

ASSESSING THE LEVEL OF SAFETY AT WORK. APPLICATION: LIGHTING, NOISE, VIBRATIONS, THERMAL ENVIRONMENT, CHEMICAL AGENTS

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Rezumat. *Metoda de evaluare a nivelului de securitate la locul de muncă începe un document care conține descrierea companiei – denumire, locație, activitate principală, organigramă etc., descrierea sistemului de lucru și o scurtă descriere a metodei. Se continuă cu un document Microsoft Excel, care reprezintă aplicarea concretă a metodei și, în final, există un alt document care prezintă concluzii, propuneri și prioritizări, ceea ce duce la executarea Planului de Prevenire și Protecție la locul de muncă. Lucrarea abordează problema elaborării documentului Microsoft Excel, parte esențială a metodei de evaluare a nivelului de securitate la locul de muncă. Documentul este împărțit într-un număr variabil de fișe de lucru, care prezintă categoriile de risc.*

Abstract. *The method for assessing the level of security at work begins with a document containing the description of the company – name, location, main activity, organizational chart, etc., a description of the work system and a brief description of the method. It continues with a Microsoft Excel document, which represents the concrete application of the method and, finally, there is another document that presents conclusions, proposals and prioritizations, which leads to the execution of the Prevention and Protection Plan at work. The paper addresses the issue of developing the Microsoft Excel document, an essential part of the method for assessing the level of security at work. The document is divided into a variable number of worksheets, which present the risk categories.*

Keywords: health and safety at work; general risks; lighting; noise; vibrations; thermal environment; chemical agents

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1. Introduction

The method for assessing the level of safety at work was developed by a team of researchers from the National Research and Development Institute for Occupational Safety - INCDPM "Alexandru Darabont" Bucharest [1]. In 2017, the

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method was improved to facilitate its application [2]. This method was developed to assess the level of safety at each workplace in a company in order to avoid occupational accidents. The method covers all types of workplaces: fixed, evolving and itinerant [3-5].

In order to carry out a work process, the work system is essential, which is defined by specific components: the Work Load considered as the independent component of the work system and on which the other components depend, which are the Worker, the Work Means / Work Equipment and the Work Environment by Workplaces / Workstations [6-8]. Each component of the work system can generate a smaller or larger share of risks that can lead to work accidents and occupational diseases [9-11].

The assessment of the level of safety at work is usually preceded by a self-assessment of occupational safety through a qualitative assessment and a quantitative assessment of the components of the work system [12-16]. This self-assessment is the document on the basis of which the designated worker requests financial, material or other resources from the company management in order to eliminate or reduce certain hazards or risks, the application of the method being necessary for the assessment of the risks of occupational accidents and diseases [17-20].

According to the Law on Safety and Health at Work No. 319/2006 [21] and Government Decision No. 1425/2006 – Methodological Norms for the Application of the Law on Safety and Health at Work [22], the employer is obliged to implement the following measures: avoiding risks; assessing risks that cannot be avoided; combating risks at source; adapting work to the person, especially in terms of designing work positions, choosing work equipment, work and production methods, in order to reduce the monotony of work, work at a predetermined pace and to reduce their effects on health; adapting to technical progress; replacing what is dangerous with what is not dangerous or with what is less dangerous; developing a coherent prevention policy that includes technologies, work organization, working conditions, social relations and the influence of factors in the work environment; adopting, as a priority, collective protection measures over individual protection measures; providing appropriate instructions to workers.

Next, the paper is structured into a series of sections that present: the evaluation method; the application of the method for general risk elements, namely lighting, noise, vibrations, thermal environment and chemical agents; discussions and conclusions.

2. Assessment Method

The method of assessing the level of security has the following application stages: identification of hazards, identification of workers exposed to hazards, qualitative and quantitative estimation of risks and analysis of the possibilities of eliminating or reducing the risk. The aim is to delimit and characterize the object to be

assessed – enterprise, sector, section, workshop, workplace – following the four components of the work system [1].

The method for assessing the level of safety at work has three sets of checklists: checklists for "General risks" namely Lighting, Noise, Vibration, Thermal environment, Chemical agents, Carcinogenic and mutagenic agents, Biological agents, Industrial ventilation, Work equipment, Workplace layout, Work space layout, Fire and explosions, Electrical safety, Work load; Horizontal and vertical risk circulation, Collective and individual protection, First aid organization; checklists for "Specific risks" namely a number of "n" checklists; checklists for "Evaluation of occupational health and safety management".

