

PEROSH news and activities

DUSTINANO: A PEROSH Initiative Towards a Harmonized Approach for Evaluating the Dustiness of Nanopowders

The PEROSH group on nanodustiness presented a poster at the fifth International Symposium on Nanotechnology, Occupational and Environmental Health (NanOEH) in Boston.

The aim of the project is to

- Develop a harmonized approach for evaluating dustiness for nanopowders taking into account the different existing concepts and test apparatus.
- Assess the comparability between institutes and the repeatability within one's institute for a given test apparatus using the developed approach.
- Evaluate how similar is the dustiness ranking of a selection of nanopowders using the different test apparatus.

The group presented the first data generated by the four dustiness methods. The measurement strategy adopted is primarily based on the real-time measurement of the number size distribution and on the integrated sampling for respirable mass fraction.

Further information on the nanodustiness project:

www.perosh.eu/p/7V5GSA

Systematic reviews on OSH

The Clearinghouse group presented a poster at the 32nd International Congress for Safety and Health A+A 2011 in Düsseldorf, Germany from 18 to 21 October 2011.

The Clearinghouse of Systematic Reviews, a joint project of 7 PEROSH institutes, aims to make high quality reviews available that have been conducted in the field of OSH. The Clearinghouse developed a standard method for searching and selecting systematic reviews based on current research results for literature search, experience and practical application of

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the members of the Clearinghouse. A quality assessment for critical appraisal of the reviews was developed by adapting the established SIGN Checklist for systematic reviews and meta-analyses for OSH. In 2010 the Clearinghouse published a standard method guide for searching and evaluating systematic reviews in OSH. The first lists of high-quality reviews on OSH-topics are presented in a systematic way on the PEROSH platform in the internet.

Recently, new reviews on work-related psychosocial factors and musculoskeletal disorders have been uploaded on the Clearinghouse database.

Further information and contact:
<http://www.perosh.eu/clearinghouse>

Events

21 – 22 November 2011: PEROSH Steering committee and project leaders meeting

The next meeting of the PEROSH Steering Committee and project coordinators will be held on 21st and 22nd November 2011 at INRS Paris.

2-4 April 2012: Health risks associated with mixed exposures

This conference will mainly address the occupational health risks associated with mixed exposures. The conference is organised by the INRS in association with PEROSH.

www.inrs-mixed-expo2012.fr

21 – 23 May 2012: 2nd International Conference on Wellbeing and Work

The conference theme is "Making the Case" and will provide an opportunity to network with key players from around the world, and to further understanding of the practical challenges to implementing wellbeing at work.

<http://www.hsl.gov.uk/health-and-safety-conferences.aspx>

News from the PEROSH members

Celebrating the HSL centenary: 100 years of enabling a better working Britain



The Health and Safety Laboratory is celebrating its centenary this year. To mark this milestone a special issue of Occupational Medicine (<http://occmed.oxfordjournals.org>) has been dedicated to research at HSL. The papers show the wide range of occupational health issues HSL is helping to tackle today. They include studies into cancer incidence in pesticide users, urinary biomarkers for musculoskeletal disorders, occupational asthma due to detergent enzymes, work-related symptoms in hairdressers and nail salon technicians, and an evidence based review of behavioural and dermal interventions for dermal and respiratory hazards.

HSL is the most frequent contributing organisation to Occupational Medicine, and the journal's website also includes a virtual edition of all HSL papers published over the last 5 years.

HSL was brought into being 100 years ago at a site in Cumbria as a publicly funded research centre into safety in coal mines. At that time around 1,000 people died every year in Britain



Occupational Medicine Centenary edition

through accidents in underground mines, and many more miners died as result of ill-health. The laboratory was established as a national asset, focused on the development of practical solutions to workplace health and safety problems, solved by multi-disciplinary teams, with the knowledge generated being transferred to those who need it. While the laboratory's remit is now much wider, and both it and the world in which it operates have significantly changed, these founding principles still hold good today.

From the outset, HSL considered both safety and health at work. The earliest research focused on understanding and



Researcher with mine safety lamp

preventing dust explosions, whilst the 1st report from the laboratory's 'Explosions in Mines Committee' considered the health consequences that could arise from adding stone and other incombustible dusts to the miners' working environment.

