the European Commission to set a binding limit value of 0.2 ppm.*
- *Accompanying research for formaldehyde substitutes should be supported by the European Research Programme Horizon 2020.*
- *Companies may receive support by the Member States when implementing the new limit value.*

[13] Monographs on the evaluation of the carcinogenic risk of chemicals to humans. Silica, some silicates, coal dust and para-aramid fibrils, vol. 68, Lyon, International Agency for Research on Cancer, 1997

MINERAL FIBRES FOR INSULATION (MINERAL WOOL)

There are several different types of machine-made (synthetic) inorganic fibrous materials in use in workplaces (formerly referred to as Man-Made Mineral Fibres).

Mineral wools (glass wool, rock wool) are used in the thermal and acoustic insulation of buildings and structural fire protection.

Mineral fibres are often referred to as insulation wool or simply mineral wool. Mineral fibres for insulation are silica-based and contain various amounts of other inorganic oxides.

Historically, mineral wool has been associated with health effects including reduced lung function, chronic bronchitis, skin irritation and cancer.

The fibres are defined by specific geometric parameters (length, diameter and ratio between them) and their biopersistence. These parameters also define their hazard potential and potency. The chemical composition may have an impact on the possible health effects too. When the toxicological effects of mineral wool are assessed, the fibres are classified as biopersistent or biosoluble. Fibres classified as biosoluble are judged to be non-carcinogenic, whereas biopersistent mineral fibres are considered carcinogenic. Against this backdrop, SCOEL is currently revising its position on mineral fibres.

Old and new fibres

Generally speaking, mineral fibres for insulation may be divided into two categories:

- Mineral fibres for insulation made of fibres with biopersistent properties. These are often described as "old" fibres. In the EU, they were produced until around 2000 (year indicative). "Old" carcinogenic fibre material is still present in millions of older buildings, meaning that residents and workers carrying out maintenance, renovation, demolition or similar activities are potentially exposed to these types of fibre.
- Mineral fibres for insulation made of fibres with biosoluble properties (with no indication of carcinogenicity; covered by the nota Q[14] in the regulation). These are often described as "new" fibres. In the EU, they have been produced since 1995 (year indicative).

Additionally, the fibre dimensions are of crucial importance for determining fibres' biopersistence and toxic/carcinogenic potential.

For regulatory purposes, particles are counted as fibres when they have the following dimensional characteristics: length L > 5 µm, diameter D < 3 µm and an aspect ratio L:D> 3:1, meeting the WHO's fibre definition criteria. They correspond to the respirable fraction of fibrous dust that can enter a human's alveolar region (D< 3 µm).[15]

Fibres longer than 5 µm, shorter than 100 to 200 µm of a diameter less than 3 µm with a length/diameter ratio of at least 3:1 are considered respirable.[16]

IARC

In 2002 IARC classified insulation glass wool and rock wool as *not classifiable as to their carcinogenicity to humans (Group 3)*, but special-purpose glass fibres such as E-glass and '475' glass fibres are *possibly carcinogenic to humans (Group 2B)*. Fibres designed to be less biopersistent were not part of the assessment.[17].

[14] If nota Q criterion is met, the fibre is considered to not be carcinogenic.
[15] SCOEL/SUM/88, March 2012, p. 4
[16] SCOEL/SUM/88, March 2012, p. 11
[17] IARC Monograph 81:339, 2002

Classification of mineral wool in the CLP Regulation[18]

650-016-00-2	Mineral wool, with the exception of those specified elsewhere in this Annex; [Man-made vitreous (silicate) fibres with random orientation with alkaline oxide and alkali earth oxide ($Na_2O+K_2O+CaO+MgO+BaO$) content greater than 18 % by weight]	—	—	Carc. 2	H351	GHS08 Wng	H351			AQR

- In the CLP Regulation mineral wool is classified as a 'suspected human carcinogen' (Carc. 2). Due to exemptions in the regulation, related to the fibres' biopersistence (biosoluble) properties, not all mineral fibres are considered carcinogenic.
- The far-right column above refers to various notes (A, Q, R) in the CLP Regulation. Note Q outlines criteria in relation to biopersistence that determine whether or not classification for carcinogenicity should be applied.

