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PARTNERSHIP FOR EUROPEAN RESEARCH IN OCCUPATIONAL SAFETY AND HEALTH

NEWSLETTER
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7

Trimestrial newsletter from PEROSH, Rue Gachard 88/4, 1050 Brussels, Belgium, newsletter@perosh.eu

News PEROSH

To better meet the needs of our target audiences, PEROSH will launch a new newsletter with exclusively PEROSH news. The first issue will appear in April 2012.

News from the PEROSH members

International Conference on Strengthening OSH knowledge and innovation as a driver of EU smart growth

CIOP PIB CENTRAL INSTITUTE FOR LABOUR PROTECTION - NATIONAL RESEARCH INSTITUTE

The conference was arranged within the framework of the Polish Presidency in the European Union and took place in Warsaw on 7 November 2011. Organized in the time of global financial crisis which hit especially hard the world of labour, the conference sought to send a message to keep ahead of the developments through technical and social innovations aimed at improving working conditions.

The conference theme focused on searching for and discussing synergies between the area of occupational safety and health and activities in the scope of motivation, education, training and lifelong learning, development of digital society, new processes and technologies for sustainable growth and competitiveness, and developing new skills to increase the employment rate and to tackle with new jobs' demands.

Presentations delivered by 14 speakers and discussion of the roundtable sought to answer the following questions: whether and in what way actions aiming at occupational safety and health, which are taken on a European level and on a Member State level, can contribute to fulfillment of the Europe 2020 Strategy priorities and how those actions should be perceived in the context of the European seven flagship initiatives supporting the European 2020 Strategy.

The conference participants were invited according to the tripartite principle and included representatives of employers, employees and the government. The initiative succeeded in bringing together key actors in the field of occupational safety and health. It attracted above 160 participants from almost all Member States of the European Union and the Candidate Countries. Among the attendees there were also representatives of the European Commission, European Agency for Safety and Health at Work (EU-OSHA), European research institutes and other organizations conducting activities in the area of OSH.

For the conference presentations and photo documentation please visit http://www.ciop.pl/osh_conference_presidency

The combination of physically demanding work and poor physical fitness increases the risk of dying from ischeamic heart disease

Physically heavy work triples the risk of dying from ischaemic heart disease among low educated and low paid men with low physical fitness. However, the increased risk is not found among men with a medium or high fitness. These results were found in a study where 5,000 male workers were followed with register data for causes of death during 30 years. Researchers from the National Research Centre for the Working environment (NRCWE), BAuA, Bispebjerg Hospital, and University of Southern Denmark have found these results.

Relation between physical work demands, physical fitness level and ischaemic heart disease mortality examined

In industrial countries, men with low-paid jobs and either no or short-term education generally have a higher risk of ischaemic heart disease compared to men with more well-paid jobs and higher education. They also have a higher risk of dying at an early age and their work often implies heavy physical demands. However, it is still unknown whether the heavy physical work demands are an important cause behind the elevated risk of ischaemic heart disease among these men. A group of researchers from the NRCWE and BAuA has therefore examined the relation between physical work demands and the ischaemic heart disease mortality among low educated and low paid men with different levels of physical fitness.

30-year follow-up of more than 5,000 men

The study is based on The Copenhagen Male Study – a cohort of 5,214 Danish male employees, 40-59 years of age in 1970-71. The men completed a questionnaire. Their height, weight, and blood pressure were measured, and their physical fitness was measured on a bicycle ergometer. The questionnaire comprised questions about the working environment, life style and the health in general. The mortality among the participants in the cohort was generated from a national register in the period from 1970 to 2001.

High physical fitness protects individuals with physically heavy work against ischaemic heart disease

The results from the study show:

- Physically heavy work triples the risk of dying from ischaemic heart disease among low educated and low paid men with low physical fitness.
- Physically heavy work does not influence the risk of ischaemic heart disease mortality among low educated and low paid men with a medium or high fitness.

Physical fitness therefore seems to have a decisive influence on the risk of dying from ischaemic heart disease among low educated and low paid men with physically heavy work.

High physical fitness level protects against high work demands

Results from earlier studies from the research group show:

- Physical fitness level is an important predictor of ischaemic heart disease mortality in men working more than 45 hours per week.
- Working more than 45 hours a week doubles the risk of dying from ischaemic heart disease among men with a low physical fitness, whereas men with a medium or high physical fitness have no elevated risk of dying from ischaemic heart disease if their weekly working hours exceed 45.
- No matter of the physical work demands, the risk of dying from ischaemic heart disease decreases considerably with high physical activity during leisure time.