In 1924 the laboratory moved to today's site in Buxton where the large scale of the site allowed large-scale experimental work on dust explosions, mining explosives and gob fires. In 1928, a second site was opened in Sheffield focusing on the safe use of electricity underground, improvement of the miners' safety lamp, and the constitution of coal.

Sharing information with researchers worldwide was important from these earliest years of the laboratory's history, and in 1931 the 1st International Conference on Safety in Mines Research was held at Buxton. This conference series continues to the present day. Today HSL continues to focus on sharing work with international experts – in 2012 HSL will be hosting the 2nd International Conference on 'Well-being at Work', and this in turn builds on the work of the PEROSH 'Well-being and Work' group which HSL leads.

During the 1930's, the Buxton site also hosted demonstrations and training events for young miners. For instance in 1937 there were 6,153 visitors who came to witness a coal dust explosion and learn about respiratory protective equipment (RPE) and appropriate use of machinery. Today HSL offers a wide range of training courses reflecting current health and safety challenges including behavioural change, biological monitoring, workplace stress, asbestos, and dose response modelling. Yet it is interesting to note that, as in 1937, training [1] still includes machinery safety, and RPE.

In 1974, as a consequence of the 'Health and Safety at Work etc Act', the laboratory was brought together with occupational medicine and hygiene laboratories as part of the new regulatory body – the Health and Safety Executive. This expanded the laboratory's remit to a wide range of workplaces from farms and factories, to railways and the chemical process



Miners who have been visiting the Buxton underground research gallery

industries. This also established the laboratory's role in investigating accidents and outbreaks of work-related ill-health - today over 200 investigations are carried out every year. The next major change, was in 1995 when the laboratory was renamed the Health and Safety Laboratory, and, as a government agency, gained new freedoms to work for other organisations both private and government. A new laboratory was constructed on the Buxton site, and opened in 2004 further strengthening the ability to bring together multi-disciplinary teams, and stimulating innovation at discipline boundaries.

On 1st July this year, the UK Employment Minister Chris Grayling was guest of honour at HSL, joining key figures from across the science and industrial community, to help HSL celebrate its centenary year. Minister Grayling commented,



Minister Grayling and Eddie Morland, Chief Executive of HSL

'The Health and Safety Laboratory is a world class facility, which over the past 100 years has been able to adapt to ever-changing health and safety concerns and continues to ensure that more people are able to go home safe at the end of their working day.'

[1] <http://www.hsl.gov.uk/training.aspx>

Testing and assessment of inward leakage of facepieces with use of nanoparticles

Dr. Inz Piotr Pietrowski, CIOP

CIOP  **PIB** CENTRAL INSTITUTE FOR LABOUR PROTECTION
- NATIONAL RESEARCH INSTITUTE

Recently observed rapid progress in nanotechnology and development of new materials with use of nanomaterials leads to rise of a new risk for workers - nanoparticles [1]. Occupational exposure to engineered particles having a diameter below 100 nm has generated a number of occupational and safety concerns about the potential health hazards to workers that are or could be exposed to them [2]. Therefore, the crucial issue to be studied by researchers responsible for assessment of respiratory protecting devices i.e. filtering half masks or half mask and full face mask to be completed with filters, is assessment of respiratory devices properties to be used in workplaces containing nanoparticles.

The project related to elaboration of a relevant test method for evaluation of protective properties of face pieces used in respiratory protection, has been carried out in the Respiratory Protective Equipment Laboratory, Department of Personal Protective Equipment, Central Institute for Labour Protection – National Research Institute. The aim of the research work was to build a relevant test stand for inward leakage test of filtering facepieces and the full face masks or half masks with use of nanoparticles (Fig.1). For the purpose of the research Condensation Particle Counter (CPC) model TSI 3775 and Scanning Mobility Particle Sizer (SMPS) with Differential Mobil-

ity Analyser DMA-nano, model TSI 3080 together with aerosol generator (Collison atomizer) were used. The sizes of aerosol particles were measured in the range of 2,5-260 nm. The test subject wearing a face piece was located in the test chamber where sodium chloride aerosol was sprayed.

