PAPER REF: 4646

PROPOSAL OF A PATH TO SELECT A MATRICIAL METHOD FOR RISK ASSESSMENT

Cátia Ferreira, J. Santos Baptista(*)
PROA/LABIOMEP/CIGAR/Faculdade de Engenharia, Universidade do Porto, Portugal
(*)*Email:* jsbap@fe.up.pt

ABSTRACT

This study aimed to design a methodology for evaluation and selection of a method of risk assessment for being used by a technician in the field. For such was done the implementation of several methods in real context. Given the diversity of the results and accident history of the company has become possible to make the choice by one of the methods.

Keywords: risk assessment, method, industry.

INTRODUCTION

Risk assessment is one of the main pillars for safety and health (OSH). It is the basis of effective safety and health management and is essential to reduce workplace accidents and occupational illnesses. By its easiness of application, the most common methods are the ones of matricial basis. However, they have serious reliability problems and do not guarantee the reproducibility of the results. By this arises the question if it is really possible to minimize these problems without the use of sophisticated means of analysis. Considering the hypothesis as positive, was placed as objective designing a generic methodology for evaluation and selection of a risk assessment method for use by a field technician.

It is proposed a simple methodology that consists on applying several methods, for exactly the same situations, by the same technician. In its implementation should be followed with the utmost rigor the same criteria for each method. At the end, the technician assumes the method that, in his opinion and according to the available information, better match the reality of existing situations.

This methodology was applied in a pilot situation, in a sector of an industrial plant. The authors conduct an information collection, including: (1) work organization, activities and tasks performed, (2) work characterization, in particular the movement of materials and people, noise exposure and the use of flammable products; (3) characterization of equipment, machinery and facilities in order to verify that these could be a source of danger to the worker. Then, it was conducted the structuring of the evaluation, splitting the work in activities / tasks, ensuring, thereby, an appropriate treatment for each one. Were identified all the activities taking place in the company sector, including routine and casual, in a total of 109. Does not were evaluated by these methods 52 situations by having its own assessment methods, such as noise, lighting, chemical contamination, postures and manual handling. Were also collected information about legislation and applicable standards, equipment manuals and safety data sheets. It was also considered essential the dialogue with the workers in order to gather additional information about the hazards that they consider the most relevant in their tasks as well as situations that put in question their safety. After collecting all the data considered as relevant to the evaluation and a careful observation of the tasks, was

done a list of the dangers. Once with this list, was done the quantification of the identified risks by each one of the five methods.

RESULTS AND CONCLUSIONS

Table 1 presents the summary of all cases detected and evaluated for each risk level. It is verified the existence of results completely different between some methods, namely between M1 and M5.

From the critical analysis of the technician, concerning to the applicability of all the methods, and comparing the results obtained in all of them, this study suggests that the M5 is the most embracing and balanced. Comparing the risk levels for the different methods with data from work accidents occurred, not only in the analysed unit but also in other similar units of the same business group, is observed that M5 is the method that presents more consistent results with labour reality. The results are also in line with other studies, including the one developed by Canastro et al. (2011).

Table 1 - Risk degree obtained by the different methods

		No. of situations detected by method				
		M1	**M2**	**M3**	**M4**	**M5**
Risk Levelsco	Very Severe	65	9	22	16	2
		-----	12	25	31	5
		-----	47	54	54	14
		-----	17	3	----	----
	Not relevant	44	24	5	8	88
	Total	109	109	109	109	109

REFERENCES

[1]-Antunes, F. A., Baptista, J. Santos, Diogo, M. Tato, 2010. Methodology of integrated evaluation of environmental and occupational risks. Proceedings SHO2010. Guimaraes: Portuguese Soc Occupational Safety & Hygiene.

[2]-Belloví, Manuel Bestratén, and Francisco Pareja Malagón. 1993. NTP 330: Sistema simplificado de evaluación de riesgos de accidente. INSHT (Instituto Nacional de Seguridad e Higiene en el Trabajo).

[3]-Canastro, Cátia, Baptista, J. Santos, Diogo M. Tato, 2011, Handling cytotoxic drugs: risk assessment. Proceedings SHO2011. Guimaraes: Portuguese Soc Occupational Safety & Hygiene, pp.160-164.

[4]-Dastous, P. A., J. Nikiema, D. Maréchal, L. Racine, and J. P. Lacoursière. 2008. "Risk management: All stakeholders must do their part." Journal of Loss Prevention in the Process Industries no. 21 (4):367-373. doi: 10.1016/j.jlp.2008.01.003.

[5]-Ferreira, Cátia, 2012. Avaliação de riscos na reparação de moldes para vidro de embalagem. Dissertação de Mestrado em Engenharia de Segurança e Higiene Ocupacionais, Faculdade de Engenharia da Universidade do Porto.