	A	B	C
1			
2			
3	METHOD FOR ASSESSING THE LEVEL OF SAFETY AT WORK		
4			
5			
6	Ratings for the safety level, N_{si}		
7			
8	Percent	Rating	Rating symbol
9	Greater than 90, $N_{si} > 90$	Safety level, Excellent	(E)
10	Greater than 80 and less than or equal to 90, $80 < N_{si} \leq 90$	Safety level, Very good	(VG)
11	Greater than 70 and less than or equal to 80, $70 < N_{si} \leq 80$	Safety level, Good	(G)
12	Greater than 60 and less than or equal to 70, $60 < N_{si} \leq 70$	Safety level, Medium	(M)
13	Greater than 50 and less than or equal to 60, $50 < N_{si} \leq 60$	Safety level, Small	(S)
14	Less than or equal to 50, $N_{si} \leq 50$	Safety level, Unsatisfactory	(U)
15			
16			
17			

Fig. 1. "NS Ratings" Worksheet.

Each checklist contains a brief description of the risk, indicators that allow the characterization of the risk, and qualitative and/or quantitative information about each specific risk. A checklist for "Lighting" is presented in the paper "Considerations on Applying the Method for Assessing the Level of Safety at Work" [2].

Each checklist contains a series of indicators, in the form of questions. Depending on the specific conditions of the workplace, the evaluator assigns a score between 0 and 5, integers. There are also situations in which some indicators are not applicable to the workplace. If an indicator is applicable, the value "1" is assigned in the corresponding column, and if it is not applicable, the value "0". Each indicator has a certain importance in terms of the severity and frequency of work

accidents or occupational diseases, so it is weighted with a coefficient, with values between 0.5 and 2.0, according to the occupational safety assessment guide [1].

Code	Indicator	Applicability	Awarded score					Weighting coefficient	Real score P_{ri}	Maximum possible score P_{mi}
			Unsatisfactory		Medium		Very good			
			0	1	2	3	4			
I.1	Were lighting conditions subject to review by the department or production unit?	1.0				3.0		2.0	6.0	10.0
I.2	Does the level of workplace lighting meet the work task requirements?	1.0					4.0	1.0	4.0	5.0
I.3	Do employees complain of eyestrain (punctures, tearing)?	0.0						1.5	0.0	0.0
I.4	Are light sources or their reflections visible in the centre of the workplace visual field?	1.0						5.0	5.0	5.0
I.15	After making some changes in the lighting system, has the lighting level been checked?	1.0						5.0	10.0	10.0
									62.5	77.5
Real score:		$P_{ri} =$	62.5							
Maximum possible score:		$P_{mi} =$	77.5							
Security level:		$N_{di} =$	80.65 %							
Rating:		Safety level, Very good								

Fig. 2. Worksheet “I-Lighting”.

For each indicator, the actual score is obtained by multiplying the given score by the weighting coefficient, and the maximum possible score is obtained by multiplying the maximum score by the weighting coefficient. Finally, for each checklist, the actual total score and the maximum possible total score are calculated. The security level can thus be obtained as the percentage ratio between the actual total score and the maximum possible total score. Depending on the security level obtained for each checklist, the corresponding ratings are assigned, Figure 1. An example of a simplified checklist is given in Figure 2.

3. Application: Lighting, Noise, Vibrations, Thermal Environment, Chemical Agents

The objective of this chapter is to develop an applied study to evaluate the level of occupational safety, for the sheets referring to Lighting, Noise, Vibrations, Thermal Environment, Chemical Agents, of the workplace "Plastic Deformation Laboratory", also called work system, within the Faculty of Materials Science and Engineering of the "Gheorghe Asachi" Technical University of Iași.

Regarding the specifics of the works that take place within the work process carried out in this work system, we must mention that the activities that take place in this area are of a didactic nature and are carried out sporadically. Among these, we mention some of the planned didactic works that are carried out in this laboratory, such as: determining the heating and cooling regime of forgeable materials; determining the technological parameters for pressing by free mechanical forging; verifying the law of minimum resistance; determining the technological parameters for rolling; determining the cold drawing capacity of thin sheets.

In the worksheet referring to Lighting – Table 1, Noise – Table 2, Vibrations – Table 3, Thermal Environment – Table 4 and Chemical Agents – Table 5, we have the following abbreviations: Ap – Applicability; Un – Unsatisfactory; Me – Medium; V.g. – Very good; W.c. – Weighting coefficient; P_{ri} – Real score; P_{mi} – Maximum possible score.

