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Guidance for the Safe Management of Linen in Residential, Nursing or other Social Healthcare Environments

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Contents

Guidance for the Safe Management of Linen in Residential, Nursing or Other Social Healthcare Environments

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Formative Summary

Rationale

Research was conducted by Professor Katie Laird at De Montfort University on current infection prevention and control policies and practices utilised by care/nursing homes in the laundering of resident associated textiles, barriers to implementing such policies and attitudes towards laundering. Over 1000 care home mangers and healthcare workers took part in the research, which showed that under half of healthcare workers believe that bed linen, personal clothing and staff uniforms is always processed well in their on-premises laundry sites. Only half of care home managers stated that their staff receive formal laundry training; with 87% of healthcare workers stating they would like to receive further training. Healthcare workers (86%) and managers (91%) stated that they would like more support with running on-premises laundries in their settings. Key findings from the focus group included the need for better training and resources with regards to implementing infection prevention and control policies around laundering. This research led to the formation of a laundry management group with the Infection Prevention Society Care Home Special Interest Group in order to create easily accessible and usable guidance for the **Safe Management of Linen in Residential, Nursing or other Social Healthcare Environments,** here on in referred to as **care homes.**

There is a lack of evidence to support practical interpretation of current laundry polices e.g. HTM01-04 Decontamination of Linen for Health and Social Care: Management and Provision by care homes. Polices in place in care homes are often vague and have a limited scientific/infection control knowledge base. This guidance has been compiled to clarify existing healthcare laundering procedures and is based on scientific knowledge of infectious disease transmission, textiles as fomites, disinfection and infection prevention and control processes including personal protective equipment (PPE) and current laundry practices and policies.

This guidance complements the requirements from the Care Quality Commission and HTM01-04 decontamination of linen guidance.

Scope

The purpose of this guidance is to facilitate education and knowledge exchange of safe laundering practices. With training and education being placed at the beginning of the document to emphasise how important education is for successful implementation and continuation of effective and efficient best laundering practice to reduce transmission of infection.

This guidance covers the safe handling and storage of clean linen; safe handling, segregation and transportation of used and infectious linen to the laundry; provision, operation and maintenance of the laundry environment and equipment; risks associated with laundering chemicals/products/environment; wash programmes and ironing.

If laundry services are outsourced, the laundry provider should adhere to HTM1-04 guidelines and where appropriate BS EN 14065:2016 Textiles - Laundry processed textiles - Biocontamination control system accredited.

Definitions

Linen	All reusable textile items requiring washing / disinfection via laundering processes.
Clean linen	Linen that has been laundered (washed / disinfected / ironed) and is ready to be re-used.
Used linen	Linen that has been used and is not visibly contaminated by blood, urine, faeces or vomit and there is no known or suspected infection.
Infectious linen	Linen that has been used by a resident known or suspected to be infectious, and/or, linen that is contaminated (fouled) by blood, urine, faeces, or vomit. **N.B. cleaning cloths and mops must be laundered as 'infectious' linen and separately from any other linen**
Laundry	Environment where linen is laundered.
Laundering	The process of washing, disinfecting, drying and ironing linen rendering it suitable to be re-used.
Sluice Wash	This is the section of a wash cycle which is provided at the beginning of a disinfection wash programme (thermal or chemical). It is a cold-water section lasting for a few minutes with no chemical addition, to facilitate the opening of red bags (water soluble strip or fully soluble) and the removal of loosely adhered soil, blood, faecal matter etc., before the linen is washed.
Pre-Wash	A prewash is a section in the wash cycle added before the main wash and is programmed at a lower temperature than the main wash. 30°C or 40°C temperature is the norm. This allows for any soiling which may be fixed with a higher temperature, to be treated at the same time optimising the enzymes in the laundry detergent which work better at these lower temperatures.
Main Wash	This section of the wash cycle is where the majority of the laundry chemicals will be dosed and is normally programmed with a longer wash time and a higher wash temperature than the prewash to assist in the effective removal of stains.
Thermal Disinfection	This is disinfection by heat. The washing process should have a disinfection section in which the load is either maintained at 65°C for no less than 18 minutes or 71°C for no less than 11 minutes. This includes the obligatory mixing time of 8 minutes to allow the temperature to fully penetrate the load and ensure disinfection is complete.
Chemical Disinfection	Disinfection in this case is achieved either through a chemical additive at a specific temperature or a chemical agent alone which disinfects without the need for temperature. The process should have the same if not greater microbiological efficacy as thermal disinfection. The advantage is that this facilitates the disinfection of those fabrics which couldn't otherwise be disinfected due to potential damage by heat. It also provides a sustainable and low utility option for laundries. End users should check that there is supportive data to ensure the disinfectant is proven to provide adequate disinfection of textiles. An annual microbiological disinfection test should be conducted to verify the performance in accordance with the HTM01-04. Prospective users should ensure that the disinfectant product is being supported under the EU and GB Biocidal Product Regulations, further information can be sought from the HSE and the European Chemicals Agency (ECHA) websites.

Training and Education

All staff that will be expected to 'handle linen'*, must be trained in linen management:*

- Handling and storage of clean linen.
- Handling and segregation of used or infectious linen.
- Temporary storage and transportation of used or infectious linen to the laundry.

Laundry 'staff' *should be trained in all aspects of the laundry environment and processes**:*

- Provision and maintenance of appropriate laundry environment including flow of linen through the laundry.
- Provision, operation, and maintenance of appropriate equipment.
- Risks associated with laundering process, chemicals, products and the environment..
- Machine wash programs.
- Tumble Drying, Ironing and Transportation of Clean Linen Back to Storage Facility

Rationale

Education and training of staff contributes significantly to a knowledgeable, competent and efficient workforce. Awareness of the most up-to-date guidance and rationale behind it empowers staff to deliver safe and effective health care.

Therefore, education and training of staff, regarding the new clarified and recommended processes for the ***Safe Management of Linen, in Residential, Nursing or other Social Healthcare Environments*** *could significantly contribute to a reduction in spread of infectious diseases from linen and laundering processes.*

Handling and Storage of Clean Linen

Handling Clean Linen

- Clean linen should never be transported with used or infectious linen
- Perform hand hygiene before handling linen (PPE is not required when handling clean linen)
- Remove all clean linen from transportation bags/containers/hampers, before storage
- Personal items are to be taken straight to residents' rooms
- Communal linen to be taken straight to storage provision.

Rationale

Correct handling of clean linen and removal of linen from transportation bags/containers/hampers will prevent cross-contamination of microorganisms.

If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures in place. see appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.

Storage Provision for Clean Communal Linen External to Laundry

- Clean linen should never be stored with used or infectious linen
- Store clean linen in an appropriately designed and designated area – for example, an enclosed cupboard or room
- Storage provision should be intact and impervious to moisture, cool and dry
- No inappropriate items should be stored in this area (such as equipment, staff belongings, food, drinks, and other sundries).
- Linen should be stored off the floor and used on a stock rotation basis.
- Clean Linen should not be stored in plastic bags

**NB – if a designated cupboard is not available, clean linen could be stored in a trolley designated for this purpose and completely covered with an impervious covering that is able to withstand decontamination.*

Rationale

Care home environments can be a significant reservoir for potentially harmful microorganisms and transmission of disease, especially in damaged and/or damp areas. If a surface or area is intact and impervious to moisture the number of microorganisms can be significantly reduced by appropriate decontamination, reducing the risk of infection transmission. Appropriate storage of clean linen will contribute to preventing the transmission of infectious disease, ensuring that the clean linen will reach the point of use in a suitable condition.