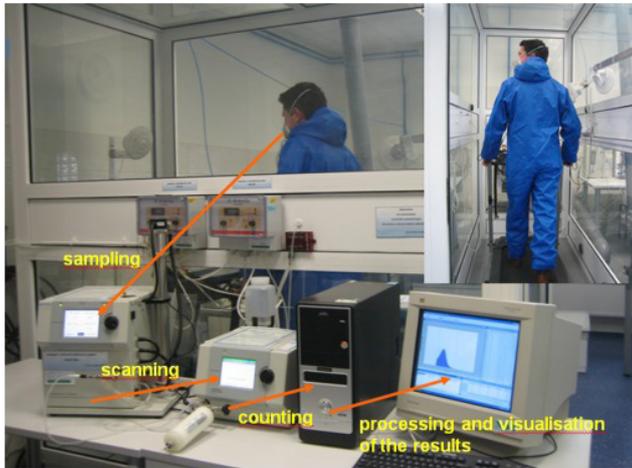


Fig. 1: Test stand for nanoparticles inward leakage of face pieces used in respiratory protection.

Preliminary tests of a commercially available filtering half mask of the highest protection class - FFP3 and one sample of full face mask completed with particle filters class P3 were performed. The tests were carried out with 4 and 8 test subjects respectively. In case of the filtering half mask the results show that the total inward leakage increases with increase of particle diameter. Almost for the whole range of particles the value of the leakage for nanoparticles is higher than required by the existing EU standard, i.e. exceeds 5 % [3]. In case of a full face mask completed with P3 filter the results of tests show that in most cases the inward leakage increases with increase of particle diameter higher than 75-100 nm. For the nanoparticles below 75-100 nm the leakage is below the value required by the existing EU standard i.e. less than 0,05 % [4].

On the basis of the preliminary results of tests it should be concluded that respirators currently being in use could have limited protective properties against nanoparticles. Many recent studies have established that particle filtering half masks and half masks or full face masks with particle filters provide reliable and efficient respiratory protection when properly selected, fit tested and worn. However, these studies were related to standard aerosols only. For aerosols with particulates with a diameter below 100 nm the respiratory protection equipment should be assessed in new tests.

[1] Savolainen K., Alenius H., Norppa H., Pylkkanen L., Tuomi T., Kasper G., Risk assessment of engineered nanomaterials and nanotechnologies – A review, *Toxicology*, 2010,, 269, 92-104.

[2] Shaffer R.E., Rengasamy S., Respiratory protection against airborne nanoparticles – a review, *Journal of Nanoparticles Research*, 2009, 11, 1661-1672.

[3] EN 149:2001+A1:2009 Respiratory protection devices – Filtering half masks to protect against particles. Requirements, testing, marking

[4] EN 136:1998 Respiratory protective devices. Full face masks. Requirements, testing, marking.

GHS Column Model for substitute assessment



Under the German Hazardous Substances Ordinance, firms are required to replace hazardous substances if possible with substances with a lower health risk. As an aid to the assessment of possible substitute substances, the Institute for Occupational Safety and Health of the German Social Accident Insurance



(IFA) has developed the Column Model. On the basis of just a small amount of information on the products in question, substitute substances can be assessed with the aid of this table.

With the gradual transition from the existing classification and labelling system for hazardous substances to the Globally Harmonized System for classification and labelling (GHS), the Column Model also had to be changed over to the GHS. As the new risk classes concur only to a very limited extent with the existing hazard features and the classification boundaries have shifted for certain risk classes, a formal changeover of the Column Model to the GHS was only possible to a certain extent. The numerous new physical/chemical risk classes in particular made the partial reorganization of the Column Model necessary under the GHS.

Further information:

<http://www.dguv.de/webcode.jsp?q=d108660>

Negative health effects due to endotoxin exposure can be reversed

Wijnand Eduard, Marit Skogstad, STAMI



Occupational exposure to bacterial endotoxins affects pulmonary function and may lead to an inflammatory response. However, once the exposure to the toxin has ceased, the negative health effects may reverse and the health condition may normalize.

Until now, the long-term effects of occupational exposure to endotoxins have been uncertain, but one has assumed that the exposure may have a long-term effect on pulmonary function and possibly also the inflammatory processes in the blood.

A new follow-up study among plant workers who produce bioprotein using bacterial endotoxins shows that inflammatory processes associated with toxin exposure subside when exposure to dust in the plant ceases.