Table 1. Checklist (worksheet) I – LIGHTING

Gheorghe Asachi Technical University of Iasi						Assessor (Evaluator)					
Department of Materials Engineering and Industrial Safety						Name and surname					
Plastic deformation laboratory											
yyyy-mm-dd											
Checklist (worksheet) I - LIGHTING											
Criteria:											
1. Health and safety law, no. 319/2006.											
2. Methodological specifications for the application of health and safety law no. 319/2006.											
3. Government Decision no. 20191/16.08.2006 on minimum safety and health requirements for the workplace.											
No.	Indicator	Ap.	Awarded score					W.c.	P_{ri}	P_{mi}	
			Un		Me		V.g.				
			0	1	2	3	4				5
I.1	Were lighting conditions subject to review by the department or production unit?	1.0				3.0			2.0	6.0	10.0
I.2	Does the level of workplace lighting meet the work task requirements?	1.0					4.0		1.0	4.0	5.0

I.3	Do employees complain of eye-strain (punctures, tearing)?	0.0						1.5	0.0	0.0
I.4	Are light sources or their reflections visible in the center of the workplace visual field?	1.0				4.0		1.0	4.0	5.0
I.5	Have measures been taken to avoid areas of shade?	1.0			3.0			1.0	3.0	5.0
I.6	Does the lighting system correspond to the workplace characteristics? uniform general lighting is used where similar activities are performed all over the surface of the room or when the position of the workplace or the position of the employee frequently changes during work; local general lighting is used for workplaces that need different lighting levels and the use of local lighting is not possible; combined lighting is used for workplaces that need different lighting levels and the use of general lighting cannot ensure adequate quality requirements.	1.0				4.0		2.0	8.0	10.0
I.7	Can employees individually change their workplace lighting, according to the precision of the task they must undertake?	1.0				4.0		1.0	4.0	5.0
I.8	Can employees easily receive information necessary for completing their tasks?	1.0					5.0	1.5	7.5	7.5
I.9	Are the work tasks causing visual system strain made by the same employees?	1.0				4.0		1.0	4.0	5.0
I.10	Are errors, defects, scrap more frequent at the end of the work shift/week?	1.0			3.0			0.5	1.5	2.5
I.11	Are scheduled breaks observed during the shift?	1.0					5.0	1.0	5.0	5.0
I.12	Is the artificial lighting system always working?	1.0					5.0	1.5	7.5	7.5
I.13	Is regular cleaning of the windows provided (to ensure natural lighting)?	1.0				4.0		1.0	4.0	5.0
I.14	Is there an emergency lighting system?	1.0			3.0			1.0	3.0	5.0
I.15	After making some changes in the lighting system, has the lighting level been checked?	1.0					5.0	2.0	10.0	10.0
Total P_{ri} și P_{mi}									71.5	87.5
Real score: P _{ri} = 71.5 Maximum possible score: P _{mi} = 87.5 Security level: N _{sl} = 81.71 % Rating: Safety level, Very good										

Table 2. Checklist (worksheet) II - NOISE

Gheorghe Asachi Technical University of Iasi						Assessor (Evaluator)					
Department of Materials Engineering and Industrial Safety						Name and surname					
Plastic deformation laboratory											
yyyy-mm-dd											
Checklist (worksheet) II - NOISE											
Criteria:											
1. Health and safety law, no. 319/2006.											
2. Methodological specifications for the application of health and safety law no. 319/2006.											
3. Government Decision no. 493/12.04.2006 on the minimum health and safety requirements regarding the exposure of workers to the risks generated by noise.											
4. Government Decision no. 1048/09.08.2006 on the minimum health and safety requirements for the use of personal protective equipment by workers at the workplace.											
No.	Indicator	Ap.	Awarded score						W.c.	P _{ri}	P _{mi}
			Un		Me		V.g.				
			0	1	2	3	4	5			
II.1	It is done noise level measurements, periodically and after changes in the workplace?	1.0				3.0			2.0	6.0	10.0
II.2	Noise level measured exceed limits maxim admitted?	0.0							2.0	0.0	0.0
II.3	Employees and/or representatives their participates in the determinations and noise measurements carried out?	1.0					4.0		2.0	8.0	10.0
II.4	Employer ensure keeping noise measurement reports and sheets regarding state hearing employees?	1.0					4.0		1.5	6.0	7.5
II.5	The doctor, the employees and/or representatives do they have access to this data?	1.0						5.0	2.0	10.0	10.0
II.6	At work where exposure staff daily routine of a employee exceeds 80dB(A) or when value maximum pressure acoustic instant unweighted is greater than 112 Pa, were taken measures that employees saddle have at one's disposal means personal protective equipment auditory?	0.0							2.0	0.0	0.0
II.7	At work where exposure staff daily noise exceeds 85dB(A) or where value maximum pressure acoustic instant unweighted exceeds 140 Pa was imposed compulsory use means personal protective equipment auditory?	0.0							2.0	0.0	0.0

