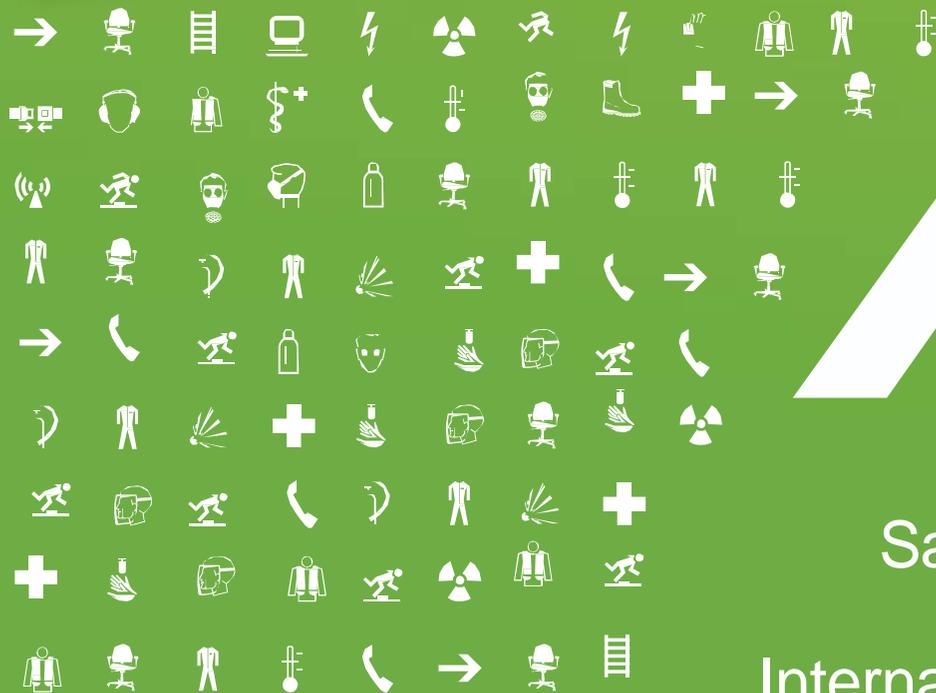


**32nd
International Congress
for Occupational Safety and
Health**

18 .– 21. listopada 2011.
Düsseldorf



Safety, Security and Health at Work

International Trade Fair with Congress



European Agency
for Safety and Health
at Work

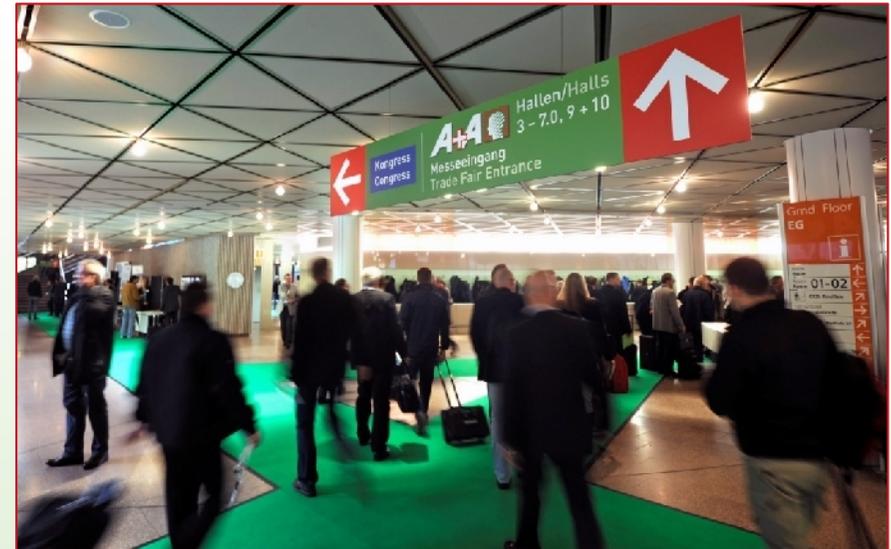
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Natalija Pejnović

A+4



- + održava se svake dvije godine,
- + 60.000 posjetitelja,
- + 1600 izlagača,
- + 62 zemlje.



