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Occupational safety management system and analysis of occupational diseases at an enterprise in the Republic of Kazakhstan

According to the ILO, about two million people die every year in the world for work-related reasons, another 160 million suffer from occupational diseases, and the total number of industrial accidents amounts to 270 million per year. The total loss of gross labor product due to accidents and diseases associated with labor activity is about 4%. In Kazakhstan in 2016, industrial injuries amounted to 3,9 per 1000 employees, with a fatal outcome – 0,131.

Safety of the industrial processes the most urgent issue for all enterprises. The employer as well as the employees, fulfilling their job responsibilities, should be aware in the effectiveness of the created job environment.

Process safety is the most important issue for all enterprises. Workers working with employees must fulfill their responsibilities.

Analysis of the reasons of the industrial traumatism is the evidence that very often the human factor is the first reason of the accidents, as the workers act improperly or sometimes even do not know the simple rules of provision of their labour' safety, as well as the managers and specialists, dealing with the prevention of such negative factors, are incompetent in the issues of labour safety. At that the clear dependence between relation of the managerial staff of the enterprise to provision of the safe labour conditions for the staff and availability of general culture (motivation) of safe labour of the workers at this enterprise is observed.

In order the employees know, how they should act in different situations, it is necessary to realize the permanent monitoring, control on the working environment and processes, for prevention of all possible incidents, exclusion of contingencies in the industrial process. Analysis of traumatism and occupational diseases at the enterprises is one of the types of control. Due to this it is possible to minimize the industrial traumatism, occupational diseases, incidents and accidents.

Based on the data provided by the accountant office, labour safety department, engineers on labour safety and by the planning-economic department, the analysis related to traumatism and diseases at the enterprise during the period of the years 2015-2017 was conducted (**Figures 1-4**) [3].

The given diagrams (**Figures 1-4**) show that number of days lost by all injured persons during the year 2017 reduced by 58 days in comparison with the year 2015, number of the injured persons increased by 1 person. Number of persons not working because of the diseases increased by 5 persons in the year 2017 in comparison with the year 2016. The average daily payment on the sick-lists, related to traumatism, also increased in 2017 by 130,2 th.KZT, in comparison with the year 2015, and average daily payment related to the disease increased by 99,1 th.KZT. This is connected to the fact that insufficient attention is paid at the enterprise to the trainings on labour safety.

Amounts allocated for improvement of the labour conditions are not large, but in the year 2017 the spent amounts were larger by 108 th.KZT in comparison with the year 2015. In general, it is obvious that losses related to traumatism and diseases at the enterprise are rather high. It means that the enterprise in the person of the director does not realize the requirements on the labour protection and safety and does not control the employees' traumatism and diseases [4].