II.8	For these jobs were undertaken the following actions: identification causes noise level raised; establishment a program of measures technical and organizational reduction a exposure employees to noise?	0.0							2.0	0.0	0.0
II.9	Employees have PPE available against the noise?	1.0				4.0			2.0	8.0	10.0
II.10	Employees used correctly and current PPE provided?	1.0					5.0		2.0	10.0	10.0
II.11	Is the quality of the PPE appropriate? PPE must be certified, and the purchase is made only together with the certificate of conformity. PPE must ensure a noise level at the person's ear below 80dB(A).	1.0			3.0				2.0	6.0	10.0
II.12	Employees and/or representatives they are consulted in the choice the PPE model?	1.0				4.0			2.0	8.0	10.0
II.13	At work where exposure staff daily noise a employees cannot be reduced below 85 dB(A) is provided examination status hearing personnel both in employment how and periodically?	0.0							2.0	0.0	0.0
II.14	If the maximum permissible noise limits have been exceeded, have technical measures been taken to reduce the harmful effects of noise? measures to combat noise at the source; measures to isolate noise sources (sound-insulating screens or enclosures); measures to combat noise at the receiver (sound-insulating booths).	0.0							1.5	0.0	0.0
II.15	Employees are trained regarding risk exposure to the action noise and how to use of PPE?	1.0					5.0		1.5	7.5	7.5
II.16	The work schedule for work stations was established in depending on the duration exposure to noise?	0.0							1.5	0.0	0.0
II.17	They were taken. measures to prevent the spread noise in the workplace neighboring?	0.0							1.5	0.0	0.0
II.18	Any soundproofing devices they may be equipped with some machinery or installations prevent	0.0							1.0	0.0	0.0

operators to have information re-quired their proper functioning?										
Total P_{rii} și P_{mii}									69.5	85.0
Real score: P _{rii} = 69.5 Maximum possible score: P _{mii} = 88.0 Security level: N _{sii} = 81.76 % Rating: Safety level, Very good										

Table 3. Checklist (worksheet) III - VIBRATIONS

Gheorghe Asachi Technical University of Iasi						Assessor (Evaluator)				
Department of Materials Engineering and Industrial Safety						Name and surname				
Plastic deformation laboratory										
yyyy-mm-dd										
Checklist (worksheet) III - VIBRATIONS										
Criteria:										
1. Health and safety law, no. 319/2006.										
2. Methodological specifications for the application of health and safety law no. 319/2006.										
3. Government Decision no. 1876/22.11.2005 on the minimum health and safety requirements regarding the exposure of workers to the risks generated by vibrations.										
4. Government Decision no. 1048/09.08.2006 on the minimum health and safety requirements for the use of personal protective equipment by workers at the workplace.										
No.	Indicator	Ap.	Awarded score					W.c.	P _{ri}	P _{mi}
			Un		Me		V.g.			
			0	1	2	3	4			
III.1	Have vibration level measurements been carried out at the workplace by authorized persons?	0.0						2.0	0.0	0.0
III.2	Have measures been taken to ensure that vibration levels do not exceed the limits permitted by current legislation?	0.0						2.0	0.0	0.0
III.3	Does the employer have a vibration exposure risk assessment?	0.0						1.5	0.0	0.0
III.4	Do employees complain of pain in their hand, wrist or shoulder joints?	0.0						1.0	0.0	0.0
III.5	Is there evidence of training and information for workers?	0.0						1.0	0.0	0.0
III.6	Is there evidence that the results of medical surveillance are taken into account when implementing preventive measures?	0.0						1.0	0.0	0.0
III.7	Are vibration-generating vehicles (trucks, tractors, self-propelled	0.0						1.5	0.0	0.0

