Hazardous Biological Agents Regulations, 2022, promulgated under the Occupational Health and Safety Act No. 85 of 1993, as amended

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Hazardous biological agents (HBAs) are a major health threat to employees in the workplace. Exposure is no longer limited to workplaces where HBAs are deliberately handled, produced, stored or transported, such as food production companies, laboratories, and healthcare institutions. With the COVID-19 pandemic, it became apparent that employees are at risk of being infected, even in workplaces where they do not handle HBAs, or where their work activities do not expose them to HBAs. It is important that the control measures that are put in place to protect employees from exposure to HBAs take into consideration those that can be imported into the workplace. Consequently, the scope of application of the HBA Regulations has been extended to include all workplaces.

The importance of infectious and non-infectious biological hazards is becoming increasingly apparent in both workplaces and communities, and it is recognised that workplaces can help prevent and control global health threats such as tuberculosis, HIV/AIDS, malaria, and influenza, as well as pandemics such as COVID-19.[1] The workplace might provide an ideal place for the proliferation of microorganisms and the spread of diseases as employees spend most of their time indoors. According to the French Research, Development, Studies, and Statistics Directorate (Dares), *"more than 4.8 million (22%) workers declare that they are exposed to biological agents as part of their occupational activities"*.[2]

Occupational health and safety (OHS) legislation requires the employer to *"provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risks to the health of his employees"* and to take *"such steps as may be reasonably practicable to eliminate or mitigate the hazard or potential hazard to the safety or health of employees"*.[3] The new HBA Regulations have been drafted in a manner that provides a regulatory framework in lieu of pandemics that might encroach into the workplace.

The Department of Employment and Labour established a Technical Committee to review the Regulations for Hazardous Biological Agents (2001) in 2017. The committee comprised representatives from organised business, organised labour, and Government, and technical specialists in the field. The work of the Technical Committee culminated in the promulgation of the Regulations for Hazardous Biological Agents in April 2022,[4] after approval from the Advisory Council of the Minister for Occupational Health and Safety (ACOHS) and the Minister of Employment and Labour.

The prevention of exposure to HBAs in the workplace, arising out of or occurring during the course of work, should involve everyone concerned about health and safety, including those responsible for the design of the workplace, work organisation, manufacturing of equipment, and the handling, storage and disposal of waste material.

The HBA Regulations define a biological agent as *"any microorganism, microbial by-products or metabolites, cell or organic material with plant, animal or human origin, including any which have been genetically modified"*.[4] HBAs mediate their adverse health effects through four main pathological mechanisms: infection, allergic, toxic/inflammatory, and carcinogenic.[5]

Risk assessment is one of the fundamental regulatory prevention principles. In terms of the HBA Regulations, employers must conduct and document the risk assessment, which must be carried out by a competent person. A team approach is recommended when conducting the risk assessment, so that all the competencies in the workplace are utilised. The competent person must have extensive knowledge of the activities and processes taking place at the workplace and must take into account the current control measures in place, their effectiveness, and any reasonable deterioration or failure thereof. The health effects of the HBAs on pregnant women, immunocompromised, and vulnerable employees must also be considered.

An employer must ensure that employees are comprehensively informed, trained, and instructed before they are exposed to HBAs. They must be aware of the measures that the employer has put in place to protect them, including good housekeeping and personal hygiene. The outbreak of COVID-19 has taught us to go back to basic personal hygiene.

The employer should engage all employees who might be exposed to HBAs in the training, which must focus on the measures that the employer has provided to reduce exposure and, thus, the adverse health effects of HBAs. This entails the proper use, wearing, storage, and maintenance of protective clothing and equipment. The limitations of personal protective equipment must be included, as this is regarded as the last resort in the hierarchy of control. Employees also have a responsibility to safeguard their health at the workplace in terms of section 14 of the OHS Act of 1993. The importance of reporting the failures of engineering controls and participating in medical surveillance programmes must be communicated to employees, as these are required as part of the risk assessment.

The employer must ensure that the information, instruction, and training are provided before an employee is potentially exposed to HBAs. Refresher training must be conducted annually or at intervals that may be recommended by the health and safety committee or the health and safety representative. It is a common practice that when employees become familiar with the work they are performing, they become comfortable and disregard the health and safety measures put in place to protect their health and wellbeing.

An employer must establish and maintain an exposure monitoring programme at the workplace, which is representative of the employees' exposure to HBAs. The programme must be conducted by a competent person and in accordance with a validated procedure, sufficiently sensitive, and of proven effectiveness. Occupational hygiene surveys conducted by approved inspection authorities (AIAs) can evaluate the effectiveness of control measures, thus reducing the risk of infection and/or allergic sensitisation caused by HBAs. The employer must, in terms of the exposure monitoring, consider the recommendations identified in the exposure monitoring report, and develop a documented action plan for the implementation of those recommendations.

An employer must establish and maintain a documented system of medical surveillance of employees, which is overseen by an occupational health practitioner, to complement the occupational hygiene surveys. All tests and examinations must be conducted according to a written medical protocol, following current best practice, national or international guidelines.

"The diagnosis of an occupational disease in a worker implies that measures at the workplace are inadequate and pose a potential health risk to co-workers similarly exposed, so prompt investigation and action is required".[5] The new definition in lieu of control measures has been expanded to address the hierarchy of controls, including non-invasive interventions and vaccination against infectious diseases. The standard precautions implemented to reduce risk of transmission of HBAs in the workplace may include hand hygiene, gloves, face or eye protection, protective clothing, and respiratory protective equipment.

Additional measures include:

- Separation of different infectious processes from each other and from persons
- Barrier isolation of a process or agent
- Local exhaust ventilation and general ventilation
- Air and surface disinfection
- Positive static air pressure differential from infectious processes to human occupied zones
- Regular cleaning of machinery and work areas with vacuum cleaners fitted with air filters with an arrestance (the ability to remove synthetic dust from the air) of not less than 99.95%
- The availability of effective vaccines to employees who are not immune to the biological agent(s) to which they are exposed or are liable to be exposed

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