****If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures in place. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.***

Handling and Segregation of Used or Infectious Linen

Handling Used or Infectious Linen

- Appropriate PPE must be worn when handling used or infectious linen.
- When removing used or infectious linen or clothing, remove any solid particles/ sanitary products/ dressings / tissues and place in appropriate waste stream prior to transporting to the laundry.
- Avoid shaking textiles. Roll or fold items before placing in suitable containers.

Rationale

To protect against contamination of uniform by microorganisms, appropriate PPE must be worn when handling used or infectious linen. If there is risk of splash injury to the eyes/nose/mouth, protection via goggles or visor should be used. Handling used or infectious linen appropriately will prevent airborne transmission of microorganisms (skin cells / infectious particles and dust). Removal of solid particles / sanitary wear will avoid damage to laundering machinery. PPE should be doffed (removed) when the task has been completed, disposed of in the correct waste stream and hand hygiene performed.

If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures in place. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.

Segregation of Used or Infectious Linen

- Take suitable linen containers to point of use. See **appendix II** for examples of linen containers.
- After removing used or infectious linen, segregate into appropriate linen containers. Linen containers should be no more than two thirds full or must be a manageable weight if have to be physically carried downstairs.
- Used or infectious linen should never be placed on the floor or other surfaces in the area.
- Used linen should be placed in a white fabric linen bag. Personal clothing, (used only - NOT INFECTIOUS), may be placed in a different coloured linen bag to be laundered separately from sheets and towels if desired. (e.g., blue / green). All linen bags must be washed with the items they contain (**appendix III**).
- Red bags should be used for all infectious linen. This linen should be placed in single use fully water-soluble (alginate or PVA) bags, or for best practice bags with a water-soluble strip that will offer greater protection particularly if the linen wet/moist. This bag should then be placed in a red fabric linen bag for transporting to the laundry room. Re-useable self-opening red bags are an alternative to water-soluble bags and can provide the same protection with the advantage of being more sustainable and reduce waste at the care home.

All linen containers should be enclosed / covered whilst transporting used or infectious linen to the laundry and cleaned at the end of each day (or on the change of each bag if in outbreak status).

Rationale

Appropriate segregation of used or infectious linen and removal of sanitary wear, dressings and solid-matter at the point-of-use prevents unnecessary additional handling, cross-contamination, and damage to the machine. Restricted filling of bags allows safe transportation and avoidance of bag-content overspill. Transporting used or infectious linen through the building in enclosed/lidded containers, that are cleaned daily, reduces the risk of cross contamination from linen to other areas in the setting.

****If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures in place. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.***

Temporary Storage and Transportation of Used or Infectious Linen to the Laundry

- Infectious linen in water soluble red bags (fully dissolvable or soluble strip) must be taken to the laundry as soon as possible to prevent disintegration of the water-soluble red bag.
- Other segregated used linen can be stored temporarily in a designated area (e.g. sluice room, dirty utility room), until collection. Storage of this kind should be kept for a minimum timeframe (proportionate to the level of soiling / contamination).
- When transporting all used and infectious linen to the laundry it should be in a closed or covered bag / trolley / basket.

Rationale

By having a designated area for temporary storage of used or infectious linen, it reduces the likelihood of cross-contamination to other areas in the setting. Ensure used or infectious linen is transported to the laundry frequently in an enclosed container (depending on service type and resident needs) to avoid build-up of linen and potential cross-contamination of microorganisms and offensive odours in this area. Timely processing of linen ensures the effective decontamination of the linen.

****If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures in place. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.***

Provision and Maintenance of Appropriate Laundry Environment Including Flow of Linen Through the Laundry

- There must be a suitable facility / room, clearly separate from the kitchen, clinical treatment areas and publicly accessible areas, for the sole purpose of laundering linen.
- An appropriate supply of PPE should be available
- The environment, such as ceiling, walls, floors, work surfaces, shelving and cupboards must be intact, impervious to moisture, and be able to be cleaned effectively. All floors should be slip-resistant.
- Best practice is that the laundry will have a separate entrance (for used or infectious linen) and exit (for clean linen). If this is not possible a suitable alternative should be sought such as floor to ceiling partitioning, the use of cupboards with doors etc, to support a used and infectious to clean flow with no cross over between areas. A full risk assessment will support this alternative, (See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this).
- There should be a dedicated hand washing sink with both hot and cold-water supplies, that is clean and undamaged (including surround), with liquid soap, paper towels and sanitising gel available at entry/exit points. A laminated hand washing poster must also be on display
- There should be no manual sluicing facility/sink in use in the laundry room. Any sinks previously used for sluicing should be removed / decommissioned
- Waste should be segregated and disposed of in the correct waste stream. Waste bins should be foot operated, clean and in a good state of repair.
- No food, drink, personal items or other sundries are allowed in the laundry room.
- There should be a cleaning schedule for the laundry detailing what is to be cleaned, how often and who the responsible staff member is. Compliance with the schedule should be audited and non-compliance actioned. See appendix IV as an example that can be adapted locally.

Rationale

Provision of a suitable laundry environment in an appropriate location, with restricted managed access that is easily cleaned/decontaminated will reduce the transmission / cross contamination of microorganisms to clean areas of the setting and ensure that linen is processed appropriately. Manual sluicing of soiled linen should not be undertaken as it can cause microorganisms to be transmitted into the environment and onto clean linen, particularly in aerosol form. Staff will be protected by appropriate PPE, handwashing facilities and waste streams.

****If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures in place. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.***

Provision, Operation and Maintenance of Appropriate Equipment

WASHING MACHINES

Provision

- Industrial/Commercial washing machines must be used.
- Programmable machines with either thermal and/or chemical disinfection criteria.
- Equipment should be professionally installed in accordance with all regulations .
- The machine should be equipped with accurate heat sensors, which correctly register and display the true wash temperate (temperature of the wash water in contact with the load).

Operation

- Guidance on how to use equipment should be provided via operator training and visual information displayed within the laundry.
- Only trained staff to operate equipment.
- All washing machine drains need to be trapped.

Maintenance

- All equipment must be kept clean from mould and biofilm build up. Auto dosing of chemicals instead of manual dosing via the soap box will assist in maintaining the machines.
- Regular servicing and checks should be performed on an annual basis and/or in accordance with regulations by trained and competent engineers. A service report should be kept for all machines.

Rationale

Commercial/industrial washing machines are professionally installed and commissioned before use, providing training for all staff, making them safer for usage. Current healthcare laundry guidelines require provision of appropriate equipment, safe operational use, and external servicing in line with the manufacturers' recommendations. UK Water Regulations require washing machines to have a suitable back flow protection to prevent against Fluid Category 5 (serious health hazard due to concentration of pathogenic organisms) contamination of the water supply. See ***appendix V*** *for further information on water regulations. The provision of trapped drains prevents foul odours and potentially contaminated aerosols entering the washer and recontamination of linen. This also prevents foul odours.*

If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures implemented. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.