	carts, etc.) equipped with vibration-isolating seats?										
III.8	Are portable tools equipped with vibration-isolating handles or sleeves?	0.0							1.5	0.0	0.0
III.9	Are portable tools checked for dynamic balance?	0.0							1.0	0.0	0.0
III.10	Are vibration-generating machines and installations mounted on vibration-isolating elements?	0.0							1.5	0.0	0.0
III.11	In the case of exposure to mechanical vibrations, have measures been taken to eliminate risks at source or to reduce them, based on general principles of prevention?	0.0							2.0	0.0	0.0
Total P_{rIII} și P_{mIII}										0.0	0.0
Real score: P _{rIII} = 0.0 Maximum possible score: P _{mIII} = 0.0 Security level: N _{sIII} = - % Rating: -											

Table 4. Checklist (worksheet) IV - THERMAL ENVIRONMENT

Gheorghe Asachi Technical University of Iasi						Assessor (Evaluator)					
Department of Materials Engineering and Industrial Safety						Name and surname					
Plastic deformation laboratory											
yyyy-mm-dd											
Checklist (worksheet) IV - THERMAL ENVIRONMENT											
Criteria:											
1. Health and safety law, no. 319/2006.											
2. Methodological specifications for the application of health and safety law no. 319/2006.											
3. Government Decision no. 1091/16.08.2006 on the minimum health and safety requirements for the workplace.											
4. Government Decision no. 1048/09.08.2006 on the minimum health and safety requirements for the use of personal protective equipment by workers at the workplace.											
No.	Indicator	Ap.	Awarded score					W.c.	P _{ri}	P _{mi}	
			Un		Me		V.g.				
			0	1	2	3	4				5
IV.1	Are employees exposed to heat, cold, drafts, or bad weather?	1.0				3.0			2.0	6.0	10.0
IV.2	Do employees complain about heat, cold, drafts, or bad weather?	1.0					4.0		2.0	8.0	10.0
IV.3	Does their activity involve thermal problems (postural sweating, etc.)?	1.0						5.0	2.0	10.0	10.0

IV.4	Is there an efficient air conditioning system?	1.0			2.0			1.5	3.0	7.5
IV.5	Is the air conditioning system maintained regularly?	1.0			3.0			1.5	4.5	7.5
IV.6	At the workplace analyzed, does the work present discomfort in terms of the thermal environment?	1.0			2.0			1.5	3.0	7.5
IV.7	At the workplace analyzed, are employees forced to be immobile?	1.0					4.0	1.0	4.0	5.0
IV.8	At the workplace analyzed, are employees frequently exposed to sources of heat or cold?	1.0					5.0	1.5	7.5	7.5
IV.9	At the workplace analyzed, are employees required to handle objects that are not at ambient temperature?	1.0				3.0		1.5	4.5	7.5
IV.10	In the case of hot or cold environments, are employees provided with appropriate personal protective equipment?	1.0				3.0		2.0	6.0	10.0
IV.11	Does this equipment provide protection against existing risks?	1.0					4.0	2.0	8.0	10.0
IV.12	Does this equipment allow the performance of work tasks in appropriate conditions?	1.0						5.0	1.5	7.5
IV.13	At the workplace analyzed, are employees exposed to sources of heat radiation (ovens, open flames, infrared, etc.)?	1.0				3.0		1.5	4.5	7.5
IV.14	Are there protection devices against heat or cold sources?	1.0					4.0	2.0	8.0	10.0
IV.15	Are breaks provided for in the work organization system?	1.0						5.0	1.0	5.0
IV.16	Do employees have access to a room with a normal temperature?	1.0					4.0	0.5	2.0	2.5
IV.17	Do employees have access to cold or hot drinks?	1.0					4.0	1.5	6.0	7.5
Total P_{rIV} și P_{mIV}									97.5	132.5
<p>Real score: P_{rIV} = 97.5 Maximum possible score: P_{mIV} = 132.5 Security level: N_{sIV} = 73.58 %</p> <p>Rating: Safety level, Good</p>										