32nd International Congress for Occupational Safety and Health



Kongres obuhvaća:

- Više od 60 događanja
- 350 predavača
- ILO Conference
- 6000 sudionika

Organizator:

Bundesarbeitsgemeinschaft für Sicherheit und Gesundheit bei der Arbeit (BASI)

Tuesday, 18 October		Wednesday, 19 October		Thursday, 20 October		Friday, 21 October	
in the morning	in the afternoon	in the morning	in the afternoon	in the morning	in the afternoon	in the morning	in the afternoon
Opening A + A 2011 Trade Show and Congress	Innovative Personal Protective Equipment	Innovative Personal Protective Equipment	International Fall Protection Symposium (IFPS)	International ILO Conference „Promoting Preventative Safety and Health Culture: International Instruments, National Strategies and Good Practices“	International ILO Conference „Promoting Preventative Safety and Health Culture: International Instruments, National Strategies and Good Practices“	International ILO Conference „Promoting Preventative Safety and Health Culture: International Instruments, National Strategies and Good Practices“	
	Arbeitsassistenzen systeme und adaptive Arbeitsumgebun- gen	Herbstkonferenz der Gesellschaft für Arbeitswissensch- aft (GfA)	Herbstkonferenz der Gesellschaft für Arbeitswissensch- aft (GfA)	Forum Katastrophens- chutz	Forum Katastrophens- chutz	Psyche und Gesundheit in der Arbeitswelt	
Kunst- und Theaterfest		The Mobility Challenge – OSH Qualifications	Gefahrstoffpraxis	International Fall Protection Symposiu- m (IFPS)	Sicherheit und Gesundheit in der Pflege	Neue Wege in einer modernen Arbeitsschutzverwaltung	
	Road Safety „Fight the Risk“	Gemeinsame Deutsche Arbeitsschutzstrat- egie	Anforderungen an Arbeitsstätten	Man and Machinery – from eternal conflict to exciting challenge	Man and Machinery – from eternal conflict to exciting challenge	Occupational Diseases	
Posterausstellung	Gewalt-ige Wirkung! Perspektiven und Präventionsansätze	A+A Tag der Sicherheitsbeauf- ragten	A+A Tag der Sicherheit ^{sbe} auftragten	Betriebs- und Personalräte im Arbeits- und Gesundheitsschutz	Öffentlicher Dienst Psychische Belastung: Qualifizierungsbedarf	Professionen im Arbeits- und Gesundheitsschutz	
	Lärmschutz in der Praxis	A+A Tag der Sicherheitsbeauf- ragten	Demografische Entwicklung		Betriebssicherheit	A+A Unternehmertag	
	DGUV Vorschrift 2	Betriebliches Eingliederungs management	Explosionsschutz	Sicherheit von Maschinen	Arbeitsschutz – zielgruppengerecht für Frauen und Männer	Brückenschlag im Bauwesen	International Events Simultaneous interpretation German – English,
	Physische Belastungen	Vorbeugender Brandschutz	Biologische Arbeitsstoffe		Arbeitsmedizini- sche Vorsorge	Büro-Ergonomie	
	Zeitarbeit	Gefährdungs- beurteilung	Statuskonferen- z betriebliche Gesundheitsför- derung (BVPG + Basi)	Betriebliches Gesundheits- management	Gesundheit und Restrukturierung	Optische Strahlung	
	ISSA Workshop: Promoting Employability, Activity, Health	Statuskonferen- z betriebliche Gesundheitsför- derung (BVPG + Basi)	Kunst- und Theaterfest	Arbeits- und Gesundheitssch- utz in Hochschulen	Arbeits- und Gesundheitssch- utz in Hochschulen	Elektromagnet- ische Felder	ILO Conference: German – English – French – Russian
		ISSA Workshop: Promoting Employability, Activity, Health and Reintegration	Posterausstellun- g mit Info-Börse zur DGUV Vorschrift 2	Kunst- und Theaterfest	Kunst- und Theaterfest	Gefahrst offrecht	
			Posterausstellun- g mit Info-Börse zur DGUV	Kunst- und Theaterfest	Kunst- und Theaterfest	Kunst- und Theaterfest	
				Posterausstellun- g mit Info-Börse zur DGUV	Posterausstellun- g mit Info-Börse zur DGUV	Posterausstellung	