TUMBLE DRYERS

Provision

- Industrial/Commercial tumble dryers must be used.
- Equipment should be professionally installed in accordance with all regulations.
- The tumble dryer must be vented to an external source.
- Some industrial/Commercial tumble dryers have additional fire safety features. These take the form of heat activation sensors, which incorporate fire extinguisher technology. By monitoring the temperature inside the drum, the sensors can detect the risk of fire and activate an internal water extinguisher process. This extinguishes the fire within the dryer and importantly contains the fire, reducing the need to evacuate the site (appendix VI reducing fire risks in laundries).

Operation

- Guidance on how to use equipment should be provided via operator training and visual information displayed within the laundry. This should include a clear understanding of the "cool-down" section at the end of the drying cycle.
- Staff should always allow the dryer to complete a cycle before removing items.
- Only trained staff to operate equipment.
- Ensure lint trays are cleaned in line with manufacturers guidance.

Maintenance

- Equipment to be kept clean and lint removed frequently during the day.
- Regular service checks including gas checks should be performed on an annual basis and / or in accordance with regulations by trained and competent engineers. A service record should be kept for all machines.

Rationale

Industrial/Commercial machines are professionally installed and commissioned before use, providing training for all staff, making them safer for usage. Current healthcare laundry guidelines require provision of appropriate equipment, safe operational use, and external servicing in line with the manufacturers' recommendations. Equipment should be kept clean to reduce the risk of fire, optimise efficiency and prevent excessive dust. Industrial/Commercial machines are designed for more robust usage, include fire safety features with a greater range of programmes and generally more energy efficient.

***NB** – there is an increased risk of fire hazard when tumble drying items that have been contaminated by oils / greases from kitchen activities or from skincare/aromatherapy products and have been inadequately washed prior to drying. This can also occur outside of the dryer when hot items are removed before the cool down section of the drying process has been completed. This is sometimes referred to as spontaneous combustion and is caused by inadequately laundered linen with oils / greases being removed from the dryer when hot. See section Linen contaminated with oils / greases from kitchen activities and emollients used in skin care / aromatherapy products.*

**If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures implemented. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.*

Risks Associated with the Laundering Process, Chemicals, Products and the Environment

- There is a legal requirement for employers to adequately assess the risks to their employees' health from exposure to either chemical or biological agents. Information, instruction, and training must be provided for all employees. The employee has a responsibility to adhere to the provision made by the employer for their safety. See **appendix VII** and **VIII** for example risk assessments for health and safety of employees in relation to biological or chemical exposure.
- Control of Substances Hazardous to Health Regulations (COSHH) apply to both chemical and biological agents, whether or not the biological agents exposure is deliberate (microbiological work) or incidental (cleaning / laundry). For examples see **appendix IX** blank COSHH assessment, **appendix X** example of a completed COSHH assessment for biological liquid detergent (example only). Further information on the Control of Substances Hazardous to Health (COSHH) Regulations is available from the following Health & Safety Executive link - https://www.hse.gov.uk/coshh/basics/assessment.htm
- Information on the hazards associated with chemical products i.e. laundry detergents, de-stainers etc., can be found on the Safety Data Sheet (SDS) which the manufacturer/supplier must provide. The SDS is not a COSHH Assessment, but the information provided within the SDS will assist the employer in creating a COSHH Assessment and Risk Assessment, which is a legal requirement and should include advice on PPE and appropriate first aid. See **appendix XI** for an overview of laundry chemicals and **appendix XII** for detainers.
- Laundries in the health care environment have a significant risk of fire both inside and outside the tumble dryer. This is due to the potential for heat to react with any residual inflammable substances on linen that has not been thoroughly decontaminated (e.g. oils and greases from kitchen wear, creams and lotions from skin care). See **appendix VI**, NB note in tumble dryer section and section 'Linen contaminated with oils / greases from kitchen activities and emollients used in skincare / aromatherapy treatment products
- Regular reviews should be conducted on the use of laundry chemicals to ensure that they are optimised and used in the correct wash conditions, for example destainers which are heat activated will not be effective at low temperatures.
- Chemical containers should be stored in accordance with the information provided in the SDS and should not be decanted into empty containers, labelled or otherwise.
- Laundry chemicals should never be mixed. Products may be hazardous when mixed with other chemicals; this may also reduce effectiveness.
- Preference to be given to laundry chemicals that can be auto-dosed.
- There must be provision of spill kits to contain spillages and first aid kits including eyewashes.

Rationale

The laundry environment is a high-risk area and there is a legal requirement (for employers and employees) to carry out appropriate risk and COSHH assessments that will ensure that any potential hazards are controlled and risk of ill health to employees is managed/reduced. Auto dosing of laundry chemicals will reduce handling of chemicals by staff and to ensure the correct amounts are dosed in the most appropriate section of the wash cycle.

If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures implemented. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.

Machine Wash Programs

A description of typical healthcare wash programmes provided by manufacturers on commercial/ industrial machines is given in **appendix XII**. Good laundry practice means the washing machine drum should be loaded no more than 3/4 full to allow movement of the load and provide optimum mechanical action.

USED LINEN

- Used linen must be washed on the highest temperature possible according to the item laundering care label for the appropriate time or using an alternative low temperature chemical disinfection process.

Rationale

Washing at the highest temperatures possible or alternative chemical disinfection process will ensure adequate decontamination of the linen and will assist in stain removal and to prevent fixation of any protein stains.

INFECTIOUS LINEN (water soluble bags)

- All infectious linen must be washed using a dedicated disinfection cycle this can be either thermal or chemical disinfection. A thermal disinfection cycle includes a cold "sluice" at the start of the cycle followed by a pre-wash section (30/40°C) and a higher temperature main wash section. A chemical disinfection cycle should also contains a "sluice" section at the start of the cycle, but may have different wash temperatures depending upon the chemical disinfectant. See **appendix XII** for example healthcare wash programmes.
- All wash processes should be validated, provide verification of the disinfection process in real time and meet requirements in terms of disinfection criteria (see below)
- For traditional thermal disinfection processes, the linen should be processed at 71°C for 11 minutes or 65°C for 18 minutes (thermal disinfection criteria), this includes the obligatory mixing time required to allow the heat to penetrate the full load based on the expected size of machines within care homes. This should be checked to ensure the manufacturer has programmed the machine correctly and tested on an annual basis to ensure the machines equipment is within the tolerances for heat control. Thermal disinfection criteria were validated in previous healthcare guidelines, further information is provided in HTM 01-04.
- Alternatively, sensitive or heat liable items such as personal clothing, mattress covers, hoists, and slings which can't be disinfected at high temperatures can be processed using low temperature chemical disinfection. Chemical disinfectants can be used at lower temperatures, provided the disinfection performance can be proven or demonstrated to be equal to, or greater than, thermal disinfection. Guidance on selection of chemical disinfectants can be sourced either via the NHS Department on Health Rapid Review Panel, HTM 01-04 and other publications, some peer reviewed referenced. All laundry chemical disinfectants are subject to the EU/GB Biocidal Product Regulations and should be either approved or being supported by the manufacturer or supplier. These take the form of chemical disinfectants which can require temperature (chemo-thermal processes) or stand-alone chemical disinfectants. An annual chemical disinfection test should be performed on each machine where chemical disinfectants are employed.

