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|  | <h1 style="margin: 0;">SAFETY ALERT</h1> | |  |
| Ref: SA: 009:04 | RE: Decontaminating with Hydrogen Peroxide (HP) Technology within the HSE | | |
| Issue date: | July 2017 | Revised date: | June 2023 |
| Author(s): | The National Health & Safety Function (NHSF) | | |
| Distribution: | Please ensure that this Safety Alert is brought to the attention of all relevant persons in the workplace. | | |
| <h2 style="margin: 0;">S</h2> | <p>SITUATION:</p> <p>The National Health & Safety Function through the audit process have identified that Hydrogen Peroxide (HP) decontamination technology is being used in a number of Acute Hospital settings throughout the HSE for the decontamination of rooms.</p> <p>The NHSF have developed this safety alert to ensure appropriate safety measures are adhered to while using HP decontamination technology to ensure the safety, health and welfare of staff, patients and/or members of the public.</p> | | |
| <h2 style="margin: 0;">B</h2> | <p>BACKGROUND:</p> <p>Several studies have shown that some micro-organisms, such as bacteria, viruses and fungi, are not killed effectively by standard cleaning. Hydrogen Peroxide (HP) decontamination technology is used in hospitals worldwide, primarily for the total disinfection of rooms. It can be used proactively to prevent infection or reactively to stop outbreaks.</p> <p>There are a number of different forms of hydrogen peroxide technologies in use in Ireland and include ionised hydrogen peroxide (iHP), aerosolised hydrogen peroxide (aHP), hydrogen peroxide vapour (HPV) & vapourised hydrogen peroxide (VHP).</p> <p>HP decontamination technology consists of a dispensing device which is charged with a liquid hydrogen peroxide solution, at different concentrations, ranging from 5% to 35%, ensuring distribution to all parts of the room.</p> <p>HP is an oxidising agent. When it comes into contact with micro-organisms it oxidises the cells or spores, thus deactivating them.</p> <p>Following the procedure, HP concentrations within the location, must be removed to below the occupational exposure limit set before entrance and use.</p> | | |

There are several methodologies which can be used to achieve this, all methodologies should be agreed as part of the process.

Potential Hazards of Hydrogen Peroxide (SDS):



Hazard Statements:

- H271 May cause fire or explosion; strong oxidizer
- H302 Harmful if swallowed
- H314 Causes severe skin burns and eye damage
- H333 May be harmful if inhaled
- H402 Harmful to aquatic life

Potential Health Effects:

- Eyes** May cause serious damage.
- Inhalation** Irritating to the respiratory system/tract.
- Skin** Irritating to skin. Contact causes redness, burns, itching and pain. Prolonged or repeated skin exposure may cause dermatitis.
- Ingestion** Causes irritation and pain.

Further information on the hazards associated with Hydrogen Peroxide can be ascertained from the Safety Data Sheet. It is imperative that the use of this substance is subject to risk assessment. All conditions and control measures for safe use of this product, as detailed in the method statement, safety data sheets and risk assessments, must be adhered to at all times.

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ASSESSMENT:

Decontaminating with Hydrogen Peroxide decontamination (HP) technology may be considered for cleaning of the environment and/or equipment where ongoing transmission of an organism has occurred and the environment and/or equipment is considered the route of transmission.

The use of HP decontamination technology does not remove the importance of general cleaning routinely and between patients.

Evidence would suggest that there are different arrangements in place for decontamination using HP technology, with both HSE staff and/or external contractors providing this service.

Regardless of who provides the decontamination service, the safety hazards associated with HP are such that safety measures must be implemented to

ensure the safety, health and welfare of those potentially exposed to HP as per risk assessment.

If any facility within the HSE uses HP decontamination, the following safety measures must be implemented;

Prior to HP decontamination being considered,

- consider whether this is the most appropriate method of decontamination
- an assessment of the area to be decontaminated must be undertaken to ensure the area can be sealed and Hydrogen Peroxide used safely
- surface temperatures in the rooms should be between 15°C and 30°C & the humidity between 20% and 85%
- the use of HP decontamination requires the area to be vacated for the duration of the decontamination. If a hospital ward needs to be decontaminated, then the whole ward needs to be moved to alternative accommodation. No entry to the decontamination area is allowed once the decontamination process has commenced
- safety procedures in the event of an emergency must be detailed in the method statement
- a Chemical Risk Assessment must be completed on the use of HP, please refer to Chemical Risk Assessment template.

Prior to HP decontamination being used,

- Standard Operating Procedure (SOP)/Method statement must be developed or reviewed with detailed processes covering when and how HP decontamination is used, whether the process is to be undertaken by HSE staff or external contractor. The method statement must have identified safety measures including but not limited to:
 - Personal Protective Equipment (PPE),
 - Respiratory Protective Equipment (RPE) and
 - include what actions to be taken in the event of an emergency
- standard or terminal cleaning must be done to remove biological soiling from hospital surfaces as this reduces the effectiveness of hydrogen peroxide decontamination
- validation processes must be in place by HSE Estates and external contractors following decontamination to ensure the healthcare environment is clean
- all users of HP technology, whether HSE or external contractor must be appropriately trained in the product use, potential hazards of the system, have assurance of product safety and evidence of training is recommended
- consideration must be given to whether HP will interact with the fire alarm system and if so ensure the involvement of local Estates personnel
- all heating, ventilation and air conditioning (HVAC) ducts supplying the area for decontamination must be shut or sealed off, along with any doors. The turning on/off of HVAC should be documented on an HSE permit to work system.

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| | <p>Ongoing use of HP-technology,</p> <ul style="list-style-type: none"> the equipment must be maintained in a good condition and a planned programme of maintenance in place and evidenced <p><i>Please note this is not an exhaustive list of safety measures and is subject to change based on the findings of the risk assessment completed locally.</i></p> |
| <p>R</p> | <p>RECOMMENDATIONS:</p> <p>If a facility is using HP decontamination technology and is not currently meeting the safety measures as outlined above, then a review of this service provision must be completed immediately. Competent contractors (either internal or external) must be appointed who can meet these strict safety measures.</p> |