TESTING SLIP RESISTANCE OF THE FLOOR COVERING

Natalija Pejnovic
Croatian Institute for Health Protection and Safety at Work
Zagreb, CROATIA

Introduction

The paper analyses basic principles by means of which the value of slip resistance or anti slip characteristics of the floor covered with materials is determined as well as factors influencing ways of walking. Variable working conditions in the workplace and the environment which differs from laboratory conditions under which the anti slip characteristics of new floor covering materials are measured. Thus, it is necessary to test the floor covering after its laying in the real conditions of the workplace. It is also proposed that the tests of floor covering materials can be carried out in both dry and wet states.

Figure 1: Human walk

Methods

The testing the dynamic coefficient of friction (DCOF) with pendulum - also known as the portable skid resistance tester, the pendulum is the subject of a EU Standard (EN 14237, 2004). The method is based on a swinging, imitation heel (using a standardized rubber soled sump), which sweeps over a set area of flooring in a controlled manner. The slipperiness of the flooring has a direct and measurable effect on the pendulum test value (PTV) given (previously known as the Slip Resistance Value).

Figure 2: Pendulum Tester

On the basis of the value read by the pendulum (SRV - Slip Resistance Value) it can be converted into the values of kinematic friction coefficient, μ .

$$\mu = \frac{3 \cdot SRV}{330 - SRV} [\cdot]$$

Results

differently treated surfaces	dry		wet	
	SRV [°]	μ [·]	SRV [°]	μ [·]
polished	61	0.55	8	0.07
sawed	73	0.85	42	0.43
etched	84	1.02	53	0.57
burnt	55	0.80	35	0.35
sanded	53	0.57	36	0.40

Discussion

The values of kinematic frictional coefficient range from 0 to 0.90. Kinematic frictional coefficient of ice ranges from 0.15 to 0.23. As the safety limit of values of static frictional coefficient 0.50 was adopted. These values are not recommendable because they can cause tripping - as a consequence of too high resistance of the floor. The computed values of kinematic frictional coefficient for all selected floors belong to the category of floor covering materials with minor probability, making it fully safe for walking in dry state, (table 1.). It is suggested that all floor covering materials are first tested under the laboratory conditions. The reason for this is that attention should be paid to reducing the risk of slipping as a measure of occupational safety still at the stage of designing working premises and space. After installing it is necessary to test anti slip characteristics of floor covering materials in wet state before putting into service.

References

- Stranberg, L.; Larssonmar, H. 1981: The dynamics of slipping accidents, Journal of Occupational Accidents 3: 163 -162.
- Hoffmann, B.; Rostak, R. 2003: Arbeitsunfallstatistik 2001., HVBC.
- UK Slip Resistance Group, 2005: The assessment of floor slip resistance, Issue 3., UKSRG.

Contact: Natalija Pejnovic, Croatian Institute for Health Protection and Safety at Work, www.izh.hr, R. Cismarova 61a, Zagreb, CROATIA, npajnovic@izh.hr



