NHS National Services Scotland

NHSScotland Waste Management Guidance

Scottish Health Technical Note 03-01

SHTN 03-01

Endorsed by sepa

October 2023

Version 7 - October 2023

Contents

Acknowledgements

With thanks to:

- NHSScotland National Waste Management Steering Group (WMSG)
- Scottish Environmental Protection Agency (SEPA)
- Scottish Government Head of Circular Economy Programme for NHSScotland

Preface

Scottish Health Technical Notes

Technical guidance is a vital tool in the safe and efficient operation of healthcare facilities. Scottish Health Technical Notes (SHTNs) provide comprehensive guidance to NHSScotland Boards on a range of healthcare-specific standards, policies and current best practice. SHTNs are essential to the effective management of the Duty of Care placed on NHSScotland Boards to ensure the health, safety and wellbeing of people and the environment.

This guidance (SHTN 03-01) has been compiled by members of the NHSScotland Waste Management Steering Group (WMSG). Version 7.0 is intended to assist all NHSScotland Boards in meeting their waste management priorities by reflecting current legal, policy and procedural requirements and best practice. It provides guidance to staff and contractors involved at all stages of waste management in the modern healthcare setting. SHTN 03-01 guidance and recommendations are applicable wherever NHSScotland provides healthcare services and produces waste of any kind.

SHTN 03-01 version 7.0 updates and replaces version 6.0 published in 2015. SHTN 03-01 amalgamates the previous versions of SHTN3 part A, B, C and D.

Waste management is a complex and ever-evolving topic. Any subsequent revisions and improvements to version 7.0 required by future policy and procedural changes will be announced to the Service, along with the associated version numbers, via the National Services Scotland (NSS) website and held, distributed, or made available through appropriate channels. Version 7.0, published October 2023, incorporates relevant regulatory requirements at the time of publication. NHS Boards have a duty to ensure ongoing compliance and to review requirements periodically.

SHTN 03-01 should be used by NHS Board staff and contractors, for whom it has been produced specifically. SHTN 03-01 reflects best practice for NHSScotland and includes Scottish regulations and relevant requirements drawn from other UK-wide guidance.

To avoid duplication, where possible, SHTN 03-01 aims to facilitate compliance without repeating external standards. However, where deemed necessary or helpful, SHTN 03-01 does include reference to the appropriate international, European and industry standards, or relevant UK and Scottish Government legislation.

A summary of the titles and content of each part of this SHTN 03-01 guidance is shown in the Executive Summary.

Executive Summary

Aim of this guidance

Scottish Health Technical Note (SHTN) 03-01 waste management guidance document is designed to be a reference document for NHSScotland for all matters relating to the safe and effective management of waste generated by healthcare activities.

It is also a detailed reference guide to regulatory requirements which contains links to sources of further information and is a valuable tool for health boards to assist them in the development and implementation of local policies and procedures.

Who should use this guidance?

This guidance provides a compendium of regulatory matters that impact on waste management for all those involved in the management of waste arising from NHSScotland facilities, whether owned or operated. It is applicable to all who manage or come into contact with waste, providing a basis of common understanding for all parties.

Status of the guidance

The SHTN 03-01 guidance document has been produced to provide an updated regulatory overview to help achieve best practice in waste management across NHSScotland to help healthcare organisations and other healthcare waste producers meet legislative requirements.

The advice in this document and any recommended courses of action are not in themselves mandatory. However, healthcare organisations or others choosing not to follow them are advised that it is essential that alternative steps are taken to comply with all relevant legislation.

UK regulatory organisations, for example the Scottish Environment Protection Agency (SEPA), seek to secure compliance with the law, and may refer to this guidance as a combination of illustrating best practice and legal requirements. References within this guidance relate to the minimum approved standard or technological solution.

1. Introduction

Note 1: In Scotland the term ‘special waste’ is used line with the Special Waste Regulations 1996 (as amended), which implement the hazardous waste requirements of the European Waste Framework Directive. In England, Wales and Northern Ireland, the term ‘hazardous waste’ is used to describe waste with hazardous characteristics in line with the European Waste Framework Directive. The terms ‘special waste’ and ‘hazardous waste’ have equivalent meaning.