Endotoxins and health effects

Endotoxins are toxins associated with Gram-negative bacteria. Several workers at a plant that produced bioprotein by cultivating a Gram-negative species using North Sea gas as a carbon source, experienced episodes of fever, influenza-like symptoms, and eye inflammation, shortly after production started. The symptoms started to appear 4 - 20 hours after exposure to dust from the bioprotein.

Twenty-eight plant workers were followed over a five-year period. The workers were exposed to bacteria and endotoxins at the workplace. Lung function was assessed using spirometry and gas diffusion, and in addition we obtained nasal volume measures and collected blood samples for inflammatory markers. The measurements were performed in the time period when the workers were exposed to dust from the plant. Analyses showed that the lung function declined and inflammatory processes in the blood were present in association with increased exposure.

Cessation of exposure

The plant was subsequently shut down, and as a result the workers were no longer exposed to endotoxins at the workplace. The workers were assessed one year later to ascertain whether earlier health problems could have receded.

The results from the study suggest that pulmonary function and inflammatory processes are normalized over time. In the worker group exposed to low levels of exposure, there were significant improvements of lung function as measured by forced vital capacity (the maximum amount of air a person can expel from the lungs after maximum inspiration) and forced expiratory volume (the volume of air that can be expired in one second), one year after the occupational endotoxin-exposure had ceased.

Follow-up tests included assessment of sputum and nitrogen-oxide levels (increased levels are a sign of allergic pulmonary infection). The results from these analyses is expected to be published in a peer-reviewed journal.

Further information: <http://oem.bmj.com/content/early/2011/08/02/oem.2010.062414.long>

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INRS Studies & research brochure in English: New issue 2010/2011



INRS has published the second issue of its Studies & research brochure. This document aims to report on the main research findings in 2010 and how they contribute to the prevention of occupational accidents and diseases. This multidisciplinary work covers a wide range of aspects such as chemical, mechanical, physical and psychosocial risks.

This bilingual brochure is intended for the national and international scientific community. It can be downloaded at the following addresses:

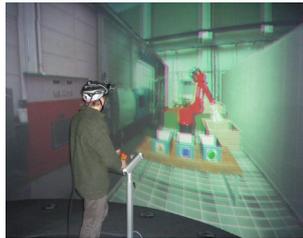
<http://www.inrs.fr/publications/EtudesRecherches2010-2011.html>
(French)

<http://en.inrs.fr/publications/StudiesResearch2010-2011.html>
(English)

Virtual reality in human-system interaction



Virtual reality (VR) is increasingly being used in industry and services. It has grown into a simulation tool for humans to



interact with dynamic, three-dimensional virtual environments and into a methodology for applied research in human-machine system design and evaluation. Safety and Usability through Applications in Virtual Environments (SUTAVE) facilitates effective

prevention through design in OS&H to be addressed by means of innovative technology. In the SUTAVE laboratory of the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) projects are being performed in cooperation with OS&H partners, companies and research institutes.

Currently, the usability of an innovative safety control for mobile elevating work platforms is evaluated in virtual working and accident scenarios. Another project refers to human factors issues in dimensioning and indication of detection zones when safeguarding three-dimensional detection zones by electro-sensitive protective equipment. There are VR projects concerning the development of safety concepts for future workplaces with collaborative robots, i.e. robots working directly alongside human beings. VR is also used in a project to conduct risk assessment for work scenarios at river locks in 1:1 scale in VR. Among others, these projects enable analysis, design and evaluation of products and processes that do not yet exist or that could present a hazard – but without placing the operator or others in danger. All social accident insurance institutions may benefit from the expertise gathered in the SUTAVE laboratory of the IFA.

Further information:

<http://www.dguv.de/webcode.jsp?q=d118076>

Finnish Institute of Occupational Health (FIOH) co-ordinates EU funded nano safety research cluster



The European Commission has given the Finnish Institute of Occupational Health (FIOH), and Finland as a country, a unique opportunity to exercise their influence: FIOH is to co-ordinate the EU-funded NanoSafety Cluster – a cluster of projects promoting nanomaterial safety. The Cluster consists of some 30 research projects, which are staffed by hundreds of researchers. The EU will provide a total of EUR 112 million in funding for these projects.

“The nanotechnology business is growing exponentially, but information on the health and environmental impacts of nanoparticles and nanomaterials is severely lacking” explains Professor Kai Savolainen of FIOH. “The NanoSafety Cluster attests to the fact that the importance of nanosafety is well understood at the EU level and that nanosafety has been moved up on the EU’s agenda.”