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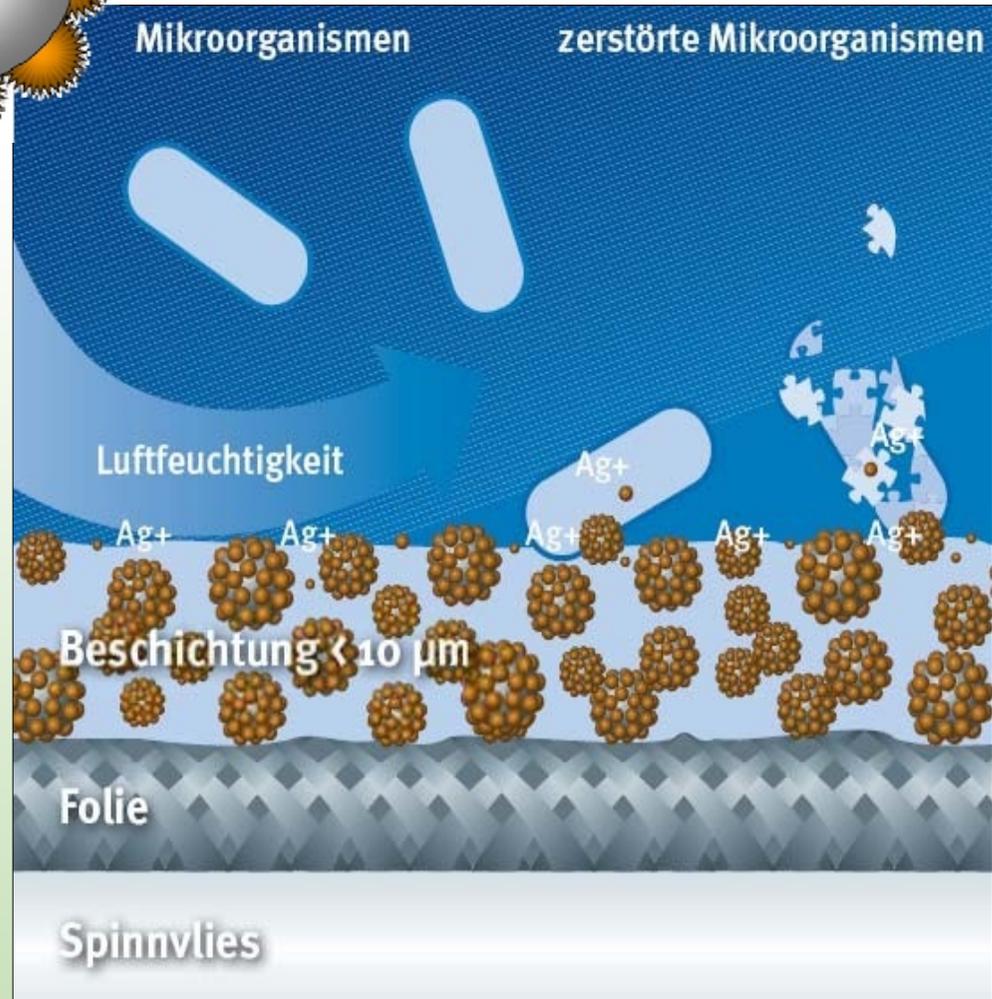
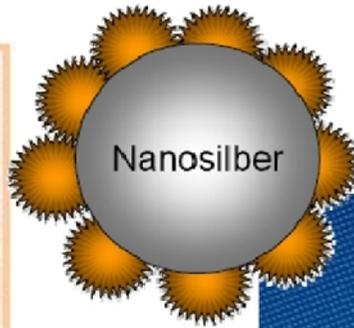


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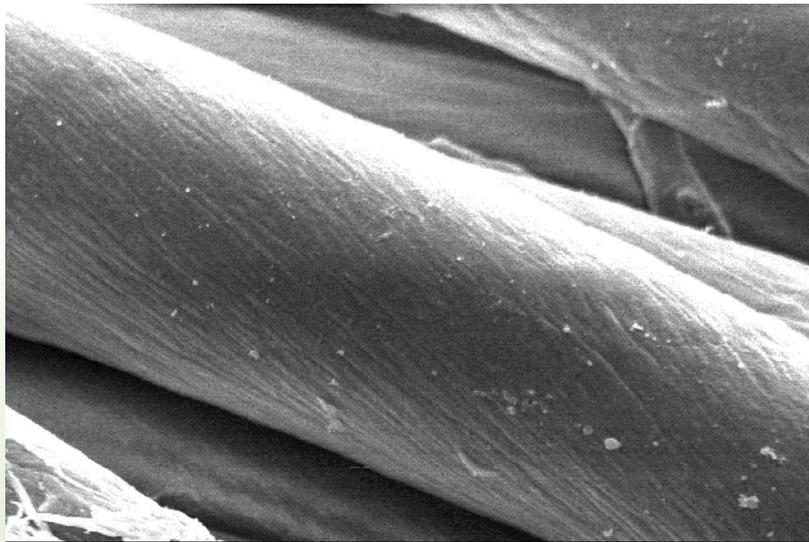




