



OCCUPATIONAL SAFETY IN ADDITIVE MANUFACTURING

Content



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KAN – Kommission Arbeitsschutz und Normung



Kai Schweppe

Chairman of KAN

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New safeguards in product safety

A lot is happening at the moment in the field of product safety. The EU General Product Safety Directive is in the process of being revised. Also at European level, regulations on machinery products and artificial intelligence and a new construction products regulation are currently in preparation, and the stakeholders are monitoring their content. The legal environment in Germany is changing, too: the Product Safety Act has been revised, and other legal acts have been adapted in the process.

These changes, which are to bring legal requirements into line with technical progress, must be implemented appropriately for use in the field and adequately supported by standards. For example, if machines are controlled directly by customers in manufacturing (such as additive manufacturing), or become able in the near future to develop and control their processes themselves, new safeguards to protect users will also have to be devised and put in place. All parties bearing responsibility for occupational safety and health are called upon to join in the discussions early on and contribute creatively. Only those who are involved from the outset can set things in motion. «

Occupational safety in additive manufacturing

Potential hazards are the key criterion for occupational safety assessments. In additive manufacturing however, the catalogues of criteria for occupational safety and health are still far from adequate. No clear picture of the situation has therefore emerged as yet. Relevant guidelines could help to ensure the protection of workers and make production both safe and efficient.

Additive manufacturing (also termed 3D printing) has become increasingly important to industry in recent years. The concept of manufacturing components by applying material in layers may appear new; however, additive processes were already known and in use in the early nineteen-fifties. Since then, the number of available processes has increased hugely, accompanied by a rapid increase in the range of materials used. The processes along the additive process chain differ in their hazard potentials.

Harmless – or not?

Common to all processes is that a feedstock is compiled to form a component. The processes by which this occurs differ according to the material and may take the form of a bonding, melting or physical-chemical process. The materials used differ in the level of hazard they present. They may for example be respirable or explosive powders, or they may release substances during the joining process that are potentially harmful to health. Potential hazards are also presented by laser beams, and by sources of heat such as fusion nozzles or ovens for thermal post-processing.

Occupational safety must also be taken into account during the handling of material and post-processing of 3D-printed parts. Almost all parts manufactured additively require some form of post-processing. Separating the part from the build platform, removing residual material or support structures and finishing the surface are all steps that require either mechanical working or the use of auxiliary chemical materials. Potential for injury is presented by parts that have not cooled



Metal 3D printer for direct metal laser sintering.

sufficiently, needle-like support geometries, powders (possibly respirable) and harmful vapours.

VDI guidelines already exist for some processes. They provide a carefully prepared introductory approach to identifying the primary potential hazards and taking suitable measures to ensure that processes are safe. "Additive manufacturing in particular requires a modern approach to defining protective measures. The measures needed are defined with reference to the state of the art. This in turn is described by relevant codes and rules. Rules for industrial safety, the handling of materials and occupational safety interact and serve as a yardstick for an appropriate risk assessment," says Martin Worbis, engineer and labour inspector for the southern prevention region at the German Social Accident Insurance Institution for the woodworking and metalworking industries.

Participation is called for

Industry experts are called upon to contribute to the development of relevant standards and codes in order to cover the various aspects with respect to occupational safety and standardization, and also to take account of the needs of industry and the affected persons. Professor Dr Christian Seidel of Munich University of Applied Sciences and Chairman of ISO Committee TC 261, Additive Manufacturing, comments: "Occupational safety is an important topic in additive manufacturing. Concepts have been implemented in the field which often appear over-ambitious or conversely do not go far enough. The great challenge is to find the right, adequate measure. For this reason, much has already been done on the VDI's committees and to some extent also within ISO to provide users of the technology with comprehensible, process-specific codes for dealing with this topic appropriately. A highly comprehensive document is available in the form of VDI 3405 Parts 6.1 to 6.3. If timely consideration is given to the measures needed, the protection required for employees can be put in place without impairing flexibility and efficiency." Summing up the need for cooperation, Corrado Mattiuzzo, Head of the Technical and Scientific Department at the KAN Secretariat, points out that "there is already a great deal of interest in standardizing additive manufacturing processes. However, the national and international standards committees are dominated by installation and component manufacturers, test bodies and users. We therefore urgently appeal to OSH experts to join in playing an active part in standardization, to ensure that future standards meet the expectations of those involved in prevention and are compatible with the national OSH regulatory framework."