Rationale

With both thermal and chemical disinfection cycles provided for used and infectious linen the cold sluice is a section of the machine wash programme provided at the start of the cycle to facilitate the opening of the water-soluble bags. This allows any loosely adhered soil (such as faeces, urine and blood etc.) to be removed and flushed out of the load before proceeding to the pre wash section. For thermal disinfection a minimum of 65°C for 18 min or 71°C for 11 mins is required to destroy microorganisms on linen in the main wash, this includes mixing time for heat penetration throughout the load and completion of disinfection. Low temperature chemical disinfectants will normally be employed with bespoke wash cycles, which have been validated to meet regulations and confirm disinfection is adequate.
All disinfection wash programmes are provided to ensure disinfection is complete and laundry is safe for residents and handlers.

***If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures implemented. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.**

STAINS

- Use the correct laundry chemicals and wash processes. Biological detergents provide the best means of removing stains in the first wash cycle.
- Use a wash cycle with a pre-wash normally 30°C / 40°C.
- Always check linen before drying and remove any stained items for either re-washing or stain treatment before drying.
- Pre-soaking is not good laundry practice. Most stain removers require an element of temperature to activate which can't be sustained when soaking. The presence of linen soaking can pose an infection risk **(appendix XII)** .

Rationale

Using a pre-wash will be more effective for the removal of bloods and other similar stains. Higher temperatures will increase the risk of "fixing" the stains. Drying linen with stains will again increase the risk of "fixing" the stains, making the task more difficult if not impossible in the future. Linen should not be soaked due to the warm standing water being a suitable environment for the proliferation of microorgainisms. The evaporation of the standing water may also result in aerosols.

****If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures implemented. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.***

Linen contaminated with oils / greases from kitchen activities and emollients used in skincare / aromatherapy treatment products

- Linen known to be heavily contaminated with oils/greases from kitchen work, and emollients used in skincare / aromatherapy / treatment products should be laundered ideally on a full wash, with a prewash followed by a main wash section at higher temperatures (a minimum of 60°C).
- Do not use fast washes.
- The use of a chemical emulsifier added to the normal laundry chemicals will enhance the oils / grease removal and provided a better wash outcome.

- Both actions will reduce the risk of fire which can occur as a result of inadequately laundered linen.
- Fires can occur as a result of spontaneous combustion / ignition when inadequately laundered items still contaminated with oils/grease are tumble dried. The risk can increase if linen is removed from the dryer before the “cool-down” section at the end of the drying cycle is interrupted or not carried out. The fire may also start once out of the dryer if left stored at high temperatures following the drying cycle.
- Items contaminated with oils / greases and skincare products should be removed from the tumble dryer on completion of the full drying cycle including cool down. If textiles are still warm place in multiple small, folded piles until fully cooled. See **appendix VI.**

Rationale

Linen soiled with oils/greases from kitchen activities and skincare products etc., that are not regularly or correctly laundered can result in a build of the oils/greases on the textile which poses a greater fire risk. This also includes fabrics impregnated with dried on emollients which can significantly ignite quicker, burn more intensely and accelerate a fire. The Medicines and Healthcare products Regulatory Agency (MHRA) safety guidance is to not expose any emollient impregnated clothing or bedding to a flame and a high heat source. More information can be found on the Care Quality Commission website (https://www.cqc.org.uk/guidance-providers/learning-safety-incidents/issue-3-fire-risk-use-emollient-creams). Therefore, the contaminated linen should be washed adequately and regularly to remove any substances, which may increase the risk of a fire. There have been several reports from the Fire and Rescue Services of laundry room fires linked with kitchen cloths, bedding and towels contaminated with oils / greases and emollients.

***If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures implemented. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.**

NB – CLEANING CLOTHS AND MOPS SHOULD BE PROCESSED AS INFECTIOUS LINEN AND DISINFECTED ADEQUATELY. ANY USED CLEANING CLOTHS AND MOPS SHOULD BE CONTAINED TO BE TRANSPORTED TO LAUNDRY E.G. PLASTIC LIDDED CONTAINER OR PLASTIC BAG. THESE SHOULD BE WASHED SEPARATELY TO OTHER LINEN IN THE CARE HOME ENVIRONMENT AT THE END OF EVERY DAY AS A MINIMUM.

Tumble Drying, Ironing and Transportation of Clean Linen Back to Storage Facility

- A separate clean area of the laundry away from the used and infectious linen area of the laundry, should be used for tumble drying and ironing.

TUMBLE DRYING

- The tumble drying equipment should be used and maintained in line with the manufactures' recommendations including cleaning of lint trays.
- Always check the textile care label for suitability.
- Do not overload the tumble dryer.

IRONING

- The ironing equipment should be used and maintained in line with the manufactures' recommendations. Staff should be trained in its use and a first aid kit should be available. Safe placement of ironing equipment should be observed.
- It is recommended that heat-labile personal items / clothes that are processed at a lower temperature are also ironed to ensure some heat-based treatment.

Rationale

*The ironing equipment should be on the 'clean' side of the laundry room, i.e. next to the tumble dryers to reduce risk of recontamination. See **appendix I** as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.*

TRANSPORTATION

- When the laundering process is completed, linen should be transported, at the earliest opportunity, in clean containers / trolley back to where it is stored (linen cupboard, residents' room).

Rationale

Clean linen that remains in the laundry for prolonged periods of time may become cross-contaminated with microorganisms from the environment, soiled linen or personnel.

***If compliance with this standard is not possible, please complete a full risk assessment detailing the reason for non-compliance, the timeframe to reach compliance, and the interim control measures implemented. See appendix I as an example of risk assessment where compliance cannot be met. Your local IPC team can assist with this.**