The results all point in the same direction – that men with heavy physically work demands or long working days should be recommended, encouraged and facilitated to improve physical fitness by physical exercise to reduce the risk of ischaemic heart disease.

Research project about physical work demands and fitness

The study has been conducted by researchers from the NRCWE, Bispebjerg Hospital, University of Southern Denmark and Bundesanstalt für Arbeutsschutz und Arbeitsmedizin (BAUA), Germany, as part of the research project 'Physical work demands and fitness'. The project is supported financially by the Danish Working Environment Research Foundation.

Further reading:

• Holtermann A, Mortensen OS, Burr H et al. Physical work demands and physical fitness in low social classes - 30-year ischemic heart disease and all-cause mortality in The Copenhagen Male Study. Journal of Occupational and Environmental Medicine 2011;53(11):1221-7.

• Holtermann A. Mortensen OS. Burr H. Søgaard K. Gyntelberg F. Suadicani P. The interplay between physical activity at work and during leisure time – risk of ischemic heart disease and all-cause mortality in middle-aged Caucasian men. Scandinavian Journal of Work and Environmental Health, 2009, 35:466-474.

• Holtermann A. Mortensen OS. Burr H. Søgaard K. Gyntelberg F. Suadicani P. Long work hours and physical fitness – 30-year risk of ischemic heart disease and all-cause mortality among middle-aged Caucasian men. Heart, 2010 96:1638-1644.

Further information:
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Project partners are the Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA), Allgemeine Unfallversicherungsanstalt (AUVA), Belgian Federal Public Service Employment, Labour and Social Dialogue, ENI Corporate, Eurofins Danmark A/S, Health and Safety Laboratory (HSL), Institut National de Recherche et de Sécurité (INRS), Institut de recherche Robert Sauvé en santé et en sécurité du travail (IRSST), Institute for Applied Environmental Research, Air Pollution Laboratory (ITM), Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT), National Institute for Occupational Safety and Health (NIOSH), National Institute of Occupational Safety and Health, Japan (JNIOSH), Nofer Institute of Occupational Medicine (NIOM), Országos Munkahigiénés és Foglalkozás-egészségügyi Intézet (OMFI), suva, Senate Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG), TechniData, Workplace Safety and Health Institute (WSH)

More information:
http://www.dguv.de/webcode.jsp?q=e20643

GESTIS - International limit values database for chemical agents – Now available as app for iPhone, iPodtouch, and iPad

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The database contains a collection of occupational limit values for hazardous substances gathered from various EU member states, Canada (Québec), Japan, Switzerland, and the United States as of January 2011. Limit values of more than 1,500 substances are listed. In December 2011 the internet database has been made available as app for iPhone, iPad and iPodtouch. The app for Android smartphones will be on hand in April 2012.

The chemical names of the substances were adopted from the nomenclature as used in the original sources for national limit values. Limit values defined by the various expert bodies and authorities differ in the criteria for their derivation, the level of protection which they offer, and their legal relevance. The short-time values and dust fractions may for example be based upon different definitions. Comprehensive explanations can be found in the original lists of limit values, which should be referred to as primary sources. The purpose of this database is merely to provide an overview of the limit values in various countries.

INRS study on chemical hazards - New exposure mapping tool

INRS has designed a new chemical hazard mapping tool, known as DACTARI*, for prevention specialists. It records operators' movements inside a workshop, through a laser telemeter connected to an angular sensor and camera.

The system is made up of hardware and a functionality management software. It takes dynamic exposure measurements and draws a general map of exposure levels, highlighting areas at risk.

The study was conducted in three stages: selection of a relevant trajectography method, development of data acquisition, analysis and processing modules and validation of the prototype in the laboratory and in a solvent recycling industrial workshop. INRS has already filed a patent application.

**Dispostif d'acquisition de trajectographie pour l'analyse du risque individuel (trajectography acquisition device for individual risk analysis)*

The Joint German Occupational Safety and Health Strategy – new objectives 2013 - 2018

Sabine Sommer, General Office of the National Conference on Occupational Safety and Health, c/o Federal Institute for Occupational Safety and Health (BAuA), Germany

Gemeinsame Deutsche Arbeitsschutzstrategie

End of 2011, the National Conference on Occupational Safety and Health (NAK) agreed on the occupational safety and health objectives (OSH objectives) for 2013 to 2018. During this period the German government (Bund), the federal states (Länder) and the accident insurance institutions focus their prevention and inspection activities on three areas:

Objective 1: Improvement of the operational organisation of occupational health and safety
Objective 2: Reduction of work-related health risks and diseases with regard to the musculoskeletal system
Objective 3: Protection and strengthening of health concerning psychosocial workload

The implementation of joint and nation-wide OSH objectives is one of the core elements of the Joint German Occupational Safety and Health Strategy (Gemeinsame Deutsche Arbeitsschutzstrategie, GDA). In 2008, this strategy was jointly developed by the GDA stakeholders (German government, the federal states and the accident insurance institutions). It has a legal base in the Occupational Safety and Health Act and the Seventh Social Code.
The GDA initiated a paradigm shift within the 'dual German OSH system': focus on prevention activities in areas of main concern, coordination of the prevention and inspection services of the accident insurance institutions and the federal states and cooperation with social partners and other relevant actors, e.g. health insurance funds, are the leitmotifs for joint activities to maintain, improve and promote the safety and health of workers.

In addition to the implementation of joint OSH objectives, the GDA asks the German government, the federal states and the accident insurance institutions to work together towards the establishment of a transparent, reasonable und user-friendly set of provisions and regulations.
Furthermore, the cooperation and coordination of the prevention and inspection services of the accident insurance institutions and the federal states shall be improved by the development of common guidelines for core OSH topics e.g. risk assessment, and by the implementation of an IT-based information exchange between the authorities.

The political and decision-making body of the strategy is the NAK (National Conference on Occupational Safety and Health). It is composed of three representatives each of the GDA stakeholders. Three representatives each of the umbrella organisations of the employers and workers are represented in the NAK in an advisory role.

Integral part of the GDA is the evaluation of the strategic goals and operational objectives. This evaluation is carried out by an external contractor according to the scientific requirements and evaluation standards of the German Society for Evaluation (DeGEval).

In the first phase, from 2008 to 2012, the GDA stakeholders jointly carried out 11 work programmes to implement three OSH objectives:
- Reduction of the incidence and severity of work-related accidents
- Reduction of the severity and incidence of musculoskeletal disorders (the first two objectives take into particular consideration the reduction of psychosocial risks and the promotion of a systematic and holistic approach towards OSH in enterprises)
- Reduction of the severity and incidence of skin diseases.

Work programme results, final reports as well as interim results of the evaluation will be available in the course of 2012.

For the implementation of the OSH objectives of the period 2013 - 2018 one of the priorities of the NAK is to cooperate and work more closely together with health insurance funds, professional associations and other relevant actors in the field of OSH. Therefore, one essential part of the development process of the OSH objectives was an intensive discussion with the respective partners by means of, amongst others, a written consultation during spring 2011.

Further information: www.gda-portal.de/e

ErgoKita: Ergonomic design of workplaces in nursery schools – A study of working conditions in nursery schools is designed to help prevent musculoskeletal disease among nursery school teachers

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Deutschen Gesetzlichen Unfallversicherung

In the daily work situation, nursery school teachers are often exposed to high musculoskeletal workload from forced postures owing to low working heights. Ergonomic design in nursery schools has therefore been the repeated subject of public debate.
A literature review revealed that there have so far been only few investigations into the musculoskeletal workload of teaching staff in nursery schools. Furthermore, it is not known how the structural conditions (e.g. number and age distribution of the supervised children, teacher/pupil ratio or furnishing/equipment) affect workload. In view of the growing number of under-threes attending nursery schools, a change in physical workload is nevertheless anticipated, e.g. due to increased lifting and carrying. In addition, existing proposals for the reduction of workload, such as special tables or teacher's chairs, have not yet been examined for their effectiveness.

Against this background, a survey of the level of workload in nursery schools and an intervention study for the scientific evaluation of prevention measures is planned. To this end, nursery schools are to be categorised according to possible factors affecting the workload situation, and the physical and mental working conditions are to be recorded in an analysis of the current situation in several nursery schools. Prevention measures are to be derived from the findings from this analysis and nursery schools assisted in their implementation. The effectiveness of the measures is to be checked among other things with standardised questionnaires and physiological measurements. Finally, the results are to find expression in guidance for practical action.
The project is being carried out under cooperation between the Institute of Ergonomics of the Technical University of Darmstadt (IAD), Institute of Occupational, Social and Environmental Medicine of the Goethe University of Frankfurt (ASU) and the Occupational Safety and Health of DGUV (IFA) and is being financially supported from the research fund of the DGUV. The project kicked off in June 2011 and the survey of the structural conditions of work in nursery schools is already underway.