Conclusion: Occupational safety and health in additive manufacturing is an issue in which industry and the responsible bodies have a responsibility to provide practicable and appropriate guidance and codes to enable safe and, as far as possible, hazard-free work and research, without presenting an obstacle to innovation. This is an exciting field that can learn and benefit from the expertise of conventional manufacturing, but must nevertheless find solutions of its own that address the particular aspects of the subject.

Georg Schöpf

*Freelance author and
editor-in-chief of the
Additive Fertigung journal
published by x-technik*

The new German Product Safety Act

The Product Safety Act has been revised. The amended version came into force on 16 July 2021. Important updates and clarifications have been made at various points in the act.

The Product Safety Act (ProdSG)¹ transposes the General Product Safety Directive 2001/95/EC and almost a dozen Single Market directives (including the Machinery Directive) into German law. As before, the act contains provisions that apply in the same measure throughout the national legislation transposing the European directives (ordinances under the ProdSG), such as definitions. The regulatory provisions governing the presumption of conformity, to which application of standards during the design and manufacture of products gives rise, also remain unchanged. The same applies to the competencies of the authority empowering conformity assessment bodies to carry out conformity assessment procedures. In Germany, this authority is the ZLS (the central body of the German regional authorities with responsibility for safety technology). The ProdSG also contains provisions governing the GS mark, the committee for product safety (AfPS), and administrative and criminal offences. Product-specific provisions such as essential health and safety requirements and the conformity assessment procedures to be applied can be found in the ordinances under the ProdSG.

What's new?

Revision of the ProdSG was necessitated by the new European Market Surveillance Regulation 2019/1020 (MSR), which came into force in mid-July 2021. The Regulation governs market surveillance for 70 regulations and directives listed in its Annex I, covering approximately 40 product groups. The Market Surveil-

lance Act (ProdSG) applies to market surveillance of harmonized and non-harmonized products. The previous Sections 6 (concerning market surveillance) and 7 (concerning reporting duties) of the ProdSG were transferred to the MüG almost in full, in order to avoid duplication of provisions.

Amendment of the ProdSG was also prompted by the structure of the legal system. The ProdSG governs market surveillance and the requirements applicable to safe products. Previously however, the ProdSG also contained provisions for the inspection and operation of filling stations, lifts and other installations requiring regular inspection. These provisions are not related to product safety; rather, they concern the safety of workers and third parties in the danger zone when such systems are in operation. A dedicated act governing installations subject to mandatory regular inspection (ÜAnIG) now applies to these installations.

Important amendments in the 2021 ProdSG include provisions for providing consumers with information, including in digital form, on risks that are not immediately apparent, in accordance with Section 6 (1) No 1. A new authorization to issue prohibitory ordinances for the placing of products on the market has also been added in Section 8 (2). Previously, the ProdSG governed only the making available of products on the market (positive regulation), and not the prohibition of sale (negative regulation). Addition of the authorization was prompted by the fire at Krefeld Zoo on New Year's Eve 2020, which was caused by sky lanterns. Although use of these products was banned under existing law in almost all German states, their sale was not prohibited under the product safety legislation. Provision is now made for the sale of particularly dangerous products to be banned or restricted on a harmonized nationwide basis in the future. This

has already been possible for some time in Austria, for example, and has led to bans and restrictions on the sale of laser pointers, softair weapons and paintball markers – as well as sky lanterns.

