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IMPROVING METHODOLOGICAL APPROACHES TO THE ASSESSMENT OF WORKING CONDITIONS IN ACCORDANCE WITH HYGIENIC AND OCCUPATIONAL HEALTH STANDARDS

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Abstract
The article presents an improved method for assessing the compliance of working conditions with hygienic standards. The proposed method of integral-point assessment is used to determine the level of workplace risk, the amount of additional benefits and compensation, the level of worker fatigue during a work shift, and quantitative indicators of performance. The assessment is carried out in accordance with the requirements of sanitary and hygienic standards No. 0141-03 and is calculated based on the time of actual exposure to factors of the pro-duction environment and the labor process. This approach allows for an accurate and reliable assessment of working conditions and the prediction of accidents. The results will also determine the benefits that can be provided to employees: additional leave, salary supplement, and years of early retirement

Keywords: Workplace, class and level of working conditions, factors of the production environment and labor process, integral score assessment.

INTRODUCTION

It is well known that factors related to the labor process and the production environment - including physical, chemical, biological, and socio-psychological elements - have an impact on human labor activity. According to Article 14 of the Law of the Republic of Uzbekistan No. 410 dated September 22, 2016, “On Amendments and Additions to the Law of the Republic of Uzbekistan on Occu-pational Safety,” it is required to conduct certification of workplaces based on working conditions [1].

Hygienic criteria for the assessment of working conditions are indicators that make it possible to evaluate the deviation of parameters of the production environment and labor process from existing hygienic standards. Based on the degree of deviation of actual levels of labor process and production environment factors from hygienic

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norms, working conditions are conventionally divided into four classes according to their levels of harmfulness and danger:

- class 1 – Favorable working environment: This environment supports the optimal dynamics of human labor activity and ensures the preservation of life and health.
- class 2 – Permissible (relatively unfavorable) working environment: Under the influence of production environment and labor process factors for a certain period, it may cause functional changes in the body that do not go beyond the physiological norm.
- class 3 – Harmful working environment: This class is divided into four levels based on the degree of harmfulness. A harmful environment leads to a decrease in work capacity and causes functional changes that exceed normal physiological limits.
- class 4 – Hazardous working environment: This environment may cause pathological changes in the human body or result in the inability to perform work [2].

The procedure for assessing the compliance of working conditions with occupational safety standards, rules, and guidelines is outlined in the Resolution No. 263 of the Cabinet of Ministers of the Republic of Uzbekistan dated September 15, 2014, "On Further Improvement of Measures for the Protection of Workers' Labor." According to this procedure, the assessment of compliance with hygienic standards is carried out by specialists from the organization responsible for conducting workplace certification [2].

RESEARCH METHODOLOGY

During the certification process, all factors related to the production environment and labor process specific to the technological operations and equipment used at a given workplace must be assessed. The list of production environment and labor process factors to be evaluated is compiled based on occupational safety requirements, the characteristics of technological processes and production equipment, the raw materials and substances used, the results of previous measurements of harmful and/or hazardous production factors, as well as suggestions from employees.

The assessment of compliance with hygienic standards is conducted by measuring and evaluating the levels of production and labor process factors using instruments during the routine operation of technological processes and/or regular activities of the enterprise. The assessment must be carried out using methods prescribed in regulatory and legal documents and other officially recognized procedures, utilizing

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measuring instruments that have been verified in accordance with established regulations.

The evaluation of compliance with hygienic standards is based on the indicators of harmfulness and danger of production environment factors, and the intensity and severity of the labor process. It is conducted in accordance with the hygienic classification of working conditions.