Project partners are the IFA, the social accident insurance institutions for North-Rhine/Westphalia, Rhineland-Palatinate and Hesse, the accident insurance institution of the health and welfare sector (BGW), German Social Accident Insurance (DGUV), IAD, and ASU.

More information:
http://www.dguv.de/webcode.jsp?q=e119867

Olympics 'London 2012':
The Learning Legacy on Health and Safety for the Construction industry from the Success of the Olympic Park Build

HEALTH & SAFETY
LABORATORY

Olympics 'London 2012' will be the largest sporting event in British history. The construction project to prepare for it has been on a huge scale – delivering new venues and fitting out existing buildings and infrastructure. As the construction client, the Olympic Delivery Authority (ODA) were committed to ensuring this was the 'safest build on record'. Now the results are out. Not only have the venues been completed ahead of time and budget, but the accident frequency rate for the Olympic Park is well below the construction industry average in Great Britain and below the national average for all workplaces.

The construction sector is one of the most dangerous in Great Britain. The ODA, along with its Delivery Partner, 'aspired to achieve good practice on health and safety on the Olympic Park during construction, and to disseminate information among the wider construction industry as to how this was achieved'.

To capture this 'Learning Legacy' for the construction industry, the Health and Safety Laboratory (HSL) worked closely with the ODA. HSL produced a tailored version of its Safety Climate Tool (SCT) specifically for use on the Olympic Park. The SCT enables organisations to gain insight into their safety culture through capturing workers', supervisors', and managers' perceptions of health and safety.
The SCT was used at the Olympic Park to develop eight case studies identifying what activities supported the development of the good safety culture. Each case study focuses on one of the eight factors in the SCT, such as 'Peer Group Attitude', 'Engagement in Health and Safety', and 'Accident and Near Miss Reporting'.
One key finding was that the ODA 'did not allocate huge, spe-

cialised resources to health and safety in isolation; instead it was woven into every activity and every element of the ODA operation'. The interviews and focus groups also found that many of the activities on the Olympic Park were not novel, but rather followed established good practice. Indeed, 'the key difference was the persistent effort devoted to leadership and engagement of staff, so that the desired behaviours and attitutes became embedded on site. Additionally, Leaders were aware of the risks of removing attention from health and safety, and constantly reiterated its importance and relevance to the workforce and put effort into it 'feeling fresh'.

HSL's research, lead by Principal Psychologist Caroline Sugden, also found that the SCT mean scores for the Olympic Park were the highest in HSL's all-industry dataset for every factor.
This Learning Legacy is captured in a report by Caroline and her team. They conclude that 'the case studies can be considered exemplary, and should be considered for adoption across the construction industry'.
HSL's Learning Legacy report is at:
http://learninglegacy.london2012.com/publications/safety-culture-on-the-olympic-park.php
For further information on the Safety Climate Tool, and a video demonstration of its use, see:
http://www.hsl.gov.uk/health-and-safety-products/safety-climate-tool.aspx
HSL's training courses and seminars also give an opportunity to learn more; for instance 'Beyond Safety Culture: Improving behaviours in your organisation', and 'Behaviour Change: Improving Health and Safety Performance'. See details at:

http://www.hsl.gov.uk/training.aspx

Exposure data for exposure descriptions

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Under the REACH directive, the manufacturer or importer of a substance is called upon under certain circumstances to prepare exposure scenarios and specify risk management measures for the application of his substance. For many years now, under the measurement system «exposure assessment» of the German social accident insurance institutions (MGU), exposure data on hazardous substances and biological agents have been documented in the MEGA exposure database and utilised for the prevention activities of the accident insurance institutions (AIIs).

The IFA and the social accident insurance institutions make exposure data available to third parties for REACH registration under the following conditions:

- associations of industries or of branches of industry apply to individual AIIs or to the IFA.
- the exposure descriptions satisfy certain of the quality criteria defined by the AIIs.
- the exposure descriptions are prepared in cooperation with affected AIIs.
- the IFA or the AIIs publish the exposure descriptions in their own media which are freely accessible to the public.

Exposure data for exposure descriptions have been evaluated for the following hazardous substances:

- Acetonitrile
- Aniline
- Decamethylcyclopentasiloxane
- Hexamethylcyclotrisiloxane
- Lead
- Lead and its compounds as additives in polyvinyl chloride (PVC)
- Mercury and its compounds in lamps (e.g. fluorescent tubes or low-energy light bulbs)
- 4,4'-Methylenedianiline (MDA)
- N-Methyl-2-pyrrolidone (vapour)
- Octamethylcyclotetrasiloxane

More information:
http://www.dguv.de/webcode.jsp?q=e120913

Intervention study of physical inactivity at office and VDU workplaces: development of a method inventory

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Physical inactivity and the unbalanced stress caused by continual sitting present a serious health hazard. Besides disorders of the musculoskeletal system and metabolic and cardiovascular disorders, mental disorders are also among the consequences of sustained inactivity. In view of the steady rise in the number of office workplaces involving little movement, the development and evaluation of suitable measures for promoting physical activity at the workplace is of great importance.