Questions still remain regarding the scientific derivation and justification of the chemical composition definition in note Q.[19]

The classification of MMMF is still a matter of concern, as documented in a paper by the ECHA-related Risk Assessment Committee (RAC)[20]. In 2014, RAC adopted an opinion on the proposal for harmonised classification and labelling (CLH) of "glass microfibres of representative composition".[21]
It recognised that glass microfibres which have the relevant dimensions and which are bio-persistent should be considered *de facto* carcinogenic (p 10). RAC was also of the opinion that glass microfibres of representative composition should not be marked with note Q. Indeed, according to RAC, the experimental evidence shows biopersistence and excessive carcinogenicity which does not allow an exemption from classification as a carcinogen (p 12).

EFBWW position:

- *The legislative framework must be improved at EU level by adding a binding occupational exposure limit value to the Carcinogens and Mutagens Directive for those mineral fibres in mineral wool for insulation that are classified as carcinogenic according to the CLP regulation.*
- *For mineral fibres not classified as carcinogenic, an indicative occupational limit value should be defined in the Chemical Agents Directive (98/24).*
- *The EFBWW suggests that the classification of mineral fibres for insulation is studied again.*
- *An assessment should be carried out on whether biosoluble fibres are damaging the cells or not. The health impact of the chemical composition of fibres should be studied too, especially in the case of biosoluble fibres.*
- *A European study should be conducted regarding the use of mineral wool classified as carcinogenic, and an assessment should be made regarding the traceability of mineral wool with carcinogenic potential.*
- *The Scientific Committee on Occupational Exposure Limits (SCOEL) should evaluate and table a recommendation on exposure limits for mineral wool.*

[18] Commission Regulation (EC) No 790/2009 of 10 August 2009 amending CLP, see http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32009R0790
Consolidated version of CLP [search for 650-016-00-2]: http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A02008R1272-20150601

[19] Acccording to: Paul Harrison et al, Regulatory risk assessment approaches for synthetic mineral fibres, 2015, p 430

[20] The Committee for Risk Assessment (RAC) prepares the ECHA's opinions on the risks of substances to human health and the environment in various REACH and CLP processes. The final decisions are taken by the European Commission.

[21] http://echa.europa.eu/documents/10162/9e2e8779-4f7e-44d4-90af-11a6b072685f

NANOPARTICLES

More and more nanomaterials are being introduced into new products in the construction, woodworking and forestry industries[22]. The nanomaterial sector is a fast-growing economic activity in Europe and considered to be a key enabling technology by Horizon 2020, the EU Framework Programme for Research and Innovation.

Exposure to nanoparticles in the workplace usually takes the form of fractions, i.e. background exposure (from outside the workplace); exposure to nanoparticles emitted from nanomaterial itself and/or from powders containing nanoparticles, or to nanoparticles generated by machinery.

When inhaled, inert insoluble particles are potentially more hazardous when they are nanosized than when they are larger. There is a serious lack of knowledge about the toxicity (properties hazardous to health) of nanomaterials/nanoproducts, especially the chronic toxicity. Animal testing suggests that inhaling various nanoparticles may be linked to an increased risk of diseases such as lung disease, cardiovascular disease and maybe cancer.

Often, both employers and workers lack sufficient information on the prevalence of nanomaterials in the workplace. As such, it is in both of their interests to receive reliable information from suppliers of nanomaterials. Nevertheless, it is the responsibility of individual employers to protect their workers not only against identified risks but also against newly emerging risks. Therefore, lack of knowledge about the hazardous properties of nanoparticles is not a legitimate reason for not acting and waiting until risks are proven; on the contrary, insufficient knowledge is a reason for acting out of precaution.