The results of measuring and evaluating compliance with the hygienic stand-ards of working conditions are recorded in the relevant row (corresponding to the sub-levels of the production environment and labor process factors) under the column "Working Condition Level" in Section I of the Working Conditions Map. Specifically:

a) Each sub-level of the production environment and labor process factors is evaluated based on the assigned working condition levels:

- according to the highest level and degree of harmfulness;
- if three or more factors fall under level 3.1, the overall assessment of working conditions is rated as level 3.2;
- if two or more factors fall under levels 3.2, 3.3, or 3.4, the working condi-tions are evaluated one level higher accordingly;

b) The overall evaluation of compliance with hygienic standards is based on the assigned levels of each factor in the production environment and labor pro-cess:

- according to the highest level and degree of harmfulness;
- if three or more factors belong to level 3.1, the overall assessment of working conditions is rated as level 3.2;
- if two or more factors fall under levels 3.2, 3.3, or 3.4, the working condi-tions are evaluated one level higher accordingly;

c) If the exposure time to harmful production factors is reduced (protection through time), the working conditions may be rated as less harmful, but not lower than level 3.1;

d) It is not permitted to reflect in the Working Conditions Map any production environment and labor process factors (sub-levels) that are not present at the cer-tified workplace. However, the sequence numbers of the production environment and labor process factors (sub-levels) specified in this Regulation must be pre-served [2].

In the context of assessing the compliance of working conditions with hygienic standards, the measurements carried out by the certifying organization must be formalized with measurement protocols. The measurement protocols should be

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formalized for each factor of the production environment and work process, and they constitute an integral part of the map of working conditions to be assessed.
Specifically:
a) The protocol should include the following information:
- the full or shortened name of the organization conducting the certifica-tion for the workplaces;
- the actual address of the organization conducting the certification or its relevant structural unit where the certification is being conducted;
- a unique identification number for the protocol, which must be specific to the workplace. The coding system for the protocols is determined by the certifying organization;
- the name of the job position according to the classifier of employees and workers' professions, as well as the profession of the employee work-ing at the specific workplace;
- the date when the measurements and assessments were conducted (in-cluding their specific indicators);
- the name of the structural unit of the organization conducting the certi-fication at the workplaces;
- the name of the certifying organization;
- the date and registration number of the certificate confirming the tech-nical qualifications of the testing laboratory of the certifying organiza-tion;
- the name of the factor being measured;
- information about the measuring instruments used (name of the device or instrument, factory number, service life, and the number of the certifi-cation document);
- methods for conducting measurements and assessments, with reference to the normative documents on which these measurements and assess-ments are based;
- the references of normative-legal documents and other documents regu-lating the permissible concentrations or allowable limits for the factor, in-cluding the document's type, the issuing authority’s name, number, and date of signature, as well as the normative levels for the measured fac-tor;
- if necessary, a sketch of the room where the measurements are conduct-ed, indicating the placement of the equipment, and showing the point(s) where the measurements (sampling) are taken, and specifying the name of the workplace according to the list of workplaces that must be certi-fied, along with the location of the measurements;

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- the normative and actual values of the measured factor and the dura-tion of its effect in all the places where the measurements are carried out;
- the level of working conditions for this factor;
- the conclusion regarding the actual level of the factor in all the locations where the measurements are conducted, and the final working conditions for this factor.

b) A single consolidated protocol can be used to formalize the results of measurements for one specific factor of the production environment and work process for a group of workplaces;

v) The measurement and assessment report must be signed by the specialists of the certifying organization who conducted the measurements, as well as the responsible officer of the certifying organization, and must be sealed with the organization's stamp (stamps are not required for business entities).

Although the method for determining the overall assessment of compliance with hygienic standards for each factor of the production environment and work process based on the given levels of working conditions has a universal description, there is no available data on the reliability and accuracy of its results. For this reason, it is important that the method for evaluating compliance with hygienic standards of working conditions is based on approved empirical evidence. Below is the inte-gral scoring method for determining the compliance of working conditions with hygienic standards.

The integral scoring method involves assigning points to each factor of the production environment and work process listed in the working conditions map of the workplace, based on the classes provided in Sanitary Rules and Norms №0141-03 [3], following the sequence in Table 1. Points are assigned to the classes (levels) through a scoring system.