NanoSafety Cluster objectives

The NanoSafety Cluster will serve to facilitate a consensus on nanotoxicology in Europe. Every effort will be made to reduce redundancies and improve efficiency. Its objective is to standardize and harmonize nanotoxicology research and research methods. The NanoSafety Cluster provides information on the health and environmental risks that nanoparticles and nanomaterials pose to both industry and the general public. For European actors, it serves as a forum for discussion and problem-solving, and research and development. Participation in the NanoSafety cluster is voluntary for projects that commenced prior to April 2009, and is compulsory for nano-EHS (environmental health and safety) projects started since April 2009.

There are numerous unanswered questions regarding the environmental and health risks associated with the manufacture, use, distribution and disposal of nanoparticles. Information on health impacts is needed urgently, as tens of millions of people are being exposed to products containing nanoparticles at this very moment.

The NanoSafety Cluster projects focus on, e.g.

- The physicochemical characterisation of nanoparticles and nanomaterials

- The behaviour of nanoparticles and nanomaterials at the cellular and body level as well as in the environment
- Assessment of toxicity and risk of nanoparticles and nanomaterials to humans and the environment
- Biological membrane activity of nanoparticles
- Modelling of the exposure-dose-response relationship
- Metrology, cross validation and standardization of assays, protocols and models for nanoparticle toxicity
- Data management: including the creation and implementation of a common database
- Combining the dissemination effort of each cluster member to obtain maximum impact in terms of harmonizing the message to stakeholders.

The two-year co-ordination mandate includes reporting on Cluster activities and organizing Cluster conferences together with local organizations. FIOH will also be responsible for promoting international nanosafety co-operation both within and outside of the EU. Co-ordination involves planning for future nanosafety-related functions in co-operation with other Cluster members. Co-operation with sector industries plays a crucial role.

At the beginning of 2011, FIOH established the Nanosafety Research Centre, which is in charge of co-ordination. Professor Kai Savolainen is the Director of the Centre.

www.nanosafetycluster.eu

INRS files patent for «EchoScan»



INRS is developing an apparatus for the early detection of inner ear damage, before the onset of deafness. The operation of this apparatus, called EchoScan, is based on the measurement of cochlear echoes generated by two pure sounds, using a probe placed in the external auditory canal. A clinical study was conducted on this new diagnosis tool created for occupational physicians, in order to test its performance and capacity to assess the inner and middle ear with a single objective measurement. Assessment of the middle ear may prove critical, since recent studies conducted by INRS have shown that some aromatic solvents may alter the middle ear's protective mechanism, with harmful effects on hearing.

The next stage of the study will involve field tests. INRS has already filed a patent and plans to develop the prototype.

ADM Noise Exposure Calculator (Work - Discotheque - MP3 player)



Noise in occupational and private life has an impact upon human hearing. As an aid for risk assessment, IFA has produced the ADM noise exposure calculator (the German abbreviation ADM stands for work, discotheque, MP3 player). It reveals that a two-hour visit to a discotheque at the weekend may contribute as much as ten times to later hearing damage as the exposure to noise during an entire working week.

Teenagers and young adults in particular can use the ADM to identify the hotspots of their own noise exposure, and when it may result in the development of hearing loss. In addition, music and speech samples illustrate how this hearing loss might actually sound, should it occur.

Further information:

<http://www.dguv.de/webcode.jsp?q=d117775>

Arsenic resistant bacteria and the exploring of their potential utility in biotechnology

Domenico Davolos, Biancamaria Pietrangeli, INAIL, Dept. of Production Plants and Human Settlements, formerly ISPESL

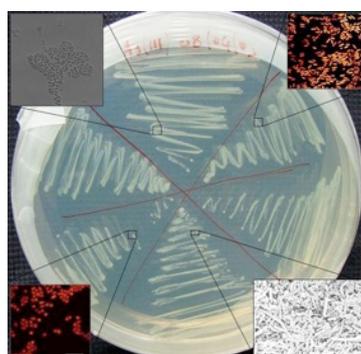


In the number 27 (S1) 2011 of the International Journal Chemistry and Ecology, the authors have published a paper summarising the results obtained from arsenic-resistant bacterial strains isolated from Albano Lake, the Tiber River and a freshwater well from the Latium region, central Italy, in which volcanic formations and aquifers containing arsenic contribute to water contamination [1,2].