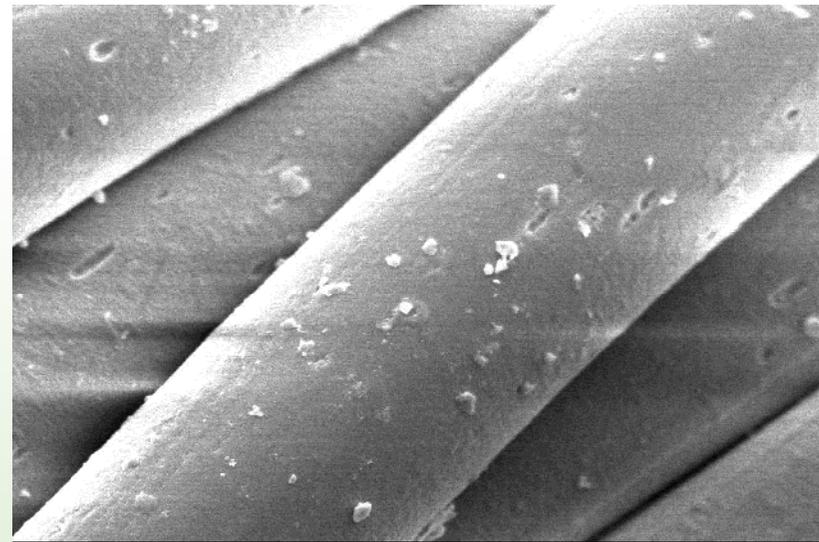
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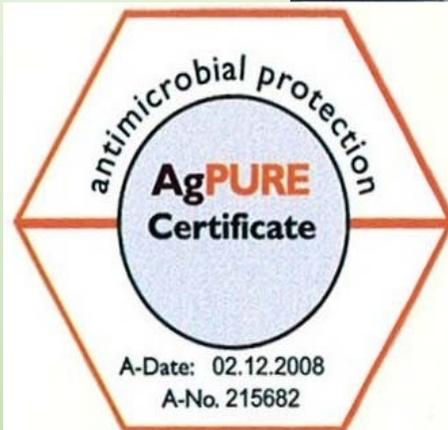


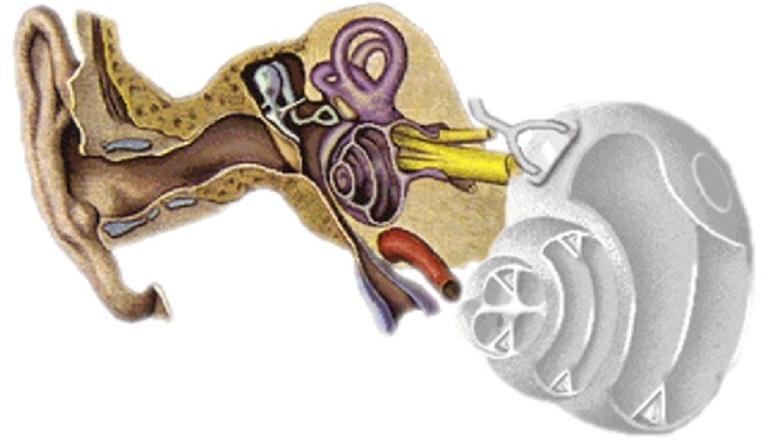
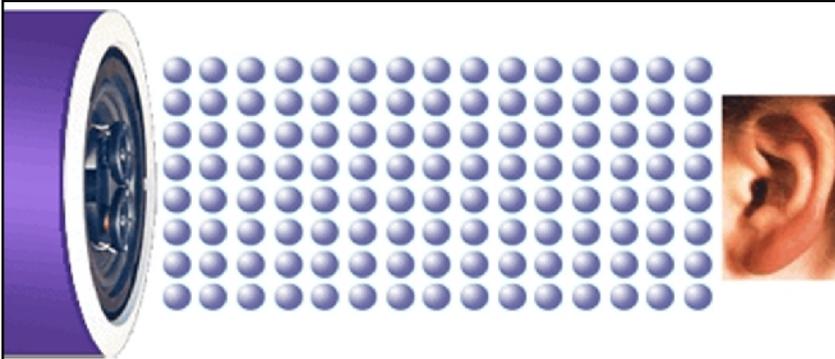
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SEM SEI 5.0kV ×5,000 1μm WD14mm