Important changes have also been made to the legislation governing the GS mark. The new Section 20 (1) Sentence 2 now obliges the manufacturer of a product bearing the GS mark who is not domiciled in the EU or EFTA to appoint an authorized representative in the EU serving as a point of contact for the authorities (for example for the event of administrative offences). This amendment is necessary, since recourse by the authorities against manufacturers in third countries in the event of objections has proved to be very difficult. In future, Section 22 (3) of the ProdSG will enable a blacklist on the BAuA website to provide information on cases of unlawful use of the GS mark². The ordinances under the ProdSG and surveillance of use of the GS mark are also the reason for provisions concerning market surveillance being retained in Section 25 of the ProdSG.

Further changes in the area of product safety can be anticipated. The draft Regulation on Machinery Products is currently being discussed at European level. The General Product Safety Directive is also being revised. As Sepp Herberger, the legendary trainer of the Germany national soccer squad, would have put it: "After the amendment is before the amendment."

Dr Sebastian Felz

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¹ www.gesetze-im-internet.de/prodsg_2021

² www.baua.de/EN/Tasks/Statutory-and-sovereign-tasks/Product-safety-act/Product-safety-act_node.html

New strategies for new challenges

Dr Dirk Watermann has been Head of the KAN Secretariat and Director of KAN since 2014. In this interview, he provides an insight into KAN's current and future areas of activity before he retires at the end of 2021.

A year after you joined KAN, you told us in an interview in the KAN-Brief that the preceding twelve months had been “interesting, exciting and challenging”. What would you conclude now, almost eight years on?

I'd repeat what I said then, and would add: “extremely successful”. Not a day has passed that I would describe as being boring, much less “routine”. That's certainly due to the numerous new topics, the development goals adopted by KAN for its future strategy and its new formats for participation and information. But it's also a result of my own ambition to prepare the KAN Secretariat for the years ahead of us.

That certainly does sound ambitious. What developments prompted you to initiate changes to prepare KAN for the future?

The environment in which KAN operates is changing at an ever greater pace. Standardization is becoming more and more international, and global developments are increasingly shaping the debates. Emerging and developing countries are particularly relevant in this context. I think that we illustrated this well with reference to the example of China in the 2/2021 issue of the KANBrief.

The topics addressed by KAN have long ceased to be limited to machines and other products and are now increasingly extending to the safety and health of workers at work, the structuring and organization of services and companies, and even the regulatory sovereignty of nation states.

A further aspect is that in its policy, the EU has begun taking an interest in standardizing services across borders. An objective is now for service providers to deliver the same quality to customers throughout Europe – whether for maintenance services in industry or cosmetic services in the local beauty salon. However, experience has shown that the standards bodies are not shy

of formulating specifications for safe working, the handling and storage of hazardous substances, health and hygiene requirements, the use of personal protective equipment, and first aid measures.

Digital transformation is the current buzzword. Is this also an issue for KAN?

Certainly! The digital transformation is now one of the driving developments in the standardization sector. And by that, I don't mean converting paper-based standards into PDF files. No: we're talking about machine-readable standards whose content is transmitted to production plants, machinery and equipment, ideally via WLAN during running operation.

So we can say that KAN's environment is more dynamic than ever before. Are the development goals adopted by KAN, and which you mentioned, the right response to these challenges?

KAN has considerable potential as a forum and has steadily expanded, strengthened and exploited that potential with great success in recent years. It has a mediating function between the stakeholders. By that I don't just mean the stakeholders in occupational safety and health, but also researchers, consumers, planners, designers, doctors, scientists, lawyers, IT experts, ethicists and many others. But there is also a need for suitable forums in which the various players in the field of secondary regulation can pool information and explore common positions. The new topics are making this increasingly complex. We are currently expanding our base of experts, especially with regard to the new topics, and bringing them together as needed.

