

RCHT Sterimelt - Non-technical Summary

Site operations

The Sterimelt machine is owned and operated by the Royal Cornwall Hospitals Trust. The equipment is operated by trained members of the hospital's Sterile Services Department and overseen by qualified technically competent managers, in line with permit conditions.

Location

The permitted site is located adjacent to the Sterile Services Department at the Royal Cornwall Hospital in Truro, and is a fixed location.

The site is located within an industrial area, and within 100m of the hospital helipad. The nearest residential properties are 350m to the south, and 500m to the north.

Activities proposed

The activities to be carried out on site will be limited to physical (heat) treatment of non-hazardous healthcare waste.

Specific fractions of the non-hazardous plastic waste produced by healthcare activities will be collected and brought to the permitted site. The specific fractions are polypropylene fabrics, including theatre tray wraps, theatre gowns and single use face masks.

These will be fed into the Sterimelt machine by site operators. The Sterimelt machine melts the items into solid, 20kg, blocks of polypropylene which are then removed from site for recycling. The process includes a decontamination heating phase.

Any storage of waste is carried out within the permitted area, and in line with all relevant legislation, to prevent any risk of wind-blown waste.

No new vehicle movements are expected from the operations, as existing transport routes will be utilised.

Pre-acceptance audits carried out by waste producers will be shared with the permitted facility, and visual inspections of deliveries will be undertaken to ensure only permitted wastes are processed. Waste brought in from external producers will be accompanied with the relevant transfer note.

Waste types and tonnages

All the materials being processed are from non-infectious sources from within the Royal Cornwall Hospital however once the permit is in place, non-infectious items will be taken in from other locations for processing. All waste will fall within European Waste Code (EWC) 18 01 04, and all waste will be clean or lightly soiled. No waste which is noticeably soiled with bodily fluids will be processed.

The facility currently generates around 1 tonne per month of solid polypropylene blocks and will not exceed 50 tonnes per year when processing at full capacity. No more than 1 tonne of non-hazardous waste will be stored on site at any one time.

Technical standards

Operations will be carried out in line with the requirements of:

- Health Technical Memorandum 07-01: safe management of healthcare waste
- Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste
- Healthcare waste: appropriate measures for permitted facilities

Key areas of compliance required are:

General Management – an up-to-date written management system, and a Board-approved Green Plan targeting net-zero carbon by 2030, are in place and will be followed. All systems, processes and documentation will be regularly reviewed by appropriate senior managers and updated as required. Some elements of General Management requirements will be provided through the standard procedures and services provided by and to the Trust as a whole.

Pre-acceptance, Acceptance and Tracking – Appropriate pre-acceptance processes will be in place for all waste producers wishing to send waste to the facility, and no waste will be imported from outside the UK. Acceptance procedures will be in place for any wastes received on site. A computerised tracking system will be in place to accurately trace waste through the site.

Storage, segregation and handling – Waste will be stored appropriately within the permitted area. Waste types will not be mixed, and handling will be minimised as far as possible. Equipment for dealing with spillages and cleaning storage containers will be available.

Treatment – there is a clear and defined benefit to treating the waste as treatment makes the waste possible to recycle. Written processes are in place for normal and abnormal operating conditions. Specific fractions of offensive hygiene waste (18 01 04) will NOT be excluded from the process – polypropylene fabrics and single use face masks are the sole waste types being treated at the facility. The plant on site is already in use, under Regulatory Position Statement (RPS) 112 and commissioning and validation tests were not carried out however no infectious wastes are being treated in the facility.

Emissions – Assessment of emissions and fugitive emissions has been carried out in line with Environment Agency guidelines. Appropriate abatement techniques are in place on the Sterimelt, and an odour management plan is in place. Emissions of dust, noise and vibrations have been assessed as unlikely to cause nuisance or harm. There are no point source emissions to water or sewer from the treatment process, and the area surrounding the permitted area is already in use as a loading area for vehicles with appropriate water management processes in place. There are no tanks or vessels in use within the permit boundary.

Emissions monitoring – Odour monitoring will take place periodically, while the Sterimelt is in use, at the receptors detailed in the Odour Management Plan. There are no nearby residential properties or hospital sleeping areas.

Process efficiency measures – The treatment process reduces the volume of healthcare waste being sent for incineration and allows that waste to be recycled into new products. A residues management plan will be prepared for the treated waste leaving the site.

Sensitive receptors

There are no sensitive receptors in the vicinity of the site. The area is largely hospital/healthcare buildings and associated infrastructure (carparks and helipads). Patient sleeping areas are not adjacent to the site, and the surrounding buildings not belonging to the hospital are industrial or office spaces.

Environmental risks and controls

Windblown litter has been identified as the largest environmental risk from the operation. Waste will be bagged and stored in lidded wheeled bins prior to being loaded into the Sterimelt machine. Overall the operations present a low environmental risk due to the existing nature of the site surroundings and the very limited activities being carried out.

No substances are added to the Sterimelt machine except the polypropylene fabrics being processed. The sealed collection tray in the Sterimelt is sized sufficiently to contain molten polypropylene at a volume greater than that which can be loaded into the 2mx2m thermal chamber. No other liquids are used or generated during the process therefore no additional drainage containment is required. The Sterimelt will not operate without a collection tray being in place and will prevent a new heating cycle being initiated until the tray has been emptied and replaced. The tray is contained within the body of the machine, which is sealed sufficiently to contain any molten plastic should the collection tray fail, as well as any fire should it break out within the machine. The door to the machine will not open until the internal temperature has reduced sufficiently for the plastic to solidify, preventing any escape of molten plastic from leaving the machine and entering the environment.

List of related documents

Document topic	Title
Environmental Management System	RCHT Sterimelt – Environmental Management System
Site Condition Report	RCHT Sterimelt – Site Condition Report_06-21
Environmental Risk Assessment	RCHT Sterimelt – Environmental RA_06-21
Odour Management Plan	RCHT Sterimelt – Odour Management Plan_v2
Noise and Vibration Management Plan	RCHT Sterimelt – Noise-Vibration Management Plan_06-21
Emissions Management Plan	RCHT Sterimelt – Emissions Management Plan_06-21
Site Plan	RCHT Sterimelt – Site Plan_06-21 RCHT Sterimelt – Site Plan_context RCHT Sterimelt – Drainage_06-21

	RCHT Sterimelt – Electricity_06-21 RCHT Sterimelt – Gas_06-21
Technical Data Sheet	TCG - Sterimelt Technical Data Sheet 2020
Operations and Maintenance Manual	TCG – Operation and Maintenance Manual 2020