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RISK ANALYSIS FOR EXTERMINATION, DISINFECTION AND DISINSECTION

Occupational health and safety is an essential part of any company (Bujna at al., 2017). Compliance with safety principles and legislative regulations contributes to the quality of the work performed (Cooper at al., 2005). In a sector such as ensuring the safety of the environment, i.e. the performance of extermination, disinfection and disinsection (DDD), it is essential to strictly comply with all regulations, standards, decrees, ordinances, regulations and laws related to occupational health and safety (Sinay at al., 2017). It refers to the Slovak Republic's Regulation No. 355/2006 Coll. on the protection of employees against risks related to exposure to chemical agents. In any PPA activity, employees are exposed to chemical exposure, which has an adverse effect on their health and also on the environment (European Chemicals Agency, 2018).

The aim of the work was to assess the risks using the extended scoring method in ensuring the safety of the environment, to determine the level of risk resulting from the given activities of the DDD and to reduce the level of risk by introducing measures in individual activities of extermination, disinfection and disinsection. In order to meet the objective, it was necessary to identify the source of the hazard and specify the hazard, to determine the threat arising from the hazard. Subsequently, the level of risk had to be determined and a proposal for safety measures had to be developed and the correct type of personal protective equipment had to be determined. Last but not least, it is necessary to compare the level of risk before and after the introduction of safety measures.

Preparation for work is very important in any activity. Often, when preparing for work, employees can already be exposed to a range of hazards that can cause harm to health, property and the environment. Before performing work, it is important that employees know safe work practices for handling materials, tools and equipment. The loading and transportation of necessary preparations to the work site is a hazard. Employees shall be transported in a company vehicle. When loading, it is necessary to follow the provisions of Regulation (EC) No 281/2006 and to focus on the correct handling of heavy objects. The preparation work also includes dosing, weighing, measuring the preparations and adding water or adjusting the concentration of the substances. To reduce this hazard, we have proposed a technical measure in the form of an automatic mixing device. Prior to the introduction of safety measures, the packaging requirements pose the highest level of risk, as incorrect labelling and storage can lead to confusion between substances and to ingestion or direct poisoning. It is therefore essential to use only original packaging and packaging intended for this purpose. It is essential to comply with Slovak Regulation No 387/2006 Coll.

After the introduction of the measures, we can observe a change and the highest level of risk is posed by handling and transport.

We then summarized the common risks in DDD work. The source of the hazards is the environment, the performance of the protective PPA activity and the psychological stress. Various hazards, such as insufficient space (cramped space, cable tray, cellar, canal, etc.), affect the workers when carrying out the activity of protective plumbing. The highest level of risk can be observed in the handling of small hand tools and within the environment - noise levels both before and after the introduction of the measures.

Extermination is most often carried out with chemical purpose-built products where employees are exposed to the chemical agent. It is therefore necessary to follow the procedures on labels and safety data sheets. Each extermination station must be labelled. Extermination may be carried out in cellars without lighting, therefore it is necessary for employees to have their own lighting and to comply with Decree No 541/2007 Coll. When applying, replacing or removing extermination stations, it is necessary to take into account possible contact with animals and the performance of work also near road traffic. When exterminating in cable ducts, there may be electric shock, falling into the depth, also the area may not be sufficiently illuminated. Electrocution poses the highest risk.

Chemical disinfection is most often used for disinfection. Several safety procedures should be followed. All precautions must be followed when disinfecting at-risk sites where Covid-19 infection may occur. In order to reduce the risk, we have proposed a technical measure in the form of an automatic chemical applicator. Thus, the employees would not be directly exposed to the chemical risk and would be relieved of the burden on the spine as with conventional mechanical application of disinfectant. To carry out the disinfection work effectively, it is essential to determine the necessary quantity. The calculation is given for the disinfection of the packing house and warehouse. The quantity is determined according to the intensity or location of the infestation required to achieve the necessary effect. At present, the highest possible risk is working in the area of possible infestation, inhalation of disinfection particles may occur, which could be prevented by the use of an automatic disinfectant applicator, and the lowest risk once the measures are in place. The second most risky activity after the introduction of the measures is the handling of flammable substances, where it is necessary to comply with Decree No 96/2004 Coll.

Other DDD activities include disinsection. It is carried out by physical or chemical methods. Disinsection activities include the destruction of wasp nests and the performance of fumigation (gassing). Working on ladders poses the highest risk. Employees are exposed to this risk when applying electric insect traps. In addition to Act No 126/2006 Coll., both employees and employers must comply with Decree No 356/2007 Coll. and Decree No 147/2013 Coll.

In finishing work, the greatest risk is the cleaning and rinsing of equipment, machinery and tools used in the work, where eye and skin contact or respiratory damage can occur.

Our task was to reduce the level of risk by introducing individual measures. We designed administrative, organisational and technological measures and personal protective equipment that lead to a reduction of risk in the individual activities of the PPA. The conclusions of the work show that a large number of safe working practices and risk reduction measures need to be followed during the performance of PPA.

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