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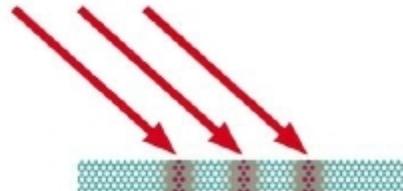
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TETRA Console

Info Beenden

Funkteilnehmer

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HOL 10-3 299502 Status	Stützungszug 299103	Wu 2-3 234430 Status
Wu 1-1 2990267 Status 2	Stützmitte 299101	FF Kommando 299565
Wu Ölsperre 2990456 Status	ST 1-1 299807 Status	Wu 1-1 2990267 Status 2
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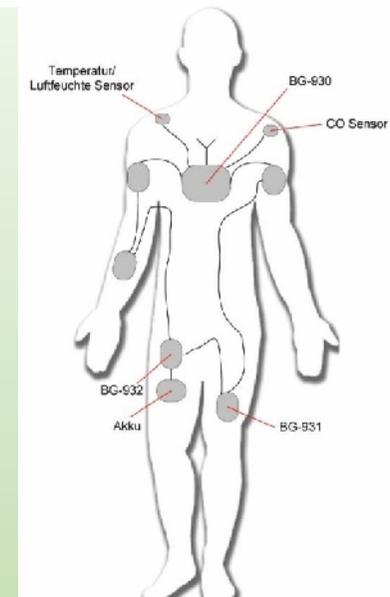
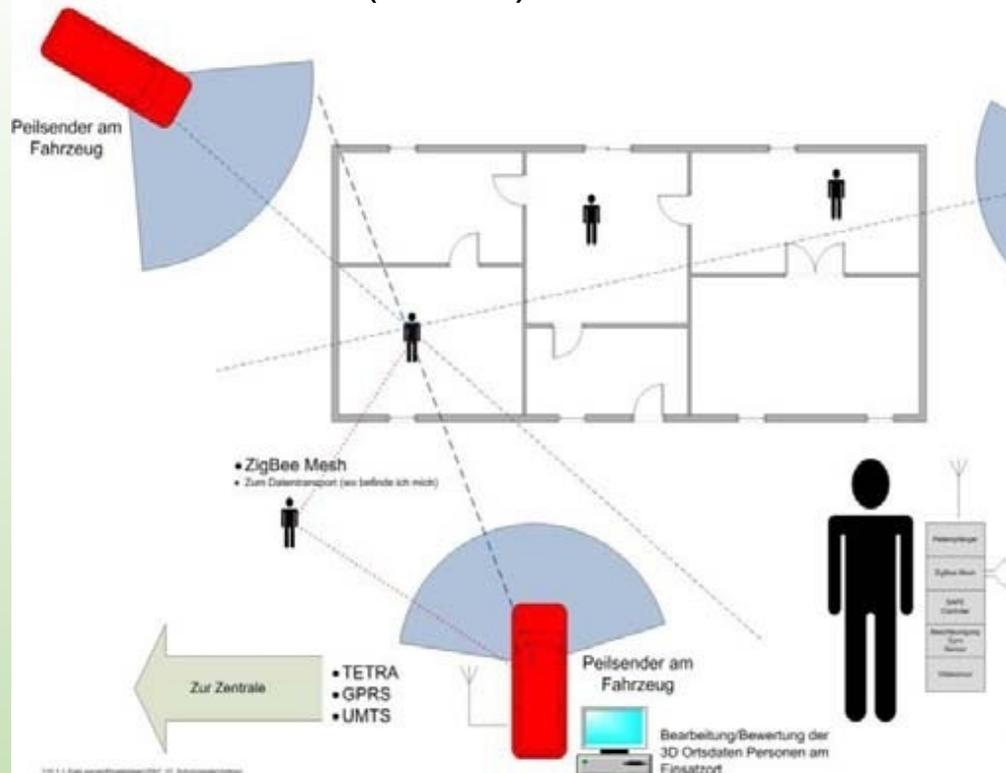
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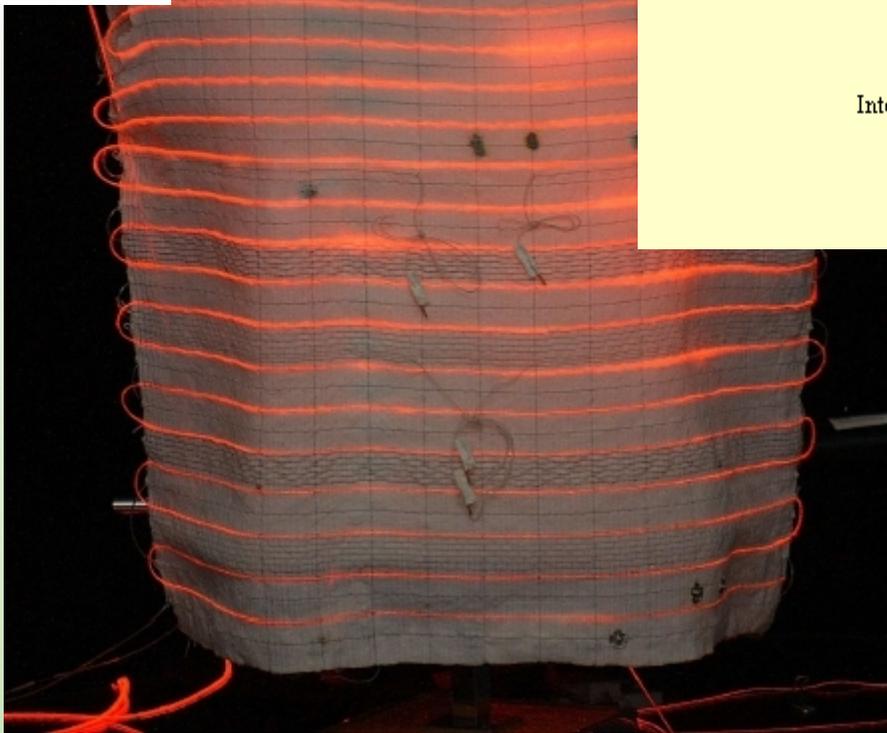
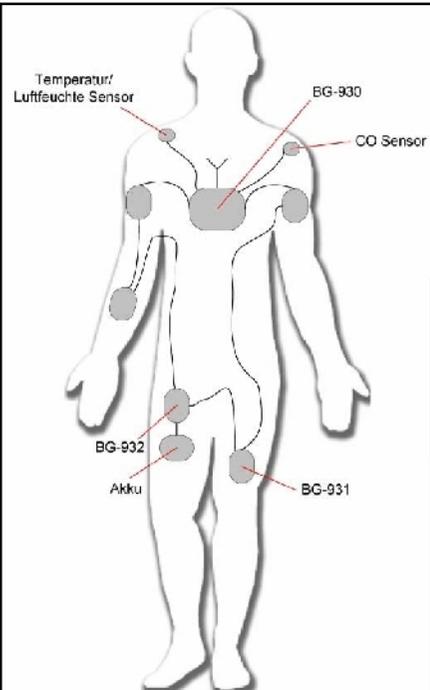
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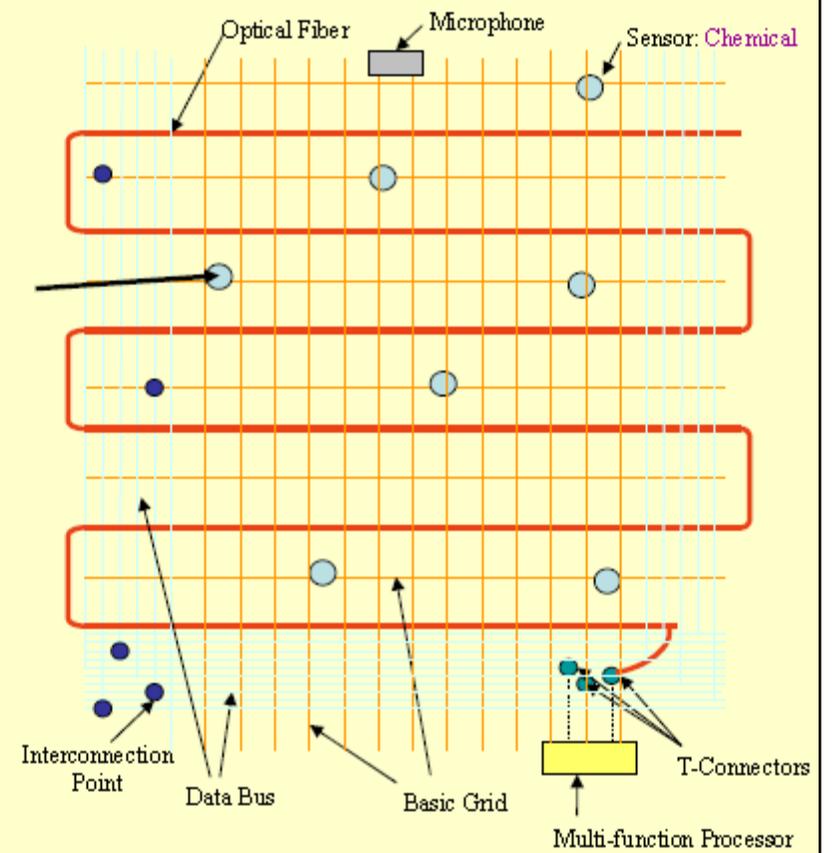
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Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA)