The main aim of their work was to investigate, on the basis of the 16S rRNA gene sequences, the aerobic arsenic-resistant bacterial strains and to increase essential molecular knowledge in view of the bioremoving of arsenic (As) compounds. In fact, according to the EU directive 98/83 [3], implemented

in Italy by the 31/2001 decree [4], all drinking water sources within the European Union should have achieved compliance with the new limits for arsenic (10 ppb) and specific remedial action should be adopted.

The bacteria capable of either oxidizing As(III) or reducing As(V) belonged, on the basis of the 16S rRNA gene sequences, to the Proteobacteria, Firmicutes and Bacteroidetes. Moreover, phylogenetic analysis conducted on the gene codifying the ArsB, an As(III) efflux membrane protein pump related to the arsenic resistance, suggested the occurrence of horizontal arsB transfer events for some of the examined environmental strains, even among taxa belonging to taxonomically distant bacteria. Overall, these results showed that in each of the environments investigated, bacteria related to the redox of As coexisted,



confirming important roles of microbial populations in the speciation of As and increasing the knowledge in view of the bioremediation of As compounds.

Obviously, the consequences of the human use of As in the environment can contribute to the dissemination of microbial arsenic resistance. In Albano Lake and in the Tiber River, the sequence analysis revealed the occurrence of arsenic resistance in opportunistic pathogens or genera containing pathogenic strains (e.g. *Acinetobacter*, *Aeromonas*, *Klebsiella*). It is known that, on the basis of analysis conducted on different environments, lateral gene transfer events for genes involved in heavy-metal/metalloid resistance, as well as for genes codifying virulence factors, appeared to be frequently occurring in water-living bacteria. Consequently, the authors underline the potential usefulness of arsB and in general of the As metabolism genes as functional markers for monitoring the freshwater bacterial communities towards arsenicals and other factors concerning public health.

Lastly, the authors highlight the molecular information on the arsenic resistance genes obtained from phylogenetically characterized arsenic-resistant bacteria, which can be useful for improving molecular tools for the culture independent analysis of As metabolism in natural systems.

[1] Davolos D., Pietrangeli B. (2011). Phylogenetic analysis on the arsenic-resistant bacteria isolated from three different freshwater environments. *Chemistry and Ecology* 27(S1):1-9.

[2] Davolos D., Pietrangeli B. (2011). Analysing arsenic resistant bacteria in view of their potential biotechnological utility. 4th Congress of European Microbiologists (FEMS 2011). Geneva, 26-30 June 2011.

[3] Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption. (OJ L 330/32, 5.12.1998).

[4] Italian legislative decree 31/2001 on the quality of water intended for human consumption. *GU Serie Generale n. 52, 3.3.2001*.

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B. Pietrangeli, b.pietrangeli@inail.it

Involvement of workers in the management of OSH – The role of Health and Safety Representatives and Health and Safety Councils

Dr. Simon Kaluza, Federal Institute for Occupational Safety and Health (BAuA), Germany



Within the framework of the Topic Centre Occupational Safety and Health (TC OSH) of the European Agency for Safety and Health at Work (EU-OSHA) a project group evaluated the national implementations of Health and Safety Representatives (HSR) and Health and Safety Councils (HSC) in the European Union.

The commitment of the employer / management to occupational safety and health (OSH) and the involvement of workers in OSH are basic elements for effective working systems [1]. The involvement of workers may comprise rights for codetermination, control and / or information [2].

The Council Directive 89/391/EEC defines obligations (minimum requirements) on employers in OSH. However, employees are also involved in occupational safety and health: they have got particular rights and duties. Regarding the involvement of workers through the establishment of Health and Safety Representatives (HSR) and Health and Safety Committees (HSC) on company level, the Article 11 (Consultation and participation of workers) of the Council Directive is of particular importance: workers and / or their representatives have the right to take part in discussions on all questions relating to health

and safety at work, including the consultation of workers, the right to make proposals and the balanced participation taking into account national regulations and practices. Thus, both employer and worker attend to OSH.