Evidence Base for Guidance

1. *British Healthcare Trades Association (2012), Protect, Rinse and Dry, BHTA guidance on the care, cleaning and inspection of healthcare mattresses.*
2. *British Standards Institute (2016). BS EN 14065:2016. Textiles - Laundry processed textiles - Biocontamination control system. London: BSI.*
3. *CDC. Guidelines for Environmental Infection Control in Health-Care Facilities: G. Laundry and Bedding. 2003. Available online: https://www.cdc.gov/infectioncontrol/guidelines/environmental/background/laundry.html (Accessed on 25 July 2023).*
4. *Department of Health. Health Technical Memorandum 01-04: Decontamination of Linen for Health and Social Care: Management and Provision. 2016. Available online: https://www.england.nhs.uk/wp-content/uploads/2021/05/Mgmt_and_provision.pdf (Accessed on 25 July 2023).*
5. *Department of Health and Social Care (2024) Infection prevention and control: resource for adult social care. Accessed from https://www.gov.uk/government/publications/infection-prevention-and-control-in-adult-social-care-settings/infection-prevention-and-control-resource-for-adult-social-care (Accessed 15th July 2024)*
6. *Bockmuhl DP. (2017). Laundry hygiene - how to get more than clean. Journal of Applied Microbiology 122(5):1124-1133*
7. *Bockmühl DP, Schages J, Rehberg L. (2019). Laundry and textile hygiene in healthcare and beyond. Microbial Cell **6**(7):299-306*
8. *Food Standards Agency (2011) E. coli O157 control of cross-contamination. Guidance for food business operators and enforcement authorities. Accessed (15th May 2024) from https://www.food.gov.uk/sites/default/files/media/document/ecoli-cross-contamination-guidance.pdf*
9. *Hall, S, Blackburn, K.J., Ferguson, L. and Pugh, P.(2021) Assessing the potential fire risk of laundered fabrics after contamination with emollients using ATR-FTIR spectroscopy and chemometrics. 2021, Science and Justice, 61, (6), 799-788.*
10. *Hall, S., Franklin, L., Bull, J., Beard, A., Phillips, G and Morrissey, J. (2019) The flammability of textiles when contaminated with paraffin base products. Fire Safety Journal, 104, 109-116.*
11. *Health and Safety Executive, How to carry out a COSHH risk assessment. Accessed from https://www.hse.gov.uk/coshh/basics/assessment.htm. (Accessed on 15th May 2024)*
12. *Health and Safety Executive, Laundry treatments at high and low temperatures. Accessed from https://www.hse.gov.uk/biosafety/blood-borne-viruses/laundry-treatments.htm (Accessed 16th July 2024)*
13. *Health and Safety Executive, (2014), Health and safety in care homes. Accessed from https://www.hse.gov.uk/pubns/priced/hsq220.pdf. (Accessed 16th July 2024)*
14. *Medicines and Healthcare products Regulatory Agency (2021). Emollients and risk of severe and fatal burns: new resources available accessed from* https://www.gov.uk/drug-safety-update/emollients-and-risk-of-severe-and-fatal-burns-new-resources-available
15. *McDermott, R., Taylor, L., Housam, N. and Hall, S (2023) The potential fire risk of emollients when dried on viscose bandages., British Journal of Community Nursing.*
16. *NHS Executive Publications, Health Service Guidelines 'Hospital Laundry Arrangements for Used and Infected Linen' HSG(95)18.*
17. *NHS England (2024) National infection prevention and control manual for England. Accessed from https://www.england.nhs.uk/wp-content/uploads/2022/04/PRN00908-National-infection-prevention-and-control-manual-for-England-version-2.9-February-2024.pdf (Accessed 15th July 2024)*
18. *NHS National Services Scotland (2023), National Infection Prevention and Control Manual (CH IPCM. Accessed from https://www.nipcm.scot.nhs.uk/care-home-infection-prevention-and-control-manual-ch-ipcm/ (Accessed 16th July 2024)*
19. *NHS National Services Scotland (2018), National Guidance for Safe Management of Linen in NHS Scotland, Health and Care Environments, For laundry services/distribution V2.2. Accessed from https://www.nss.nhs.scot/media/1259/1_linen-guidance-v22-may-2018.pdf. (Accessed 15th July 2024)*
20. *Owen L, Shivkumar M, Laird K. (2021).The stability of model human coronaviruses on textiles in the environment and during healthcare laundering. mSphere 6:e00316-21. https://doi.org/10.1128/mSphere.00316-21.*

21. *Owen L, Laird K. (2020). The role of textiles as fomites in the healthcare environment: a review of the infection control risk. PeerJ 8:e9790 https://doi.org/10.7717/peerj.9790*
22. *Ridd, M. J., Hall, S., Lane, M.E., Roberts, A., and Williams, H.C. (2022), Burns with emollients. The British Medical Journal, (practice – adverse drug reactions) 376.*
23. *Riley, K., Williams, J., Davis, A., Shen, J. and Laird K. (2017), The Effect of Low Temperature Laundering and Detergents on the Survival of Escherichia coli and Staphylococcus aureus on Textiles Used in Healthcare Uniforms. Journal of Applied Microbiology, 123:(1), 280-286.*
24. *Smith, D.L., Gillannders, S. Holah, J.T. and Gush, C. (2011), Assessing the efficacy of different microfibre cloths at removing surface micro-organisms associated with healthcare-associated infections. Journal of Hospital Infection 78(3):182-6. doi: 10.1016/j.jhin.2011.02.015*
25. *Tarrant, J., Jenkins, R., Owen, L. and Laird, K. (2022) Influence of the exosporium on adherence of C. difficile spores to cotton bed sheets. Letters in Applied Microbiology, 75 (6), pg 1449-1459* ***https://doi.org/10.1111/lam.13811***
26. *Tarrant, J., Jenkins, R., & Laird, K. (2018), From Ward to Washer: The Survival of Clostridium difficile spores on Hospital Bedsheets through a Commercial UK NHS Healthcare Laundry Process. Infection Control and Hospital Epidemiology. 0, 1–6 doi:10.1017/ice.2018.255*

Appendices

Appendix I	Non-compliance RA example
Appendix II	Example Linen Containers
Appendix III	Colour Coding of Laundering bags
Appendix IV	Example Laundry Cleaning Schedule
Appendix V	Water Regulations UK Fluid Categories
Appendix VI	Fire Risk Reduction Poster
Appendix VII	Example RA Biological Hazard Exposure
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EXAMPLE NON-COMPLIANCE RISK ASSESSMENT TEMPLATE

Can be adapted locally for risk assessment needed where there is non-compliance with guidance.

Location / process of risk to be assessed: (What is the non-compliance?)	**Assessment Number:**
Clean linen is currently being stored in a room which is not partitioned or closed off in any way. This area is entered from the dirty utility environment and from where used / infectious linen is being stored before being laundered.	

Activity / Task / Process Being Carried Out: (What is required to achieve compliance?)
Provision of suitable area to store clean linen separate and away from used / infectious linen or other risk of contamination (Dirty utility environment).
Person(s) at Risk of harm from this situation (hazard)
Staff would be at risk of transmission of infection if handling assumed clean linen that has been contaminated as they would not be wearing appropriate PPE.
Residents would be at risk of transmission of infection if they were exposed to contaminated linen.
Visitors to the setting would be at risk of transmission of infection if exposed to contaminated linen such as residents clothing or other linen items.

Hazards Identified	**No of / Persons at risk of harm**	**Control Measures Currently in Place**	**Risk Score (optional) / comment**
1. Transmission of infection due to Cross contamination of clean linen from used / infectious linen.	All persons in setting	Infectious linen is transported from the point of use in sealed bags within the laundry hamper / bag/ receptacle. This does not protect clean linen from the dirty utility environment.	Likelihood (of hazard causing harm) – possible Impact (of hazard caused harm) – moderate **Risk score 9 - moderate**
Examples of Additional Control Measures that could be implemented.			**New Risk Score / Action**
Identify alternative storage cupboard / area for storage of clean linen that is not within a 'dirty' environment where used / infectious linen is also being stored. This would remove the risk and therefore would be best practice. Date of action taken:			**Risk removed**. No further action required.
Installation of partition (doors, heavy duty curtain / concertina type partition) across linen storage entranceway. This would reduce but not eliminate the risk as each time the partition is opened it would allow exchange of air between the 2 environments. Date of action taken:			Likelihood – rare Impact – moderate **Risk score 3 – low.** No further action required at present will monitor impact through infection sickness and outbreak reporting.
Re-locating storage of used / infectious linen before laundering. This would not be likely to reduce the risk as the clean linen is still being stored in an open 'annexe' within a 'dirty' environment. Date of action taken:			Likelihood – possible Impact – moderate **Risk score 9 – moderate.** Added to Risk register / IPC action plan / Maintenance program to consider relocation or installation of partition / doors.