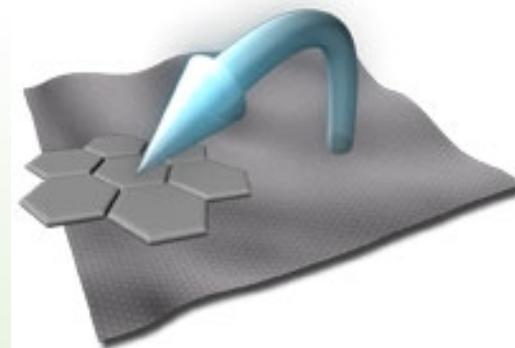


Sensor: Biological





Portable gas detection system for flexible area monitoring





GHS piktogrami

GHS piktogrami

Stari piktogrami



GHS-01
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bomba



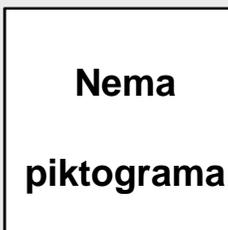
GHS-02
plamen



GHS-03
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GHS-04
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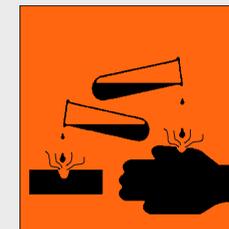


GHS piktogrami

Stari piktogrami



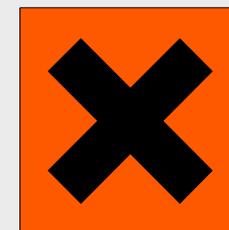
GHS-05
nagrizanje



GHS-06
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GHS-07
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GHS-08
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GHS-09
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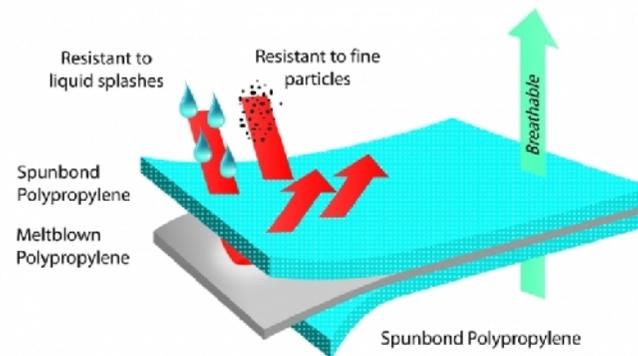


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