Some measures for the promotion of physical activity have been shown to be effective. However, the observed effects have rarely been quantified by means of occupational medical progress parameters.
In order for ergonomic and occupational medical methods to be used in the future for the observation of intervention effects, a comprehensive inventory of methods was developed and a randomized controlled intervention study (n = 25) conducted in which they were trialled.

The methods employed identified a whole range of significant positive intervention effects. Increases in the mobility of individual joints and directions of movement were detected by means of the function diagnostics. The force tests diagnosed an increase in the maximum force of the back muscles and improved endurance force of the back, abdominal and shoulder muscles. Several questionnaires revealed an increase in subjective well-being. The precise analytical recording of physical activity revealed increases in the duration of standing and movement and in the intensity of activity. The activity logs and simple recording of physical activity by means of motion sensors showed the intervention group to be more active over the entire period than the control group.

The significant results confirm that many of the methods employed are suitable for the quantification of intervention effects. For the methods which did not indicate any significant effects, it is unclear whether this can be attributed to a lack of sensitivity of the method or to the ineffectiveness of the intervention measures. In the future, a selectively reduced version of the method inventory can be used for comprehensive analyses of the effectiveness of measures for the promotion of physical activity.

Project partners are Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA), Institut für Prävention und Arbeitsmedizin der Deutschen Gesetzlichen Unfallversicherung - Institut der Ruhr-Universität Bochum (IPA)

More information:
http://www.dguv.de/webcode.jsp?q=e124003

Safe Home: Health and safety campaign for foreign domestic workers in Italy

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INAIL
ISTITUTO NAZIONALE PER L'ASSICURAZIONE CONTRO GLI INFORTUNI SUL LAVORO

Casa Si Cura

On 30 November 2011 the launch of the National Campaign "Casa Sicura -Safe Home" was held in Rome. The project, funded by the Italian Ministry of Employment and Social Policies, basically sets out to promote a culture of prevention and safety among foreign domestic workers living in Italy, to raise awareness among the families employing them and to contribute to the decrease of accidents at home.

The phenomenon of domestic accidents is a cause of great concern, with the home being the place where most accidental deaths occur according to statistics. Unfortunately this occurrence, referring in particular to foreign home helpers and carers, is not easy to evaluate due to the irregular situations, under-employment and risk of coercion that often characterizes such work, leading to a low propensity to report accidents and thus to underestimates in official statistics.

This situation has led to the need to prepare effective and specific informative/training tools to be distributed during the campaign; such as a Diary 2012, aimed at the target population, translated into the 5 most spoken languages among the foreign workers (English, Russian, Spanish, Polish and Rumanian) and a booklet addressed to employers, encouraging dialogue, discussion and information on health and safety of workers and host families. These tools, shared with reference migrant associations, experts in the sector and foreign workers, have been disseminated with the intent of promoting and qualifying home help work performed by these workers, considered as actors of great social relevance, and of facilitating their gradual cultural integration.
In particular, the Diary was chosen to answer the need of creating an original product, adequate and easy to use, in terms

of graphics and choice of language, bearing in mind and attempting to overcome the cultural, linguistic and logistic limitations of foreign home help activities. To this end, the Diary includes weekly prevention tips of daily help and use, monthly recipes of the Italian cuisine, a regulatory section - a sort of vademecum on the rights and duties of both immigrants and employers and the "mapping" of risks with a description of each room or domestic environment. Special care has been dedicated to psychosocial issues regarding relations and communications between the home helper and the assisted person. The Diary concludes with a list of the most important national phone numbers and websites to find out more about available services; finally, a glossary of technical terms has been provided to explain specific words and to make the information more "user friendly", pursuant to Italian Legislation (Decree 81/2008).

The methodological phases of the project, developed to achieve set objectives, were:

- analysis of statistical/documentary sources and of intercultural communication campaigns, both national and European, with a view to defining the phenomenon under study;
- qualitative and quantitative survey to study the identikit and traits of the reference target;
- drafting and submission of a questionnaire to about 1,000 workers in the reference sample on the informative/training needs of the target population.