Any outstanding risks scoring 9 or above should be monitored by adding to Risk Register, IPC action plan or Maintenance Program until suitable control measures are in place (include time frame) or risk accepted with a view to monitoring any impact (audit / incident reporting / outbreak monitoring).
Information, Instruction and Training Undertaken
All staff should have regular and appropriate training to ensure that their knowledge and understanding supports a good risk awareness, ability to escalate and take part identifying and implementing risk reduction measures.
Is Health Surveillance Required (routine / regular monitoring of staff exposed to harmful substances as part of their day-to-day role e.g., exposure to irradiation)
No
Measurement of compliance with new control measures
IPC audit should be undertaken at least every 12 months to assure of compliance (or more frequently to monitor a particular non-compliance until there is evidence that the control measures implemented are effective).
Measurement of Impact of control measures.
Reporting and monitoring infectious outbreaks, monitoring staff sickness through infectious disease.
Persons Responsible for Ensuring Implementation of Existing and Any New Control Measures
Registered Manager

Scoring Matrix (OPTIONAL)

	SEVERITY/IMPACT RATING				
Likelihood	**1 Insignificant**	**2 Minor**	**3 Moderate**	**4 Major**	**5 Catastrophic**
5 - Almost Certain	5	10	15	20	25
4 - Likely	4	8	12	16	20
3 - Possible	3	6	9	12	15
2 - Unlikely	2	4	6	8	10
1 - Rare	1	2	3	4	5

GRADING

1-5 Very low

6-8 Low

9-15 Moderate

16-25 High

Name of Assessor		**Signature**
Date of Review		
Dat of Next Assessment		

Advice and support for this process will be available from your local IPC Team

Example Linen Containers / Alternative Storage

Trolley Solutions

Single wheeled, lidded trolley

Removable lidded linen bin on wheels

Foot pedal operated, lidded, single linen trolley

Foot pedal operated, lidded, double linen trolley

Foot pedal operated, coloured, lidded, triple linen trolley

Triple, coloured, lidded linen trolley

Alternative Storage

Alternative trolley for storage of clean linen

Bags & Baskets

Coloured launderable linen bags for use with trollies

Red water-soluble strip sack for infectious linen

Red alginate water-soluble laundry bag

Portable linen baskets (where lift may not be available)`

Colour Coding of Laundering Bags

USED LINEN

Linen that has been used but is not visibly contaminated by any body fluids, or suspected of being infected, should be placed in a **White Linen Bag** which is washed at the same time as its contents.

White Linen Bag

INFECTIOUS LINEN

Linen that has been used by a resident known or suspected to be infectious, and/or linen that is contaminated by any body fluids, (faeces, urine, vomit, blood) should be placed in a **fully water-soluble** or **water-soluble strip red bag,** then in a **fabric red linen bag** which should be washed at the same time as its contents.

Red alginate dissolvable strip bag or fully dissolvable bag

Red Linen Bag

EXAMPLE LAUNDRY ENVIRONMENT CLEANING SCHEDULE

Nursing / Care Home.												**Month and Year - May 2024**											**Laundry Environment Cleaning Schedule**								
All work surfaces and low shelving																															
Frequently touched points (handles, switches etc)																															
Hand washing sink																															
Soap dispensers																															
Replenish soap dispensers																															
Washing Machines																															
Tumble Driers																															
Clean lint screens																															
Clean laundry trollies																															
Empty and clean all waste bins																															
Floor																															
WEEKLY: Dust																															
Wall surfaces																															
Skirting																															
Behind machines																															
Window ledges																															
Blinds																															
Fans																															
MONTHLY: Dust																															
Ceiling																															
High surfaces																															
COMPLETION KEY: e.g. – initial if completed; NC if not completed – document on reverse reason and action taken with date time and signature.																															

J. L. McMahon IPCN August 2024

Water Regulations UK Fluid Categories

Fluid Category

Means a category of fluid described in Schedule 1 of the Water Supply (Water Fittings) Regulations and/or Scottish Water Byelaws**.**

Interpretation given in Part 1: Preliminary of the Water Supply (Water Fittings) Regulations and Scottish Water Byelaws

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Fluid Category 1

Wholesome water supplied by the undertaker and complying with the requirements made under section 67 of the Water industry Act 1991/ the Water Supply (Water Quality) (Scotland) Regulations 1990 and any amendment

Description given in Schedule 1: of the Water Supply (Water Fittings) Regulations and Scottish Water Byelaws

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Fluid Category 2

Water in fluid category 1 whose aesthetic quality is impaired owing to –

a change in its temperature, or

the presence of substances or organisms causing a change in its taste, odour or appearance, including water in hot water distribution systems.

Description given in Schedule 1: of the Water Supply (Water Fittings) Regulations and Scottish Water Byelaws

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Fluid Category 3

Fluid which represents a slight health hazard because of the concentration of substances of low toxicity, including any fluid which contains –

ethylene glycol, copper sulphate solution or similar chemical additives, or

sodium hypochlorite (chloros and common disinfectants)

Description given in Schedule 1: of the Water Supply (Water Fittings) Regulations and Scottish Water Byelaws

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Water Regulations UK Fluid Categories

Fluid Category 4

Fluid which represents a significant health hazard because of the concentration of toxic substances, including any fluid which contains –

chemical, carcinogenic substances or pesticides (including insecticides an herbicides), or

Environmental organisms of potential health significance

Description given in Schedule 1: of the Water Supply (Water Fittings) Regulations and Scottish Water Byelaws

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Fluid Category 5

Fluid which represents a serious health hazard because of the concentration of pathogenic organisms, radioactive or very toxic substances, including any fluid which contains –

faecal material or other human waste:

butchery or other animal waste: or

pathogens from any other source.

Description given in Schedule 1: of the Water Supply (Water Fittings) Regulations and Scottish Water Byelaws

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Fire Risk Reduction & Example Poster

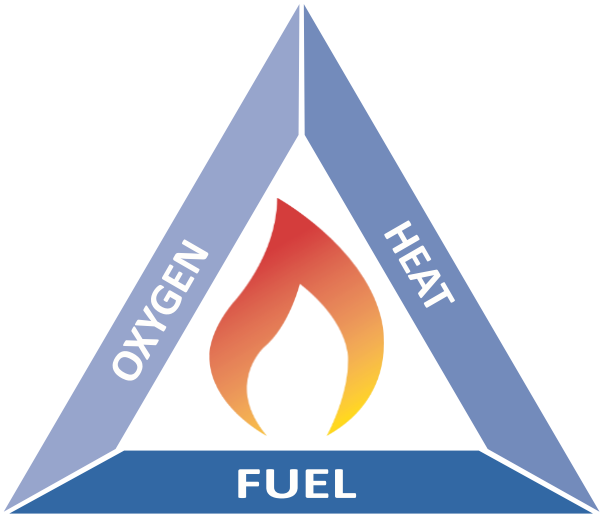
REDUCING THE RISK OF FIRE IN A LAUNDRY

Healthcare laundries have a significant risk of fires due to the nature of some substances which may be present on the linen.

This can include aromatherapy oils, skin treatments such as emollients and even from grease on kitchen linen etc.