EFBWW position:

- *EU legislation should be made "nanoproof" by clarifying the incorporating of all possible risks associated with nanomaterials into the Chemical Agents Directive and the Directive on Carcinogens and Mutagens at Work so that they fully address all risks related to nanoparticles.*
- *Occupational exposure limit values for nanomaterials should be added to the Carcinogens and Mutagens Directive and Chemical Agents Directive to minimise exposure levels. As a first step, exposure limit values for nano carbon black, nano titanium dioxide and carbon nanotubes (CNT) should be introduced.*
- *Nanomaterials should be fully integrated into REACH by amending the annexes in such a way that registrants provide adequate information on nanomaterials to the European Chemicals Agency (ECHA) and along the supply chain.*
- *A nanomaterial register should be introduced at EU level to establish solid traceability and knowledge of nanomaterials in the European market, linking the specific nanoparticles to the products in which they are included.*
- *Nanomaterials should be included in the DG Employment's policy framework on OHS to safeguard the protection of workers at risk of exposure to nanomaterials at work and support awareness-raising activities concerning chemical risk assessments in workplaces and adequate training for safety officers.*
- *Additional guidance should be developed on how the precautionary principle can improve nano-safety, in particular in terms of avoiding exposure where hazard data are lacking or safety data sheets are inadequate.*
- *Further research is needed on the professional use of nanomaterials and worker exposure, as are epidemiologic studies on health effects; extensive research programmes should be set up in the field of nanomaterials at work, including research into nanomaterial regulation as part of REACH and the OHS Directives.*

[22] European Social dialogue project 2009 on nano in construction: http://www.efbww.org/pdfs/Nano%20-%20final%20report%20ok.pdf and European Social dialogue project 2012 on nano in furniture: http://www.efbww.org/pdfs/Nano.pdf

WOOD DUST

The exposure of workers in the woodworking industry to wood dust results in various health risks for the workers. Wood dust can be toxic and cause irritation and sensitivity, various diseases of the respiratory passages, cell changes in the inner nasal area and cancer. Wood dust is carcinogenic to humans (Group 1). As things currently stand, no type of wood dust can definitively be proven to be non-carcinogenic.

Taking into account the various health risks, and in particular carcinogenicity, the EFBWW is pursuing a comprehensive prevention policy concerning exposure to wood dust. First and foremost, this means a substantial reduction in exposure in the workplace (wood cannot be substituted). At European level, prevention must also be promoted via the exchange of good practices and the dissemination of state-of-the-art dust reduction technology. Prevention also means that workers and companies must be able to rely on general provisions for a basis on which to proceed. Prevention calls for a specific legal framework.

The inclusion of hardwood dusts in the Directive on Carcinogens and Mutagens at Work, achieved in 1999, was a significant milestone for occupational health and safety at European level. The established limit value of 5 mg/m³ is much too high and only covers hardwood dust, which is unrealistic since most workshops use more than one type of wood, including both hardwood and softwood.

Furthermore, in its Report No. 30[23] the International Agency for Research on Cancer in Lyon confirmed the statement made previously in its 1994 study (Monograph Volume 62) that carcinogenic effects cannot be ruled out in the case of softwoods.

The presentation of a draft recommendation by the Scientific Committee on Occupational Exposure Limits[24] encouraged the debate on a revision. One noteworthy aspect is that SCOEL has adopted an overall approach, i.e. it has not focused exclusively on carcinogenicity but also provides an overview of other health risks resulting from wood dust. This also opens up new considerations for a comprehensive prevention policy. It is also interesting, in this connection, that SCOEL considers that exposure of under 1 mg/m³ carries health risks.

SCOEL's recommendation expressly states that adverse effects on health are already manifested at exposure levels of between 0.5 and 1 mg/m³ inhalable dust. It references reports on disorders of the upper and lower respiratory passages, asthma and impairment of lung function.

In this connection, we have sufficient proof that it is feasible to reach an emission value of 1 mg or lower for practically all wood-related occupations by using up-to-date technology.

EFBWW position:

- *The legislative framework should be improved at EU level.*
- *All type of wood dusts must be covered by the Carcinogens and Mutagens Directive.*
- *The Carcinogens and Mutagens Directive must establish a wood-dust limit value that properly takes into account all the health risks.*
- *Since SCOEL considers that exposure below 1 mg/m³ carries health risks, the EFBWW opts for a wood-dust limit value of 1 mg/m3 inhalable dust as a current target, with 0.5 mg/m3 as the long-term target.*

[23] IARC Technical Report No. 30 – Lyon, 1998

[24] SCOEL -- SCOEL/SUM/102 final

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