Involving users in processes is an area in which there is still much work to be done. Progress is being made here, but it is crucial that it be developed further: for example by means of



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workshops and by closer contact with chambers of industry, commerce and the skilled trades and with interest groups, and flanked by publications both in traditional and, in particular, social media.

What specific measures have you taken to address this issue?

For example using professional knowledge management. We must share the knowledge available to us with others. We must consider who wants to know what, in what depth and in what language; in what form we make knowledge available; and how we can keep knowledge up to date. We must communicate very clearly what is currently happening in standardization; what changes sectors, companies and also individuals can expect in the near future; what effects these decisions may have; and how I, as an affected person, an expert or merely an interested party, can get involved in the standardization process and in decision-making.

We are also particularly active on the subject of Europe. The fact is that regulatory sovereignty with respect to the social pillars – which include occupational safety and health – is increasingly shifting to the European level. This makes it more and more important to bring national opinion, our expertise, to bear at the earliest possible stage and to advocate for a high level of protection. We have laid a foundation for this by setting up KAN's European representation in Brussels. In the coming years, we must and will make greater use of this potential and build on what we have already achieved in the area of the Machinery, AI and Construction Products Regulations. We must also become more visible in other subject areas and present KAN's positions with a high level of technical expertise in the European Parliament, to the European Commission and among European interest groups.

It's fair to say that major milestones have already been reached. Where do you see the greatest challenges and areas of activity for KAN in the near future?

With the breadth of its stakeholders, KAN certainly has potential to expand its presence further and direct the spotlight on issues more actively. A cohesive body of occupational safety and health regulations is essential, and standardization can also add significant value in some areas in this context.

In order to have a serious prospect of influencing technological and social change in the interests of occupational safety and health, KAN must identify these issues at an early stage and adopt an appropriate position. To this end, we have modified the structures of the KAN Secretariat. These structures must now become robust.

For the same reasons, we should maintain our strategy in the area of public information and make more extensive use of moving image formats, increase our appeal to Generation Z, and become more involved at institutes of higher education and also in chambers of industry and commerce and skilled crafts.

We need to address affected groups of people in a way they can understand. We must raise awareness for the problems and challenges, highlight possible impacts, call for active participation in standardization, and promote and encourage participation in discussion from the perspective of those affected.

With regard to technical topics, artificial intelligence will have some impact upon every aspect of human life in the coming years. These are topics that I have in mind right now, without wishing to rank them in any order of importance.

You are now being succeeded by Angela Janowitz. What can she expect?

A very committed body of KAN members; a board of directors who are fully committed to KAN's values; an extremely highly motivated and qualified team at the KAN Secretariat; and staff and financial resources geared to the needs. And a whole host of new topics!

Dr Watermann, thank you for the interview. We wish you all the best!



Everything in view: measurement of the field of view on self-propelled forestry machinery

EN ISO 11850, Forestry machinery – General safety requirements, describes basic requirements for the field of view on self-propelled forestry machinery, without specifying these requirements in a verifiable measurement procedure. A new standard is intended to close this gap.

Forestry machines are used for work deep in forests, between trees and bushes, on slopes and in uneven terrain. They are used for example to fell and delimit trees and to cut up tree trunks. Their use leads to hazards significantly different to those presented by other mobile machines such as earth-moving machinery. For this reason, experts are currently preparing a standard specifically governing measurement and assessment of the field of view on self-propelled forestry machinery.

International standard ISO 5006:2017, Earth-moving machinery – Operator's field of view – Test method and performance criteria, can be referred to for measurements of the field of view on earth-moving machinery. The working group at DIN responsible for forestry machinery wishes to use this measurement method as a guideline for its work. It is based on a near-field measurement and a measurement on a visibility test circle at a radius of 12 m from the machine. How the method works can be described in simple terms as follows. For the purpose of measurement, two point light sources are mounted at eye height of a person sitting on the operator's seat. A tester uses a mirror to determine whether the light source can be detected on the defined lines around the machine. Wherever the tester is not able to detect the light sources, the area is considered an obstruction in the field of view. The standard specifies what obstructions in the field of view are permissible for what type of machinery.