In December 2011 and January 2012, about 15,000 copies of the Diary 2012 and of the booklet were distributed for free to foreign workers associations and trade unions.

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New method of assessment and selection of protective clothing and gloves against UV radiation from artificial sources

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CIOP PIB CENTRAL INSTITUTE FOR LABOUR PROTECTION - NATIONAL RESEARCH INSTITUTE

Some amounts of ultraviolet radiation are beneficial for humans but excessive exposure can cause many negative health effects to the skin, eyes and the immune system. Biological effects can be induced only by absorbed radiation. Ultraviolet radiation (UVR) induces photochemical reactions in biological tissues. Occupational exposure to UVR occurs both from natural and artificial sources.

Fig. 1: Work with artificial UV

Exposure limit values (ELVs) represent conditions under which it is expected that nearly all individuals may be repeatedly exposed without acute adverse effects, and based upon best available evidence, without noticeable risk of delayed effects. Studies of the spectral effectiveness of ultraviolet radiation for specified harmful health effects were the base of determination of the criteria for health hazard evaluation and exposure limit values by different national and international organizations. There are different relative spectral effectiveness (action spectrum) of ultraviolet radiation, for a specified biological response.

The Directive 2006/25/EC of the European Parliament and the Council on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation) concerns measures to protect workers from the risks associated with artificial optical radiation (Fig.1). Artificial sources of UVR emit a spectrum of radiation with characteristics specific to each source. Health risk from artificial sources can be much higher then risk from natural UV. It is due to the fact that the artificial levels of UV tend to be higher and may include harmful wavelengths (from the UVB and UVC region). The fundamental criterion of health hazard evaluation arising from artificial ultraviolet radiation is to avoid: cornea and conjunctiva inflammation, cataract, erythema, skin photoaging and skin cancers. A combination of three control measures plays a main role in protection from overexposure to UVR: minimization of exposure time, maximization of the distance from the source, and shielding against radiation. The use of personal protective equipment (PPE) is one of the methods of shielding against radiation. PPE should

be used when the other control measures do not provide an adequate protection of workers. Exposed areas of skin should be covered by working clothes and gloves with low UVR transmission.

Currently, there are no criteria to assess textile clothing for workers exposed to artificial UV radiation. Ultraviolet protection factor (UPF) is adequate for effectiveness protection against solar radiation but does not take into consideration UV range from 190 to 290 nm which is characteristic for some types of artificial sources.

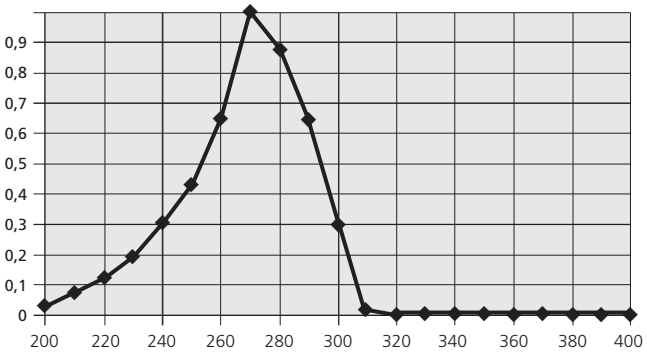

Fig. 2: Actinic spectra distribution

The new indexes of UVR protection has been elaborated in the Central Institute for Labour Protection – National Research Institute (CIOP-PIB) in frame of the project POIG.01.03.01-00-006/08.
"A new generation of barrier materials, protecting the individuals against harmful effects of the environment" co-financed by the European Regional Development Fund of EU.

Mean actinic transmittance (TA) and protective index (W) were determined on the basis of spectral transmittance of textile materials for UV radiation. Four spectral ranges were selected:

- Range 1 – (190 – 240) nm;
- Range 2 – (240 – 300) nm;
- Range 3 – (300 – 400) nm;
- Range 4 – (190 – 400) nm.

These ranges correspond to spectral characteristic of typical artificial UV sources. Mean spectral transmittance and protective index were calculated using the spectral transmittance of textile sample and the actinic spectra distribution (Fig.2).

Protective index W expresses the efficiency of textile material in reducing harmful radiation and can be used to assess barrier property of protective clothing and gloves against UV. Figure 3 presents results of protective index W for textile materials with and without special UV absorbers.