Table 1. Criteria for scoring the assessment of working conditions at the workplace

Class of Working Conditions					
Permitted, 2nd class	Harmful, 3rd class				Hazardous, 4th class
	3.1- degree	3.2- degree	3.3- degree	3.4- degree	
Integral assessment of working conditions class, score					
1	**2**	**3**	**4**	**5**	**6**

If each factor of the work process and production environment affects the working shift (day) and for a period shorter than this, the actual assessment is carried out using the following formula:

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$$K_t = \frac{t_i}{t_{d\,(sh)}}, \quad (1)$$

In this: t_i – the duration of the influence time of the production environment and work process factor (obtained based on the work environment conditions map assessment conclusion or via video chronometry); $t_{d\,(sh)}$- the duration of the work (shift) day.

The comparative value of the scored assessment of the production environment and work process factors is calculated using the following formula:

$$x_i = x_s \cdot K_t, \text{score} \quad (2)$$

In this: x_s – the score assigned to the production environment and work process factors present at the workplace according to the work environment map, based on Table 1; K_t – the actual duration of the influence of the production environment and work process factors during the work (shift) day.

Using the formulas (1,2) above, the calculation for the workplace based on the production environment and work process factors listed in the work environment map is carried out, and the total comparative value $\sum x_i$ is obtained. Then, the integral score evaluation of the working conditions at the workplace is carried out based on the formula given below [4]:

$$I = x_{max} + \sum_{i=1}^{n} x_i \cdot \frac{6 - x_{max}}{6 \cdot (N - 1)}, \text{score} \quad (3)$$

In this: x_{max} – the highest comparative value determined based on the scored evaluation of production environment and work process factors; n – the number of factors considered excluding the - x_{max} factor; $\sum x_i$ – the sum of the total comparative value of the scored evaluation of the production environment and work process factors at the workplace as indicated in the work environment map; N – the total number of production environment and work process factors at the workplace as indicated in the work environment map.

Based on the calculation of the value obtained from the integral score assessment using formula (3), the workplace's labor conditions category is then determined according to Table 2, as well as the additional benefits and the amount of additional payments to the monthly salary (in percentage) as indicated in Table 3.

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Table 2. The general assessment criteria for the compliance of working conditions with hygienic standards

Integral scoring assessment	1,8 gacha	1,8...3,3	3,4...4,5	4,6...5,3	5,4...5,9	above 5.9
Workplace occupational condition class	2	3.1	3.2	3.3	3.4	4

Table 3. Based on the scores, the additional benefits and payment amounts are determined.

Actual scores	Additional leave, day	Additional payment amount to the monthly salary (in percentage)	Right to retire with a privileged pension regardless of age, years
up to 1,8	0	4	-
1,8...3,3	3	8	-
3,4...4,5	6	12	-
4,6...5,3	12	16	5
5,4...5,9	18	20	10
above 5,9	24	24	15 and more

The proposed method of determining the compliance of labor conditions with hygienic standards through integral scoring ensures reliability and accuracy when determining the additional benefits, guarantees, and preferences related to the harmfulness or hazard of the labor process and production environment factors at the workplace. At the same time, this method allows for the determination of the impact of labor conditions on human labor activities. To do this, the fatigue indicator (degree) is first calculated in conditional (relative) units. The relationship between the human labor process and the fatigue indicator (degree) is expressed by the following equation [4]:

$$F = \frac{\sum_{i=1}^{n} x_i - 15{,}6}{0{,}64}, \% \qquad (4)$$

In this:$\sum_{i=1}^{n} x_i -$ represents the sum of the comparative values of the scored evaluation of the production environment and labor process factors, in points.