If the linen is inadequately washed these oils/grease and skin treatments will still be present after washing and could build up increasing the risk of a fire in the laundry.

The fire triangle is a model for understanding the reactions which must be present in order to create a fire.



EXAMPLE POSTER

HSE: Risk Assessment Example - Care Home Laundry Handling Used or Infectious Linen

Company Name: Example Care Home

Assessment carried out by: Care Home Manager/Assessor

Date of next review: August 2025

What are the hazards?	Who might be harmed and how?	What are you already doing to control the risks?	What further action do you need to take to control the risks?	Who needs to carry out the action?	When is the action needed by?	Done
Biological Hazard – risk of infection during handling of used or infectious	Care home residents, laundry operatives, care workers.	Provide information, instruction and training.	Review training needs on a regular basis.	Care Home Manager.	On going and as required for new entrants/staff.	
		Appropriate PPE provided.	Review ppe requirements on a regular basis.	As above	On going and at least quarterly.	
		Used or infectious linen is transported from the point of use contained within respective suitable white or red linen bag to reduce risk during handling and to prevent spread of infection to other linen.				
		Provide hand washing facilities.				
		Provide suitable red bags for containment of infectious linen.				
		Infectious linen is separated from used linen.				
		Infectious linen is laundered promptly.				
		Designated area for storing infectious linen away from clean linen				

HSE: Risk Assessment Example - Care Home Laundry Chemical Hazards

Company Name: Example Care Home

Assessment carried out by: Care Home Manager/Assessor

Date of next review: August 2025

What are the hazards?	Who might be harmed and how?	What are you already doing to control the risks?	What further action do you need to take to control the risks?	Who needs to carry out the action?	When is the action needed by?	Done
Chemical – during handling of laundry chemicals.	Laundry operatives. Maintenance staff.	COSHH Assessment carried out for each laundry chemical product.	COSHH and SDS to be displayed and readily accessible in the laundry.	Care Home Manager	As required under the COSHH regulations and whenever products are changed i.e. suppliers or formulations.	
		Ensure supplier of laundry product provides Manufacturer's Safety Data Sheet (MSDS) and this is in date.	Review chemical usage on a regular basis.	Care Home Manager	As above	
		Provide information, instruction and training.	Review training needs on a regular basis.	Care Home Manager.	On going and as required for new entrants/staff.	
		Appropriate PPE provided.	Review ppe requirements on a regular basis.	As above	On going and at least quarterly.	
		Only laundry operatives and maintenance staff to be allowed to handle products.	Ensure products are used correctly and on the optimum wash programme.	Care Home Manager, laundry operatives.		
		All products are auto dosed to reduce handling.				
		Provide hand washing facilities.				
		Products are not decanted into empty containers and never mixed.				
		No drinking or eating in the laundry area.				

COSHH ASSESSMENT

Ref:

This is an example of a completed COSHH Assessment, blank COSHH assessment can be found in appendix X or you can adapt the form locally.

This document provides a summary of information to staff in accordance with Control of Substances Hazardous to Health Regulations 2002, the contents of which must be strictly adhered to and complied with.	
Product & SDS Ref:	
Product supplier:	
Title of process / activity:	
Process description:	

Product Classification		Composition Details	

Workplace exposure limits reference HSE Publication EH40/2005 Substance(s) involved:	**LTEL**	**STEL**	Skin notation

Nature of exposure:	✓	**Description of hazard to health:**
Other		

Control measures implemented, including personal protective equipment to be used:

Details of handling and /or waste disposal requirements:

Staff training requirements:

Emergency and first aid treatment:	

Details of authorised signatory confirming acceptance of this assessment:			
NAME:		**SIGNATURE:**	
TITLE:		**DATE:**	

COSHH ASSESSMENT

Ref:

This is an example of a completed COSHH Assessment you may choose to use the blank COSHH assessment in appendix IX or adapt the form locally.

This document provides a summary of information to staff in accordance with Control of Substances Hazardous to Health Regulations 2002, the contents of which must be strictly adhered to and complied with.	
Product & SDS Ref:	**Example Biological Liquid Laundry Detergent**
Product supplier:	Example supplier Ltd
Title of process / activity:	Use of laundry chemicals in commercial washing machines
Process description:	Use of laundry detergent via automatic dosing equipment to healthcare laundry washing machines, including replacement of product as required.

Product Classification	 Corrosive	Composition Details	Anionic 5-15%, non-ionic surfactants <5% Phosphates15-30% Enzymes <5% Sodium Formate <5% Carbomer <1% Ethanediol <1% Potassium Hydroxide <1%

Workplace exposure limits reference HSE Publication EH40/2005 Substance(s) involved:	**LTEL**	**STEL**	Skin notation
Ethanediol Potassium Hydroxide <1%	10mgm^{-3}	104mgm^{-3} 2mgm^{-3}	SK

Nature of exposure:	✓	**Description of hazard to health:**
Inhalation	✓	Not normal route of entry. But symptoms similar to those of ingestion may develop.
Ingestion	✓	May cause discomfort if swallowed.
Eye Contact	✓	Risk of serious eye damage.
Skin Contact	✓	Skin irritation should not occur when used as recommended.
Other		

Control measures implemented, including personal protective equipment to be used:

Staff to wear chemically resistant gloves complying to EN 374 (nitrile suitable) and safety goggles approved for use against chemicals complying with EN166. Protective overalls and safety footwear as appropriate to prevent skin contact

Details of handling and /or waste disposal requirements:

Avoid extremes of temperature and in particular protect from freezing. Keep container tightly closed,

Staff training requirements:

Staff to receive on the job training. Staff to be fully conversant with MSDS/COSHH Assessment.

Emergency and first aid treatment:

Inhalation	Non-volatile liquid.
Ingestion	Never give anything by mouth to an unconscious person. Do not induce vomiting. Promptly get affected person to drink large volumes of water to dilute swallowed chemical. Give milk instead of water if readily available. Get medical attention immediately.
Eye Contact	Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 mins. Get medical attention immediately. Continue to rinse.
Skin Contact	Remove contaminated clothing. Rinse immediately with plenty of water. Get medical attention promptly if symptoms occur after washing.

Details of authorised signatory confirming acceptance of this assessment:

NAME:		**SIGNATURE:**	
TITLE:		**DATE:**	

General Overview of Laundry Chemicals - On Premises Laundries (OPL)

Bio & Non-Bio Laundry Detergents

- The key difference here is the presence of enzymes in biological detergents. Enzymes help to breakdown protein, fat and starch, helping to remove stains, particularly at low temperatures. In liquid form they are more effective than non-bio liquids.
- Can be used at low temperatures.
- Non bio products are kinder to the skin however there is little scientific evidence that it is the enzymes which cause skin irritation.
- Liquid laundry detergents can be auto dosed, reducing waste and safer to the operator. Auto dosing also ensures the product reaches the washer drum at the right time in the wash cycle.

Laundry Destainers

- Even the best detergents aren't good enough alone to deal with some of the stains which certain markets will experience at times.
- Destainers – normally associated with “bleaching” work by removing the residual colour of a stain. This can be from tea, coffee, cocoa, vegetable stains ie tomato puree etc. They can either be in liquid form or powder and are either “oxygen” or “chlorine” bleach types.
- For safety reasons liquid Destainers should be auto dosed.