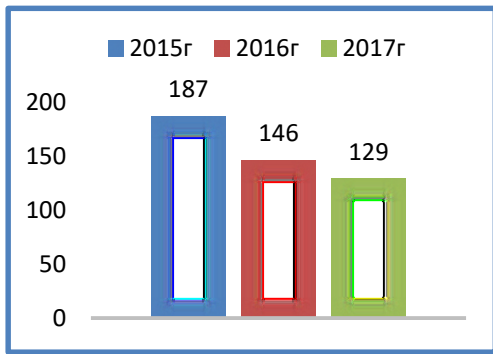


Figure1 – Number of days lost by all injured persons

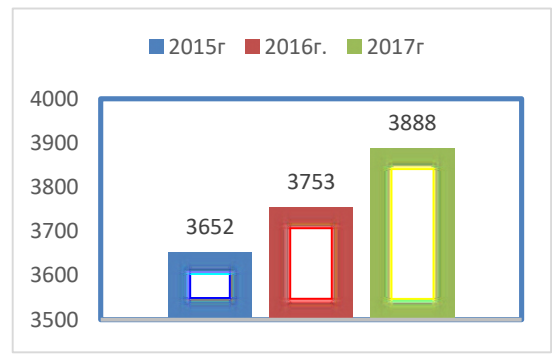


Figure 2 – Number of hours lost by all sick persons

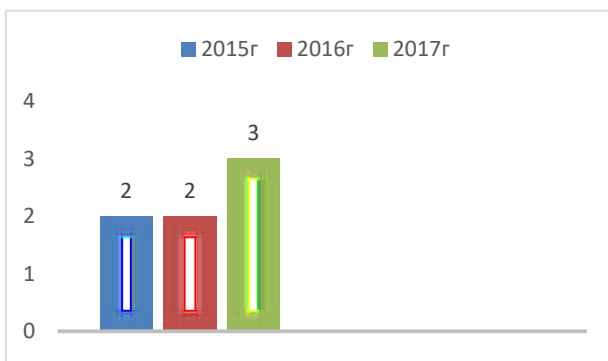


Figure 3 – Number of injured persons per a year

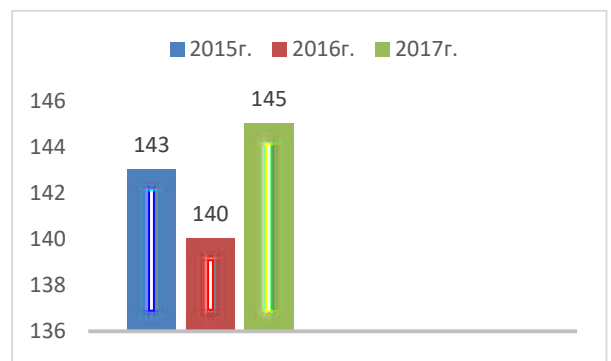


Figure 4 – Number of persons not working due to the diseases

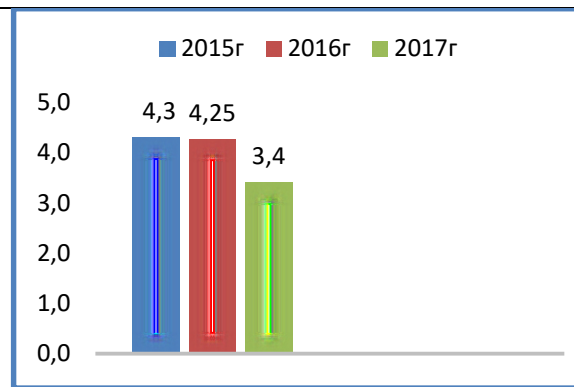


Figure 5– Traumatism frequency rate

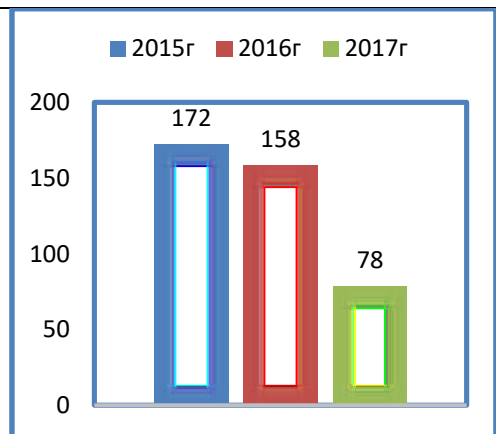
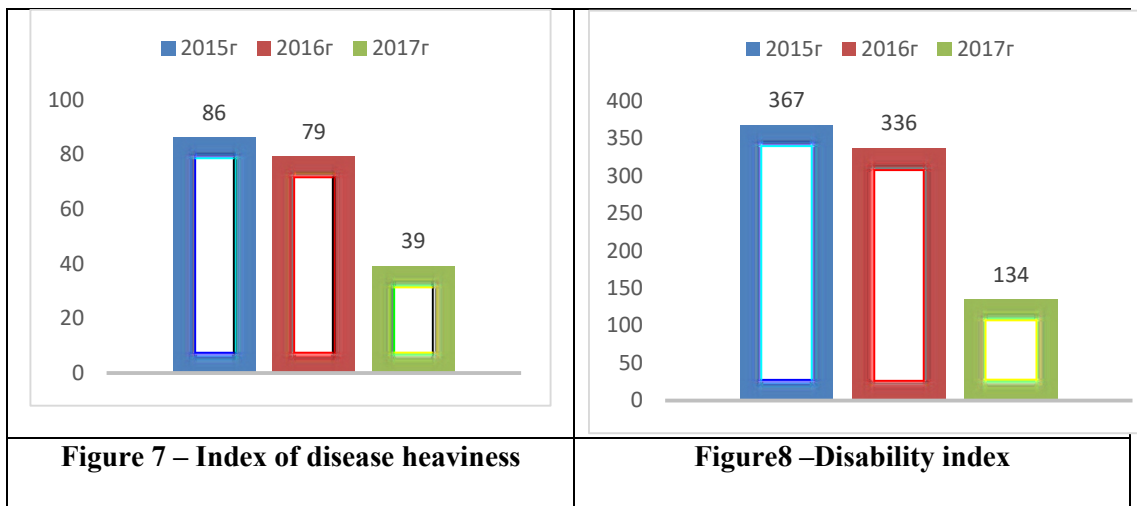