The value of the human work capacity indicator (degree) can be determined through the following expression using the identified conditional (relative) unit of the fatigue indicator (degree) [4]:

$$W = 100 - F, \% \qquad (5)$$

In this: F – the fatigue indicator in conditional (relative) units, %; 100 – the work capacity indicator (degree), %

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CONCLUSION

The proposed integral point assessment method holds significant practical importance in the field of occupational safety and health. This approach allows for accurate and reliable determination of how well the factors in the production environment and work processes comply with hygienic standards. This enables ensuring employees' health and safety, adapting working conditions to meet regulatory requirements, and establishing justified benefits and compensations. The integral point assessment method provides an overall integrated evaluation by assigning points to each factor in the workplace - physical, chemical, biological, and psychological - and taking into account the duration of their impact during a work shift.

Through this approach, the harmful or hazardous classification of the workplace is determined, and criteria for additional vacation days, monthly bonuses, and pension provisions are established. Moreover, the level of fatigue and work capacity indicators are quantitatively assessed, creating an opportunity to evaluate factors that negatively impact work performance. The practical implementation of this method serves to prevent accidents, enable early detection of occupational diseases, and increase labor productivity.

REFERENCES

1. Law № 410 “On Amendments and Additions to the Law of the Republic of Uzbekistan on Labour Protection” [text]. – September 22, 2016. – Tashkent: Law of the Republic of Uzbekistan, 2016.
2. Resolution №.263 of the Cabinet of Ministers of the Republic of Uzbekistan “On Further Improvement of Measures for Labor Protection of Employees” [text]. – September 15, 2014. – Tashkent: Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, 2014.
3. Sanitary Rules and Norms 0141-03. Hygienic classification of working conditions based on harmfulness and danger of industrial environmental factors, severity and intensity of the labor process. Sanitary and hygienic requirements [text]. – October 6, 2003. Approved. – Tashkent: Sanitary Rules and Norms of the Republic of Uzbekistan, 2003.
4. Solonshikov, P.N., Gorbunov, R.M. Labor Safety at Workplaces [Text] / P.N. Solonshikov, R.M. Gorbunov // Textbook. Kirov. - 2015. - Б. 25-39.

ISSN: 2776-0987 Volume 6, Issue 8, August – 2025

5. Tuchkova O. A., Khairullina L. I., Chizhova M. A. Workplace certification goes into the past: special assessment of ore conditions - to whom will it become easier? // Bulletin of Kazan Technological University. 2014. No. 15.
6. Feldman M. A., Nuriyeva L. R. Problems of the Occupational Health and Safety Sphere in the Russian Economy and Ways to Solve Them: From Workplace Certification to a Special Assessment of Working Conditions // Management Issues. 2014. No. 4 (10).
7. Shaprov M. N., Misyuryaev V. Yu., Martinov I. S., Guzenko E. Yu. Special assessment of working conditions and safety of agricultural workers // Izvestiya NV AUK. 2014. No. 4 (36).
8. Vasilyeva Lyubov Alexandrovna, Tarakanov Dmitry Alexandrovich Special assessment of working conditions: goals and prospects // BGJ. 2014. No4 (9).
9. Kirsanova Darya Alekseevna Basic prerequisites for legislative regulation of special assessment of working conditions // Gaps in Russian legislation. 2015. No. 5.
10. Galaeva Lyudmila Anatolyevna, Korotkova Yekaterina Andreevna Legal problems of recognizing the "harmfulness" of office workplaces // World of Science and Education. 2016. No2 (6).
11. Kulieva G. A., Kochanova M. I., Lunev D. V. Comparative analysis of special assessment of working conditions and certification of workplaces // Vestnik RUDN. Series: Ecology and Life Safety. 2016. No. 1.
12. Burak Vasiliy Yevgenevich On reducing costs when conducting a special assessment of working conditions // Labor Economics. 2018. No2.
13. Seliverstova M. V., Kalenova A. G. Social responsibility of the organization and socio-legal regulation of special assessment of working conditions // Bulletin of Surgut State Pedagogical University. 2019. No. 2 (59).
14. M. V. Seliverstova, A. G. Kalenova Features and changes in the procedure for organizing and conducting a special assessment of working conditions // International Journal of Humanities and Natural Sciences. 2019. No. 3-2.