Emulsifiers

- Emulsifiers - help to remove grease, oil and fat stains. In care homes settings, this can help with the removal of aromatherapy oils and emollients. In kitchens with laundering of chefs wear and table linen. Normally dosed within the main wash.

Fabric Softeners

- These don’t just make clothes smell nice they also:
- Reduce static and wrinkling
- Can protect colours from fading
- Reduce drying time and make ironing easier
- Make fabrics soft next to the skin
- They shouldn’t be used on incontinence pads such as Kylies as they will compromise the water absorbency.
- Use sparingly on towels - again to avoid impact on water absorbency.

General Overview of Laundry Destainers - Destainers/Bleaches (Oxidising Agents)

Golden Rule

- When used under the **right** conditions bleaches are very effective **stain removers.**
- When used under the **wrong** conditions bleaches are very effective **fabric removers.**

A Destainer is essentially a decolouriser, removing the colour of the stain so that it isn't visible.
Many bleachable stains, if treated quickly, would be removed by cold water, a little detergent and mechanical action. Unfortunately, in OPL laundering stains may well have been in the fabric several days prior to washing. It then becomes necessary to add bleach to the process to ensure complete stain removal.

They are **NOT** a substitute for poor washing and their purpose is not to improve or maintain the standard of whiteness. Whilst this may happen in certain instances, maintenance of good whiteness is the function of your detergent.

Destainer Type	Optimum Working Conditions	Advantages	Disadvantages	Colour Sensitivity	Health & Safety
6 - phthalimido peroxy hexanoic acid commonly known as PAP $C_{14}H_{15}NO_5$ Liquid	Active at low temperatures.	Good stain removal Can be safely used on work which may contain chlorohexidine gluconate	Can be expensive but volumes used are ~ half of peroxide.	Generally safe on colours	Lower hazard rating than Peroxide, Hypochlorite and Peracetic Acid
Hydrogen Peroxide H_2O_2 Liquid	Most active in alkaline conditions with temperatures in excess of 60ºC	Good stain removal Can be safely used on work which may contain chlorohexidine gluconate	Needs 2-3 times as much peroxide to achieve same results as hypochlorite.	Safer to use on colours than hypochlorite.	Classified as Corrosive. Irritant – PPE recommended.
Sodium Perborate $NaBO_3$. $4H_2O$ & Sodium Percarbonate $2Na_2CO_3 3H_2O_2$ Powder	Not active at temperatures below 60 ºC unless used with activators.		Activity will deteriorate if stored in warm temperatures. Must be kept dry.	Safer to use on colours than hypochlorite	Classified as Harmful, Irritant. PPE recommended
Peracetic Acid known as PAA (CH_3COOOH) Liquid	Most active at pH9 (slightly alkalis) Effective at high temperatures (80 ºC). Also effective at 45-60 ºC	Good stain removal on delicate items at low temperatures.	Pungent Odour.	Safer to use on colours than hypochlorite.	Classified as Corrosive, Harmful if swallowed. Irritant PPE recommended.
Sodium Hypochlorite (NaOCl) Liquid	Up to 60ºC. Above will increase fabric damage. Use in neutral conditions. Avoid acidic or alkalis pH conditions.	Cost effective. Relatively low volumes required for stain removal.	Can loose its activity on exposure to light and warm temperature. High potential for fabric damage. Will react with some antiseptic solutions which contain chlorohexidine gluconate i.e. Hibitane. Should not be used on fire retardant fabrics.	Not suitable for dark and coloured items. Will permanently bleach.	Classified as Corrosive Contact with acid liberates toxic gas Irritant - PPE recommended.

Health/Social Care Commercial/Industrial Wash Programmes

The following is a guide and not exclusive to typical wash programmes, which your machine supplier will have programmed. **As always read the care label on the item before selecting programme. Ultimately if the linen needs to be disinfected then this should override what the care label recommends. For heat sensitive fabrics etc., an alternative low temperature chemical disinfection may be appropriate.**

Extra Hot 90°C	May also be referred to as Boil Wash	Includes 30 or 40 °C pre wash with 90°C main wash. In recent years, the 90°C may also be reduced to 80-85°C for energy savings. Pre wash always colder than main wash to avoid fixing any protein stains.	This is normally recommended for kitchen work, chefs wear, table linen, tea towels and cloths etc., Always read the care label.
Thermal Disinfection Sluice	May be referred to as Sluice wash	Includes a cold section at start to facilitate the opening of water soluble bags and to flush any loosely adhered soiling from load. Followed by pre wash at 30/40°C and the main wash which is the disinfection stage. This should follow the thermal criteria temperature and time as specified in HTM01-04.	Recommended for foul and infected linen. Programme is designed for water soluble bags. The sluice section may be what is known as an over flow sluice where the washer fills for a set time 5-7 mins with cold water. Or in recent years several cold fills to at the start of the cycle to programmed water levels.
Hot with Pre Wash		30/40°C pre wash followed by a 60°C main wash. Lower temp pre wash to reduce risk of fixing stains. 60°C wash facilitates the use of high temperature destainers which may be only active at temperatures above 50°C.	Minimum requirement for any linen contaminated with oils and greases from aromatherapy and skin treatments including emollients. This also includes kitchen linen such as tea towels, cloths etc., chefs wear and any clothing that might be contaminated with grease and oils.
Fast Hot Wash		Main wash at 60°C with no pre wash.	Not suitable for heavily soiled linen or those contaminated with oils and greases.
Warm (HOT) with prewash	Can be labelled hot or warm by the machine supplier	Includes a pre and main wash at 40°C	Adequate for items which may be soiled and require a pre wash.
Warm Wash		40°C Main wash	Satisfactory for heat sensitive linen not requiring stain removal or disinfection.
Wool Wash	May be referred to as delicates	30°C Main wash with low drum action to reduce mechanical damage of the fabric. Will also have a low final spin/extract.	Ideal for delicate fabrics, wools etc., not requiring disinfection. Note the low final spin this is to reduce potential damage to sensitive fabrics. If used for other materials as a “quick” cycle increased drying times will occur due to the volume of water held within the linen after spinning. False economy!!
Spin Only	Also Rinse and Spin.	Provided to assist spinning loads which may have gone out of balance and required additional spin.	DO NOT USE THIS AS A WASH CYCLE!
NOTE THE WASH CYCLE DESCRIBED BELOW MAY BE PRESENT ON YOUR WASHING MACHINES BUT IS GRADUALLY BEING PHASED OUT BY MACHINE MANUFACTURERS.			
Chemical Sluice	*Chemical Disinfection*	*Some machine manufacturers provide this as an alternative to thermal disinfection. WARNING HERE! This is only to be used in conjunction with a chemical disinfectant additive. The cycle is programmed with low main wash temperatures which will not provide any disinfection of the linen without an additive. Advice should always be sought from the disinfectant supplier that the wash programme conditions are applicable to the product being recommended and the disinfection process is validated. Chemical disinfection tests are required on an annual basis to demonstrate compliance. Monthly/Weekly checks also need to be performed on machines employing low temperature disinfectants. Always check that the product is regulated or being supported under the EU/GB Biocidal Product Regulations. See appropriate references.*	