As an alternative to manual measurement, the planned standard is to describe a measurement method employing a standardized, electronic measurement system. This method simulates the visibility test circle virtually. It therefore requires significantly less space than the manual method, and the susceptibility to errors is reduced. The use of software also supports documentation of the measurement.

In addition, provision is made for a measurement method for assessing the horizontal view from the machine operator's position (horizon view). To test the horizon view and possible requirements, series of tests are to be performed on forestry machinery with use of a prototype measurement setup. The background to this test is to define requirements for visibility beyond the 12 m radius in order to test the long-range view, which is important for the forestry sector. In addition to the measurement method, the new standard is also to describe requirements concerning the field of view that are adapted to the working conditions associated with forestry machinery. Depending on what requirements are satisfied by a forestry machine in a field of view measurement, different categories may be attained: green (good to very good field of view), yellow (satisfactory field of view) or red (sufficient, still tolerable field of view). Labelling of the category attained is to be affixed in the cab, thereby enabling the operator to determine the quality of the machinery's field of view immediately.

The scope of the new standard is limited to field of view requirements for forestry work; requirements concerning visibility in road traffic lie outside its scope and are subject to the respective national regulations.

The work item will be launched formally as soon as the tests of the test methods and other preparatory work have been completed.

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Annex III organizations: representatives of social stakeholders in European standardization activity

European standards help to raise European industry's competitiveness, and serve an important purpose in many areas of European legislation. They may also have far-reaching impacts on society, for example on consumers, the environment and the safety of workers. In accordance with the basic principles of standardization, it is therefore important for all stakeholders to be appropriately involved in standardization processes at national and European level and able to contribute their expertise.

The structure and processes of the European Standards Organizations (ESOs) are governed by private law. They do not therefore automatically represent the interests of wider society. In standardization, the principle of national delegation applies¹: stakeholder participation is channelled through the national standards bodies, whose delegates represent the consensus of all stakeholders in their respective countries. But are these stakeholders actually represented adequately in the standardization processes of all the Member States? In 2009, the European Commission noted that in many Member States, representation in standardization of certain significant parties in society was weak or fragmented².

For this reason, the ESOs were mandated by the EU in the Standardisation Regulation, which came into force in 2012, to "encourage and facilitate an appropriate representation and effective participation of all relevant stakeholders"³. Annex III of the Regulation sets out clearly that the only bodies suitable for this purpose are permanent, non-profit European associations mandated by national organizations in at least two-thirds of the Member States to represent stakeholder interests in the European standardization process. A body recognized as an Annex III organization is eligible to apply for EU funding and participate directly in standardization activity at European level. These bodies are: ANEC⁴ for consumers' interests, ECOS⁵ for environmental inter-

ests and ETUC⁶ for workers' interests. But: are these in fact the only groups whose expertise is at risk of being neglected during standardization activity? The EU Regulation answered this question by also including small and medium-sized enterprises (SMEs) in Annex III, since adequate participation by SMEs in the European standardization process is essential, particularly in the interests of the EU's technological progress. SMEs are represented in European standardization activity by Small Business Standards (SBS)⁷.

The EU Regulation does not however grant voting rights to Annex III organizations. The actual form taken by their participation is at the discretion of the European standards organizations. In practice this means that, as set out in the Regulation, the Annex III organizations may for example propose new work items, submit comments on draft standards and participate in the revision of existing European standards. The ESOs grant them various different further modes of participation. These include delegating observers to the technical committees and experts to the working groups.⁸

Appropriate involvement of these social stakeholders has been a long-running issue, not least because European standardization is becoming increasingly political. The great EU objectives of strategic autonomy, technological leadership and the digital and green transformations require strong standardization and greater

influence by the EU on standardization activity at international level. But what does this actually mean for civil society's stake in standardization, both at European and international level? Against this background, we intend to present the four organizations stated, in no particular order, in greater detail in forthcoming issues of the KANBrief. What specific opportunities do they have for participation at European and international level? What have they been able to achieve so far? Do they consider the European standardization system in its current form to be sufficiently inclusive?