Table 5. Checklist (worksheet) V - CHEMICAL AGENTS

Gheorghe Asachi Technical University of Iasi						Assessor (Evaluator)					
Department of Materials Engineering and Industrial Safety						Name and surname					
Plastic deformation laboratory											
yyyy-mm-dd											
Checklist (worksheet) V - CHEMICAL AGENTS											
Criteria:											
1. Health and safety law, no. 319/2006.											
2. Methodological specifications for the application of health and safety law no. 319/2006.											
3. Government Decision no. 1875/22.12.2005 on the protection of workers' health and safety from risks due to exposure to asbestos.											
4. Government Decision no. 971/26.07.2006 on the minimum requirements for safety and/or health signs at the workplace.											
5. Government Decision no. 1048/09.08.2006 on the minimum health and safety requirements for the use of personal protective equipment by workers at the workplace.											
6. Government Decision no. 1091/16.08.2006 on the minimum health and safety requirements for the workplace.											
7. Government Decision no. 1218/06.09.2006 on establishing the minimum requirements for occupational health and safety to ensure the protection of workers against the risks related to the presence of chemical agents.											
8. Order 753/16.10.2006 on the protection of young people at work.											
No.	Indicator	Ap.	Awarded score					W.c.	Pri	Pmi	
			Un		Me		V.g.				
			0	1	2	3	4				5
V.1	General. Is there a list of all hazardous substances or products used in the workplace being analyzed?	0.0							2.0	0.0	0.0
V.2	Are there instructions for use, handling, storage and prevention of the effects of the hazardous substances or products used?	0.0							2.0	0.0	0.0
V.3	Are the toxic effects of these substances or products known?	0.0							2.0	0.0	0.0
V.4	Among the products with the same effect, did the management of the legal entity choose the least dangerous one?	0.0							1.5	0.0	0.0
V.5	Have the persons who are the only ones who can use or handle hazardous substances or products been specified?	0.0							2.0	0.0	0.0
V.6	Are employees complaining of skin or mucous membrane irritation?	0.0							1.0	0.0	0.0
V.7	Are pictograms used for hazardous substances and products?	0.0							1.5	0.0	0.0

V.8	Do employees who use the substances or products in question know the meaning of the pictograms?	0.0							1.5	0.0	0.0
V.9	Are hazardous substances and products received from suppliers with their safety data sheets?	0.0							1.5	0.0	0.0
V.10	Are these records sent to the company doctor?	0.0							1.5	0.0	0.0
V.11	Are there facilities for capturing (fixed or mobile hoods) and exhausting vapors or dust generated by hazardous substances or products?	0.0							1.5	0.0	0.0
V.12	Are these capture and disposal facilities properly maintained?	0.0							2.0	0.0	0.0
V.13	Are there places specially designed for storing hazardous waste?	0.0							1.5	0.0	0.0
V.14	Are there any operational facilities for measuring hazardous concentrations?	0.0							1.5	0.0	0.0
V.15	Are there operational means for preventing and extinguishing fires?	0.0							2.0	0.0	0.0
V.16	Have appropriate measures been taken to prevent and combat static electricity?	0.0							2.0	0.0	0.0
V.17	Have appropriate measures been taken to prevent sparks, hot surfaces, and unprotected flames?	0.0							2.0	0.0	0.0
V.18	Have measures been taken to restrict access to dangerous areas by unauthorized persons?	0.0							1.5	0.0	0.0
V.19	Are health checks of employees exposed to the effects of hazardous substances carried out periodically?	0.0							1.5	0.0	0.0
V.20	Are employees who come into contact with hazardous substances and products equipped with appropriate personal protective equipment?	0.0							2.0	0.0	0.0
V.21	Are special procedures developed for the treatment of hazardous waste?	0.0							1.5	0.0	0.0
V.22	Is the circuit of hazardous substances and products precisely	0.0							1.5	0.0	0.0

	known, at the department, work-shop, and enterprise level?										
V.23	What were the actions taken to determine the existence of hazardous chemical agents in the workplace?	0.0							1.5	0.0	0.0
V.24	Does the employer have an assessment of the risks arising from the presence of hazardous chemical agents in the workplace?	0.0							2.0	0.0	0.0
V.25	Have measures been taken to eliminate or minimize risks to the safety and health of employees in work processes involving hazardous chemical agents?	0.0							2.0	0.0	0.0
V.26	Has the possibility of avoiding the use of a hazardous chemical agent by replacing it with a less hazardous chemical agent or technological process been analyzed?	0.0							1.5	0.0	0.0
V.27	If the nature of the activity does not allow the elimination of the risk through substitution, are appropriate prevention and protection measures applied?	0.0							1.5	0.0	0.0
V.28	Are there emergency plans and procedures?	0.0							2.0	0.0	0.0
V.29	Are emergency plans and procedures known to employees?	0.0							2.0	0.0	0.0
V.30	Are emergency plans and procedures tested through periodic practical exercises?	0.0							2.0	0.0	0.0
V.31	Emergency plans and procedures include details regarding: limiting employee access to the affected area; providing PPE for employees who have access to the affected area; warning and communication methods.	0.0							2.0	0.0	0.0
V.32	Are emergency plans and procedures known to internal and external emergency services?	0.0							2.0	0.0	0.0
V.33	Do employees and/or their representatives have all the necessary information regarding the hazardous chemical agents they work with?	0.0							2.0	0.0	0.0
V.34	Is the production or use of chemical agents listed in GD No. 1218/2006, Annex 3, carried out	0.0							2.0	0.0	0.0