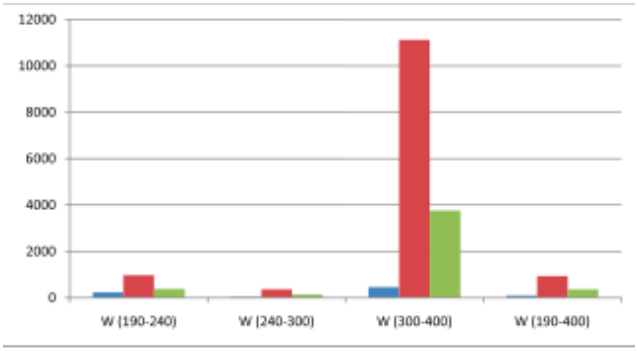

Fig. 3: Results for textile materials with and without special UV absorbers

For the selection of protective clothing or protective gloves for protection against UV in the workplace, a product with an appropriate protection index should be chosen. To do this, specification of a range of wavelengths and spectral characteristics of radiation emitted by the UV source should be known. Then, after measurement of the UV radiance in the workplace and determination of the exposure time of a worker during a work shift and multiplication of Maximum Permissible Exposure (MPE) exceeded, the model of protective clothing characterized by the protective index W greater than exceeded MPE for a source of UV on workplace, should be chosen.

Within the Project "A new generation of barrier materials, protecting the individuals against harmful effects of the environment" worked up: barrier materials against electrostatic and electromagnetic field and optical UV radiation, camouflage materials in VIS, IR and microwaves range.

For further information, please contact Dr. Grzegorz Owczarek (growc@ciop.lodz,pl), Dr. Grażyna Bartkowiak (grbar@ciop.lodz.pl) or Dr. Agnieszka Wolska (agwol@ciop.pl) from CIOP-PIB

Hearing protector selection program for orchestra musicians

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Unimpaired hearing is part of a musician's capital. Under the German OSH regulation governing noise and vibration [1], employers are obliged to protect employees against sound which presents a hazard to their hearing. Musicians, however, frequently conduct a number of tasks (solo practising, teaching, etc.) involving sound exposure which the musician's employer often cannot be completely aware of. For such cases, a selection program is available for musicians which assists them in determining their own exposure to sound and selecting suitable hearing protectors.

Using the software ear-plugs may be selected based on the "M value". This value denotes the sound attenuation of the hearing protector at medium frequencies (see EN 458 «Hearing protectors – Recommendations for selection, use, care and maintenance – Guidance document», 2005). It must be stated by the manufacturer, in addition to other attenuation values.

The mean sound attenuation values for a hearing protector at the octave band mid-frequencies from 63 Hz to 8000 Hz are used for assessment and selection purposes. The slope in dB/octave is derived from the linear trend over these mean values. A hearing protector that is well suited to musicians does not distort the sound, i.e. it should ideally have a slope of 0 dB/octave. The assessment produces a number on a scale of 1 to 6. «1» is attained by the hearing protector in the database with the lowest absolute value of the slope; «6» is assigned to the product with the highest slope. The hearing protectors are listed by the program in the order of the absolute value of their slope.

A minor deviation from the trend assures an even (rising) sound attenuation. In other words, there are no major jumps in sound attenuation from one octave band mid-frequency to the next. «1» is assigned to the hearing protector with the lowest deviation from the trend, «6» to that with the highest.

The software may be used for occupational safety and health purposes. Its use does not exempt the employer from his obligation under the LärmVibrationsArbSchV to conduct a risk assessment. Users should note in particular that for practical reasons, the software employs the weekly sound exposure level (the sound exposure may vary considerably from one working day to the next). Under the LärmVibrationsArbSchV Section 15 Paragraph 2, however, the employer must apply to the responsible authority before using the weekly rather than the daily sound exposure level for the purposes of risk assessment.

More information:
http://www.dguv.de/webcode.jsp?q=e54444

[1] LärmVibrationsArbSchV: transposition of Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003

Novel Aspergillus extracellular alpha–amylases for biotechnology in an advanced safety context.