Should you also have questions you would like to ask about these organizations or put to them, we would like to hear from you.

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- 1 See CEN Internal Regulations Part 1, 2.4; https://boss.cen.eu/media/5q3nsl5p/ir1_e.pdf
 - 2 EIM study: Access to standardization, March 2009, www.anec.eu/images/Publications/Access-Study--final-report.pdf
 - 3 Article 5 (1) of Regulation No 1025/2012, <http://data.europa.eu/eli/reg/2012/1025/oj>
 - 4 Association Normalisation Européenne pour les Consommateurs, www.anec.eu
 - 5 Environmental Coalition on Standards, <https://ecostandard.org>
 - 6 European Trade Union Confederation, www.etuc.org
 - 7 www.sbs-sme.eu
 - 8 <https://boss.cen.eu/media/vddl0qy/opinion.pdf>
https://ftp.cencenelec.eu/EN/EuropeanStandardization/Guides/25_CENCLCGuide25.pdf



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Update on the safety of treatment tables

Thousands of height-adjustable treatment tables are in use, for example in hospitals and physiotherapy practices. The height adjustment facility in particular has caused crush injuries, fractures and even fatalities among employees in the past.

In 2019 and 2020, KAN arranged two expert discussions involving the stakeholders (the accident insurance institutions, Federal Institute for Drugs and Medical Devices (BfArM), German regional authorities, operators, social partners, standards bodies). Those attending discussed ways of making treatment tables safer. Numerous activities have been launched, and some hurdles have already been overcome. Preliminary results were reported in more detail in KANBrief 4/20¹.

A result of the expert discussions was that in December 2020, the German supreme state authorities responsible for medical devices and the BfArM published a new document containing information and requirements on the safety of treatment tables. One of the requirements upon manufacturers that is addressed in the document is that they observe the updated BfArM recommendation for treatment tables with power adjustment to be designed such that the tables are not able to trap persons in the adjustment mechanism and thereby cause serious injury. A guide for operators is also included, providing information on the purchase and operation of treatment tables with electrical height adjustment.

The expert discussions and other discussions over and beyond them revealed considerable uncertainty on the market at the present time. A range of information for operators and manufacturers has therefore been published or is currently in preparation, coordinated by a public information working group established for the purpose:

- The German Social Accident Insurance Institution for the health and welfare services (BGW) and the Institute for Occupational Safety and Health of the DGUV (IFA) have together published a sample risk assessment to assist operators in risk assessment of the treatment tables.
- Operators can obtain sample declarations for new treatment tables and retrofits from the BGW. By means of these declarations, the manufacturer confirms observance of the BfArM recommendation.
- The IFA is currently working on practical guidance for manufacturers to support them in evaluating possible technical solutions.
- A list of the most important questions frequently asked by manufacturers and operators, and the corresponding answers, is also being developed.

A further result of the expert discussions was that a project was launched for a prestandard governing treatment tables. Together with the BGW and the IFA, KAN closely monitored work on this prestandard and coordinated its content with the other OSH stakeholders. DIN VDE V 0750-2-52-2:2021-10, Medical electrical equipment – Part 2-52-2: Particular requirements for basic safety and essential performance of couches, has been published and is available from the DKE.