Within the project, a questionnaire with 42 questions on Health and Safety Representatives (HSR), Health and Safety Committees (HSC) and further OSH stakeholders (e.g. occupational physicians, safety specialists) was forwarded to the national Focal Points or the project partners of the TC OSH (coverage: EU 27, one questionnaire per country). The following aspects were analysed: legal background and appointment of HSR / HSC, their occupational background and training, duties and rights of HSR / HSC, their resources and incentives, protection against dismissal, reprisal as well as obstacles in relation to the execution of their task. All in all, 21 replies from Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Romania, Slovenia, Spain and the United Kingdom were received.

Example: Thresholds for the appointment of Health and Safety Representatives

The Netherlands had alternative arrangements in relation to HSR. Therefore, these arrangements are not described in this framework. However, in most of the remaining 20 countries thresholds for the appointment of HSR existed. The range varied from five employees (Latvia) up to 50 employees (Bulgaria, Hungary, Lithuania and Romania). In seven countries the threshold was ten employees (Austria, Cyprus, Czech Republic, Denmark, Estonia, Finland and Malta), whereas in Germany, Greece and Slovenia (in each case 20 employees) and Spain (30 employees) the threshold was higher. In four countries (Belgium, Ireland, Italy and the United Kingdom - UK: only non-Trade Union representatives) thresholds for the appointment of HSR were not fixed. In the United Kingdom safety representatives may have been appointed by a recognised Trade Union if one or more employees were employed.

However, these thresholds are guiding values. In two cases, the number of HSR also depended on the risk factors in the company (Czech Republic and Germany): the higher the risk factors were the higher was the number of HSR in the company. Furthermore, in the Czech Republic, Germany and Spain the number of HSR depended on the number of employees (example Germany: 21 to 50 insured persons = 1 to 3 HSR, 51 to 100 insured persons = 2 to 5 HSR, 101 to 250 insured persons = 4 to 6 HSR – numbers depend on the statutory accident insurers).

This example already illustrates the different national implementations of the Council Directive 89/391/EEC. The project report will be published by the EU-OSHA in 2012. The report will contain further results for training, duties and rights of HSR / HSC, their resources and incentives, protection against dismissal, reprisal as well as their obstacles.

Further project participants: Evi Georgiadou, Afroditi Daikou, ELINYAE (Greece), Adriano Papale, Matteo Bellina, ISPESL / INAIL (Italy), Maja Metelko, Saša Žebovec, ZVD (Slovenia), Dr. Frank Bell, Deutsche Gesetzliche Unfallversicherung (DGUV, Germany).

[1] Milczarek, M., 'Workers' active involvement in the improvement of occupational safety and health in a textile enterprise – a case study' *International Journal of Occupational Safety and Ergonomics*, Vol. 12, No. 1, 2006, pp.69-77.

[2] Gabler *Wirtschaftslexikon Online* (2011). *Immaterielle Mitarbeiterbeteiligung*. Retrieved 25 June 2011, from <http://wirtschaftslexikon.gabler.de/Definition/immaterielle-mitarbeiterbeteiligung.html>

Danish Working Environment Survey 2010



A total of 10,600 employees and self-employed between 18 – 59 years from different occupations in Denmark responded to questions primarily about their physical and psychological working environment and health in 2010. The results were published at the National Research Centre for the Working Environment's (NRCWE) webpage on June 9, 2011, in the shape of dataset and 32 descriptive analyses.

The NRCWE has collected data about the Danes' working environment and health 2010

A total of 30,000 inhabitants in Denmark between 18 and 59 years received a questionnaire from the NRCWE in October with 62 main questions about working environment and health. A total of 14,600 persons answered the questionnaire via the internet or ordinary mail. Approximately 10,600 of the respondents were employed which corresponds to a response rate of 53 %. The results from the latter group of approximately 10,600 participants are described in 32 descriptive analyses.

Progress and setbacks for the working environment from 2005 – 2010

A number of the questions in the questionnaire 'Working environment and health in Denmark 2010' have been used in a similar study from 2005 'Working environment 2005'. It is thus possible to identify developments of the physical and psychological working environment. The results show that the respondents have experienced both progress and setbacks for the working environment since 2005:

- Considerably fewer employees experience to be exposed to a number of physical demands at work in minimum ¼ of their working time. This includes carrying and lifting, twisting or bending of the back many times during an hour, working with the back strongly forward bent and working with pushing or pulling.
- With respect to the psychological working environment, the overall picture is that the respondents perceive more support from their nearest leader and from colleagues. Emotional demands at work have increased, whereas meaning in work has decreased.