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CONTRO GLI INFORTUNI SUL LAVORO

The alpha–amylases, which catalyze the cleavage of internal 1,4–alpha–glycosidic bonds in the first step of degradation of starch, are widely used in industry with high relevance for diverse applications. Fungal alpha–amylases are derived from Aspergillus species. The so-called industrial aspergilli such as Aspergillus niger and Aspergillus oryzae contain the highest percentage of extracellular amylases (Andersen et al. 2011) and are involved in many industrial processes.
However, for most of the Aspergillus species, analysis based on sequence data on the hydrolases that play a role in the degradation of carbohydrate polymers have yet to be conducted. It is therefore most likely that several Aspergillus species represent a huge potential for finding new hydrolytic enzymes that could be used for modern bio-based industrial applications (Davolos and Pietrangeli 2010).
In a number of the International Journal of Systematic and Evolutionary Microbiology, the authors have published a paper on Aspergillus affinis, a novel ochratoxin A (OTA)–producing species, carrying out a phylogenetic analysis based on nuclear genes (Davolos et al. 2012). The authors have also analysed in A. affinis the gene encoding the extracellular alpha–amylase.
It must be stressed that a salient feature of A. affinis is high production of OTA (Davolos et al. 2011), a potent mycotoxin also produced by other aspergilli such as A. niger (Andersen et al. 2011). Despite its increasing importance for human health, the information currently available on the enzymes and the corresponding genes responsible for the OTA biosynthesis in Aspergillus species is incomplete. In this context, the authors

argue that the A. affinis genome sequence is a valuable candidate to deeper define plant polysaccharide-degrading enzymes and polyketide synthases related to the biosynthesis of OTA that are essential to improve the biotechnological applications of aspergilli in a safe occupational context.

Figure 1 (a) Light micrograph of A. affinis ATCC MYA–4773T (Davolos et al. 2011): heavy-sporing zonate colony grown on Czapek yeast extract (CYA) at 25 °C, after 14 days showing conidial heads and sclerotia; (b) Nomarski interference contrast light microscopy of A. affinis ATCC MYA–4773T conidiophore.

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Events

10-11 May 2012, Paris, France
EU OSHA - INRS Seminar on OSH research priorities

As part of the project on priorities for occupational safety and health (OSH) research, the European Agency for Safety and Health at Work and INRS will organise a seminar on 10-11 May 2012 (two half days) in Paris.
The seminar will bring together the OSH research community and policy makers and it will offer you an opportunity to discuss OSH research priorities for the following years. The seminar is expected to provide an input to EU-OSHA report on OSH research priorities in the EU. The detailed programme will be available soon.

For more information: ucri@inrs.fr

21-23 May 2012, Manchester, UK
2nd International Conference on 'Well-being and Work'

'Making the Case' is the theme for this internationally significant meeting. The programme includes plenary sessions delivered by global thought leaders in the field giving a wide-range perspective on wellbeing, making the case for industry, and workplace innovation and wellbeing. This includes a plenary on the work of the PEROSH Wellbeing Group, 'Planting Well-being Across Europe', by Dr Jenny Lunt. There will be four mini-symposia including 'The effects of restructing on the psychological health and wellbeing of employees' by PEROSH institutes. Additionally, at the conference industry day, 'From Wellbeing to Well-business', employers and employees' representatives can share wellbeing know-how with researchers and policy makers from around the globe.

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

11-14 September 2012, Sopot, Poland
Workingonsafety.net 6th International Conference: Towards Safety Through Advanced Solutions

Biennial conference of the workingonsafety.net network consists of decision-makers, researchers and professionals responsible for the prevention of accidents at work will take place in Sopot, Poland, 11-14 September 2012.

The conference will have a special focus on the prevention of accidents and trauma at work with construction, transport, agriculture, manufacturing, mining and healthcare being the branches of the conference primary interest.

Papers in the following areas of safety will be especially encouraged: advanced technologies for improved safety, advanced solutions related to personal protective equipment, management of occupational safety, smart regulations and inspection, human factors in the improvement of safety at work, myths on safety in the information society, psychosocial aspects of safety. The programme of the conference will include plenary sessions conducted by eight distinguished keynote speakers, and parallel technical sessions.

The local organizer of the conference is the Central Institute for Labour Protection – National Research Institute, Poland.

For further information please visit www.wos2012.pl or e-mail: wos2012@ciop.pl

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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
- Central Institute for Labour Protection - National Research Institute (CIOP-PIB), Poland, www.ciop.pl
- Finnish Institute of Occupational Health (FIOH), Finland, www.ttl.fi
- Health and Safety Laboratory (HSL), United Kingdom, www.hsl.gov.uk
- Institut National de Recherche et de Sécurité (INRS), France, www.inrs.fr
- National Institute for Occupational Safety and Prevention (INAIL), Italy, www.ispesl.it
- National Research Centre for the Working Environment (NRCWE), Denmark, www.nrcwe.dk
- Institute for Occupational Safety and Health (Prevent), Belgium, www.prevent.be
- National Institute of Occupational Health (STAMI), Norway, www.stami.no
- Netherlands Organisation for Applied Scientific Research (TNO), Netherlands, www.tno.nl

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