	only under the conditions provided for by the aforementioned GD?											
V.35	How is the health of workers monitored?	0.0							2.0	0.0	0.0	
V.36	Is the use of basic lead carbonate (lead pencil), lead sulfate and lead minium carried out under the conditions provided for by Government Decision 1218/2006?	0.0							2.0	0.0	0.0	
V.37	Does the occupational medicine doctor know his obligations regarding medical records?	0.0							2.0	0.0	0.0	
V.38	Does the employer know his obligations in the event that effects on the health of an employee are reported?	0.0							2.0	0.0	0.0	
V.39	Asbestos. Has a risk assessment been carried out to determine the nature and extent of the employee's exposure to dust released from asbestos and/or asbestos-containing materials?	0.0							2.0	0.0	0.0	
V.40	How is notification of activities in which workers are exposed or are likely to be exposed to asbestos-containing dust carried out?	0.0							1.5	0.0	0.0	
V.41	What measures have been taken to reduce employee exposure to dust generated from asbestos and/or asbestos-containing materials, to a value below the maximum permissible limit?	0.0							2.0	0.0	0.0	
V.42	How is the concentration of asbestos fibers in the air measured?	0.0							1.5	0.0	0.0	
V.43	If the use of PPE is required, have measures been taken to limit its use for each employee to the minimum necessary?	0.0							1.5	0.0	0.0	
V.44	Are employees and/or their representatives consulted on the measures to be taken if the established limit values are expected to be exceeded, before the respective activities are carried out?	0.0							1.5	0.0	0.0	
V.45	Are demolition or removal works of asbestos and/or asbestos-containing materials carried out based on a work plan?	0.0							2.0	0.0	0.0	

V.46	Does the employer ensure adequate information for employees carrying out activities involving exposure to asbestos and/or their representatives?	0.0								2.0	0.0	0.0
V.47	Does the employer ensure the assessment of the health status of employees?	0.0								2.0	0.0	0.0
V.48	Does the occupational health physician provide the employees concerned with information and recommendations regarding the assessment of their health status?	0.0								1.5	0.0	0.0
V.49	Is there a register of employee exposure to asbestos and/or asbestos-containing materials? The nature and duration of the activity and exposure are indicated; the occupational health doctor has access to this register; each employee has access to their own results; employees and/or their representatives have access to the anonymous collective results contained in this register	0.0								2.0	0.0	0.0
Total P_{rV} și P_{mV}											0.0	0.0
Real score: P _{rV} = 0.0 Maximum possible score: P _{mV} = 0.0 Security level: N _{sV} = - % Rating: -												

4. Conclusions

The occupational safety assessment method is intended for the assessment of occupational safety in a company by an assessment team. The level of safety at workplaces/workstations and at the company level is analytically assessed before accidents occur, having both qualitative and quantitative character. The method targets fixed, evolving and itinerant workplaces.

For each of the sheets, the applicable and inapplicable indicators are analyzed, scores are awarded based on the evidence existing at the workplace in accordance with legal requirements, after which automatically, through the already applied relationships, the following are obtained: the actual score per indicator, the maximum possible score per indicator, the actual score obtained per sheet, the maximum possible score per sheet and the Security Level per sheet, based on which the security level rating is also automatically determined through logical functions.

It is noted that it is possible that not all indicators corresponding to some risk sheets may be inapplicable, as is the case with the Vibrations – Table 3 and Chemical Agents – Table 5 worksheets.

The security level obtained allows the establishment of preventive measures, in ascending order of priorities, by completing the summary sheet of workplace risks and the summary sheet of common risks for the entire company, determining the course of action for implementing the prevention and protection plan.

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