Figure 6 – Number of days of disability to work



In order to calculate the losses related to traumatism, we shall use the following documents: payrolls, sick-lists, reports on the incidents. Data for calculations are summarized in **Table 1**, they are also provided in the form of diagrams given on **Figures 5 – 8**.

Table1 – Index of traumatism

Index name	Unit of meas.	Symbol	2015	2016	2017	Absolute changes	Growth rate
Average listed number of employees	persons	P	465	470	581	131	129
Number of incidents	units	N_t	2	2	2	-1	66
Number of days of disability	days	D_t	172	158	78	-114	41
Index of traumatism frequency	units	$\Pi_f = N_t \cdot 1000 / \text{persons}$	4,3	4,25	3,4	-3,3	51
Index of disability	Days per 1000 persons	$\Pi_d = \text{Days per} \cdot 1000 / \text{persons}$	367	336	134	-293	31
Index of traumatism' heaviness	days.	$\Pi_t = D_t / N_t$	86,0	79,0	39	-25	61
Number of occupational diseases	units	-	-	-	-	-	-

In order to calculate losses related to traumatism, we use the following documents: payrolls, sick-lists, reports on incidents. Data for calculations are summarized in **Table 2**, they are also provided in the form of diagrams given on **Figures 5 – 8**.

Based on the data given on the diagrams, it is obvious that index of traumatism frequency for the last year is decreasing by 0,9. This is the evidence of the fact that the labour safety service pays special attention on training on labour protection and safety. Due to this reduction of number of incidents results in decreasing of number of days of disability, thus, resulting in reduction of the disability index, which decreased by 233 days. In the year 2015 this index was 367 days per 1000

persons, in 2017-134 days. The same situation is observed as regards the traumatism heaviness, which during the last year decreased from 86 to 39 days. Index of disability due to traumatism decreased during the last year by 2,7times. In general we can see that all indexes of traumatism are decreasing. This is related to the fact that the work on improvement of labour conditions at the job places is realized at the enterprise as well as the special attention is paid to the training on labour protection and safety of the employees. The defects of the equipment, which may result in traumas, are eliminated [5].

Conclusion Thus, the analysis of injuries and occupational diseases in the enterprise according to the results of the analysis of the number of days lost by all injured, hours lost by all patients, injured people per year, and the number of days of work caused by illnesses on the need to introduce at food enterprises the international standard OHSAS 18001 with a management system for labor safety and health protection, and to conduct checks (audits) of the functioning of this system. This standard should be implemented together with the Occupational health and safety management system (OH&SMS). It is also necessary to realize the «analyses» or «audits» in order to estimate the indexes in the sphere of OHSAS.

Foreffectiveness they should be brought in correspondence with the structured system of management acting at the enterprise. This will provide the complete correspondence to the requirements of the Labour Legislation. This will also provide the exclusion of the risks of harmful and dangerous industrial factors, reduction of number of stoppages and expenses on elimination of consequences of the accidents at the job places. This will give the possibility to extent the clients' range at the expense of demonstration of a new innovative approach to the labour safety and provision of the industrial and professional safety.

LIST OF LITERATURE

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3. The Labour Code of the Republic of Kazakhstan, 23.11.2015. № 414-V.
4. R. Omirbay, F. Batesova, Zh. Toregeldi. [ЖШС TNC-INTEC-те өндірістік жарақаттанудың және жұмыс орнын аттестаттау бойынша анализ]. MATERIALS of XII vedecko-prakticka conference 22.01.2016-30.01.2016, Praha, p. 97-101.
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