- Fewer employees report that they have to work very fast, and the self-reported weekly working time has decreased.
- More employees experience bullying, violence and threats of violence at work
- More employees are exposed to noise – this applies to noise which disturbs work as well as to very loud noise where the only way of communicating is by shouting to the person standing next to you.
- More employees work with detergents and/or disinfectants and with wet or damp hands.

The results will later be published in peer reviewed journals

The 32 descriptive analyses are all available in Danish on the webpage, which gives access to a large number of diagrams and tables. This way of presenting the results has been successful and caused considerable and still on-going debate in the media. The results will later be scrutinized in research and published in international peer reviewed journals.

A new Danish Working Environment Strategy 2020

At present a program is being developed in order to monitor whether progress in the working environment is being made according to the new Danish Working Environment Strategy 2020. The new monitoring program is expected to integrate surveys aimed at the preventive working environment effort at enterprise level with surveys aimed at working environment and health of employees within these enterprises.

Further information

For further information, please contact Head of Statistics Division, Elsa Bach, eba@nrcwe.dk, or head of OSH Monitoring, Per Jakobsen, pej@nrcwe.dk.

Report to the Storting (Norwegian parliament) regarding working conditions and the working environment in Norway



For the first time, a report on working conditions, the work environment, and safety in the Norwegian employment sector has been presented to the Storting. The report documents that the working conditions are favorable for the vast majority of workers, but two main problem areas are identified:

- Particular industries have a high prevalence of unacceptable working conditions
- Particular industries have workers with high rates of sickness absence and entry into disability pension

The government's response is to systematically work with different parties of the employment sector to ensure that they comply with the intentions set forth in The Working Environment Act and the Cooperation Agreement Regarding a More Inclusive Working Life. Further development of the industry-targeted collaboration, which has already been established with the concerned parties in the cleaning industry, is central, says the Minister of Labour, Hanne Bjurstrøm.

Implementations recommended in the report

The government will strengthen its fight against exceedingly poor working conditions, and will try to elucidate the consequences of infringing The Working Environment Act, and consider whether changes to the act need to be made. Further, the government will fight to prevent involuntary part-time work.

The government will also have a proactive attitude towards the employment sector and continually evaluate whether new implementations are needed.

The National Institute of Occupational Health has contributed to the report, especially regarding the chapter about working conditions. An extended version of this material will be published later this year.

"The report to the Storting is a major achievement. The report gives a solid overview of the working conditions in Norway, in addition to providing a clear overview of planned implementations in the field. Additionally it points to some challenges that lie ahead of us", says Pål Molander, Director General at the National Institute of Occupational Health.

Contact: Pål Molander, pal.molander@stami.no

Focus on IFA's work



The information sheets «Focus on IFA's and IAG's work» shortly report about the institutes interesting activities. By now, the series consists of 355 information sheets (in German) and they are completed regularly two times a year. The double-sided information sheets also inform about further literature and contact persons. One hundred and sixty-seven information sheets have been translated into English yet. Users may subscribe to an automatic information service on new supplements. The latest translated supplements deal with «Physical stress profiles at checkout workplaces» (No. 0321), «Evaluation of an ergonomically designed ironing workstation» (No. 0322), «Hand-arm vibration: risk assessment in dental laboratories» (No. 0323), and «Toxicity of the constituents of paper and of paper dust» (No. 0326).

Project partners were the IFA and German Social Accident Insurance Institution for the trade and distribution industry (BGHW) (No. 0321); the IFA and the German Social Accident Insurance Institution for the energy, textile, electrical and media products sectors (BGETEM), Institute of Work and Health of the German Social Accident Insurance (IAG) (leaflet 0322).

More information:

<http://www.dguv.de/webcode.jsp?q=d21252>

About PEROSH

PEROSH is a partnership of European working environment research institutes aiming to collaborate and to coordinate their research and development efforts for healthier, longer and more productive working lives.

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- Federal Institute for Occupational Safety and Health (BAuA), Germany, www.baua.de
- Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA), Germany, www.dguv.de/ifa
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- Netherlands Organisation for Applied Scientific Research (TNO), Netherlands, www.tno.nl
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