The scope of the prestandard is broad, covering for example treatment tables serving as medical devices and those not placed on the market as medical devices, and treatment tables either with or without height adjustment. This national prestandard is an important step towards greater safety. The objective however is a European harmonized standard. This would apply across Europe and, in the case of treatment tables constituting medical devices, would give rise to a presumption of conformity with the relevant requirements of Regulation (EU) 2017/745 governing medical devices. For other electrically height-adjustable treatment tables, it is intended to give rise to a presumption of conformity with the Machinery Directive 2006/42/EC. KAN will also continue to monitor the progress towards a harmonized European standard closely.

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¹ www.kan.de/en/publications/kanbrief/4/20/treatment-tables-safe-raising-and-lowering

More detailed **information** and **links** to the publications referred to above have been compiled on the BGW website (in German): www.bgw-online.de/therapieliegen

New state committee for safety and health at work

The German Occupational Safety and Health Control Act (ArbSchKG) came into force on 1 January 2021. It introduces a new Section 24a into the Occupational Safety and Health Act (ArbSchG) making provision for a new committee for safety and health at work (ASGA). The inaugural meeting of the committee, the members of which have now been appointed, was held in September. The committee complements the existing five occupational safety and health committees of the German Federal Ministry of Labour and Social Affairs (BMAS). These are the Committees for Hazardous Substances (AGS), Biological Agents (ABAS), Industrial Safety (ABS), Workplaces (ASTA) and Occupational Medicine (AfAMed).

The ASGA will advise the BMAS on issues of safety and health at work within the scope of the German Occupational Health and Safety Act (ArbSchG) and draw up supporting rules and recommendations. It will also carry out horizontal tasks, such as coordination of work on issues involving multiple committees.

www.baua.de/EN/Tasks/Committee-administration/ASGA/ASGA_node.html

Fine particulate matter – OSH on the road

Exposure to diesel exhaust emissions is known to cause heart and respiratory health problems, leading to hospitalisation and premature death. Owing to how much time professional drivers spend on the road, researchers from Imperial College London, supported by the IOSH Research Fund, therefore attempted to quantify the risk of harm from drivers' exposure to diesel exhaust emissions.

The team conducted a large real-world in-vehicle personal exposure study by monitoring 141 drivers' exposure to black carbon. The professional drivers, who were based in London, included taxi drivers, couriers, heavy goods vehicle and bus drivers, and drivers in the utility services, waste removal, passenger transport and emergency services. The drivers were monitored for four working days. A follow-up intervention study of 42 drivers was also conducted to assess the effectiveness of using in-cabin filters to reduce drivers' exposure.

No applicable ambient air standard for black carbon exists. Since black carbon is a component of fine particulate matter (PM_{2.5}), the closest applicable ambient air standard is the World Health Organization (WHO) ambient air quality guideline for PM_{2.5}, which is set at 25 µg/m³ averaged over 24 hours.

In the study, only one instance was observed of a participant exceeding the 24-hour WHO PM_{2.5} guideline (black carbon at 30.9 µg/m³). Short-term exposures were however intermittently higher than this value, flagging the importance of employers of professional drivers considering, monitoring and acting on reducing the risks to their employees.

The study published in 2020 recommends that both employers and drivers change behaviours to help facilitate a reduction. It goes on to conclude that the most effective way to reduce (professional) drivers' exposures to diesel exhaust emissions concerns the technical level (change to zero tail-pipe emission, vehicles with airtight cabins etc.).

Mary Ogungbeje, Mary.Ogungbeje@iosh.com

Full text of the study: <https://iosh.com/media/8902/the-driver-diesel-exposure-mitigation-study-full-report.pdf>

Angela Janowitz is the new Director of KAN

Angela Janowitz will assume the role of Director of KAN on 1 January 2022. She replaces Dr Dirk Watermann, who is retiring. Ms Janowitz, a biology graduate, has worked at the KAN Secretariat since 1995: initially as a technical officer and subsequently as a head of department and Deputy Director. With her many years of experience in national and international standards committees and bodies, she can call upon a strong network in occupational safety and health and standardization.

Internet

Industry 4.0: standardization and regulation map

Germany's Federal Institute for Occupational Safety and Health (BAuA) and Federal Network Agency (BNetzA) have together compiled an overview of standardization and regulation in Industry 4.0 technologies. Explanations and images provide information on important codes, technical rules, standards and official strategic policy documents. The overview also indicates the bodies active at national and European level. It covers the legal areas of product safety and the safety and health of workers at work. In the area of standardization, the focus lies on AI technologies.

<https://bit.ly/3bNHiHk>

The BAuA appreciates feedback on the standardization and regulation map: FB2.4@baua.bund.de

Calculator for votes on standards

In order for a standard to be deemed adopted by CEN and CENELEC, a number of criteria must be met. The votes cast by all the Member States can be entered in an online calculator. The calculator returns the result, showing at a glance whether a standard would be accepted or rejected and how changes in the votes cast would affect the decision.

For CEN: <https://votecalculator.cencenelec.eu/cen>

For CENELEC: <https://votecalculator.cencenelec.eu/cenelec>

Events



27.01.2022 » Essen/Online

Konferenz

Arbeitsschutzfachtagung

HDT

www.hdt.de/arbeitsschutztagung-h020011286

06.-10.02.2022 » Online

Kongress

33rd International Congress on Occupational Health 2022

ICOH

<https://icoh2022.net>

23.-24.02.2022 » Dresden

Seminar

VISION ZERO – Strategie für einen neue Präventionskultur

IAG

https://asp.veda.net/webgate_dguv_prod 700152

24.02.2022 » Online

Förderprogramm-Präsentation

DIN-Connect Pitch

DIN e.V.

<https://www.din.de/de/din-und-seine-partner/termine/termine/din-connect-pitch-826438>

02.-04.03.2022 » Magdeburg

GfA-Frühjahrskongress 2022

Technologie und Bildung in hybriden Arbeitswelten

Gesellschaft für Arbeitswissenschaft (GfA)

www.gfa2022.de

21.-22.03.2022 » Bonn

Seminar

Maschinenrichtlinie 2006/42/EG

MBT

www.maschinenbautage.eu/seminare/seminarmaschinenrichtlinie1

28.-29.03.2022 » Ostfildern/Online

Seminar

Sicherheit von Maschinen

Technische Akademie Esslingen

www.tae.de/seminar/seminar-sicherheit-von-maschinen-32790

30.03.2022 » Online

Online-Seminar

Maschinensicherheit und Produkthaftung in Europa, Asien und den USA

DIN Akademie

www.beuth.de Produkthaftung

25.-26.04.2022 » Online

Seminar

Basiswissen Normung

DIN-Akademie

www.beuth.de/de/online-seminar/basiswissen-normung/118163816

26.-27.04.2022 » Dortmund/Online

Tagung

11. Symposium "Licht und Gesundheit"

BAuA

www.baua.de/DE/Angebote/Veranstaltungen/Termine/2022/04.26-Licht-und-Gesundheit.html

27.04.2022 » Berlin

Dialogveranstaltung

International Bio-Agent Day 2022: Biological agents at work – lessons learned from the SARS-CoV-2 pandemic

BAuA

www.baua.de/DE/Angebote/Veranstaltungen/Termine/2022/04.27-Biostofftag.html

14.-17.05.2022 » Istanbul

Congress and trade fair

Turkish Occupational Safety & Health Exhibition (TOS+H EXPO)

Messe Düsseldorf GmbH

www.toshexpo.com

16.-18.05.2022 » Lloret de Mar (Spain)

Congress

The Vision Zero Safety Future Congress

ETALON Association

www.visionzerosummit.com

24.-25.05.2022 » Dresden

DGUV Fachgespräch

Assistenzsysteme für die Unfallprävention

IFA – Institut für Arbeitsschutz der DGUV

www.dguv.de/ifa/veranstaltungen/dguv-fg-assistenzsysteme

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