The term ‘dangerous goods’ signifies substances with intrinsic hazards posing a potential risk to persons or the environment while in the transport chain. Such substances are classified on the same basis for any mode of transport using United Nations criteria. Transport by road or rail in Great Britain is addressed in the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009, also known as the Carriage Regulations.

1.1. To manage effectively waste generated as a result of the provision of healthcare services, those responsible for the management of the waste should understand and must comply with the requirements of three separate regulatory regimes:

- health and safety
- environment and waste
- transport

1.2. For waste management practices to comply with these requirements, appropriate waste management services need to be procured.

Environment and waste legislation

1.3. Environment and waste regulation across the UK specifies the roles and responsibilities of those involved in the management of waste.

Note 2: The Waste (Scotland) Regulations 2012 have been introduced to enact key requirements of the Scottish Government's Zero Waste Plan (2010) and of the European Union (EU) Waste Framework Directive. The Regulations make amendments to existing legislation that waste managers are already required to comply with, which includes:

- the Environmental Protection Act 1990
- the Pollution Prevention and Control (Scotland) Regulations 2012
- the Landfill (Scotland) Regulations 2003
- the Waste Management Licensing (Scotland) Regulations 2011

Through these changes, there are now new responsibilities for waste producers and managers in terms of their Duty of Care. The Scottish Government has set out these responsibilities in its October 2012 guidance document 'Duty of Care – A Code of Practice'.

The amendments made to legislation by the Waste (Scotland) Regulations 2012 and the Duty of Care guidance have been included in the following sections.

Duty of care

1.4. Everyone who manages waste and/ or has responsibility for the management of waste is required to fully comply with his or her own 'duty of care'. The statutory requirements covering duty of care in waste management are contained in:

- Section 34 of the Environmental Protection Act 1990 - amended by the Waste (Scotland) Regulations 2012
- the Environmental Protection (Duty of Care) (Scotland) Regulations 2014

1.5. Detailed guidance has been provided by the Scottish Government in the 2012 publication 'Duty of Care - a Code of Practice'. Guidance has also been provided by SEPA in September 2023k guidance-for-the-storage-and-treatment-of-healthcare-waste.pdf (sepa.org.uk)

1.6. The statutory duty of care applies to everyone in the waste management chain; that is, anyone who produces, keeps, imports or manages controlled waste in Scotland. It requires producers and others who are involved in the management of the waste to:

- ensure that methods for the separation and management of wastes promote high quality recycling and consider waste hierarchy guidance
- segregate food waste for separate collection and treatment (for businesses, including hospitals, where not subject to specific exemptions, refer below)
- prevent the escape of waste
- for producers (other than householders) to keep a written description, adequately describing the type and quantity of waste, which should accompany the waste as it is moved from point of production to point of final disposal
- take all reasonable measures to ensure that the waste is dealt with appropriately from the point of production to the point of final disposal

1.7. There is responsibility placed on NHSScotland staff to ensure that contracts are set up appropriately to manage waste according to their duty of care.

1.8. Due diligence (at procurement stage) and contract monitoring, at regular intervals for the duration of the contract must also provide sufficient information regarding the onward recycling, treatment or disposal of waste materials. Formal confirmation is required from contractors that the waste collected has been suitably treated or disposed of; confirmation of disposal should be kept with copies of waste documentation to provide auditable records.

Note 3: Main responsibilities of the waste producer, in line with the duty of care, are:

- applying the waste hierarchy to the management of your waste and promoting 'high quality' recycling
- source segregation and presentation of the waste glass, metal, plastic, paper and card (including cardboard) as a minimum
- taking steps to maintain the quality of dry recyclables presented for separate collection
- in some circumstances, presenting food waste for separate collection
- taking care of the waste while you hold it, so it does not escape from your control
- ensuring that your waste is transferred to someone who is authorised to receive it, such as a registered waste carrier or waste manager with the relevant authorisation. Or, if you are carrying your own waste, that you are appropriately registered with Scottish Environmental Protection Agency (SEPA)
- completing a waste transfer note for any transfer of waste, including a full description of the waste, and retaining a copy of this note for two years
- describing the waste accurately and providing information for the safe handling, transport, treatment, recovery or disposal by subsequent holders
- taking reasonable measures to ensure that your waste does not cause pollution or harm to human health

Recycling

1.9. All waste producers must take all reasonable steps to apply the waste hierarchy to the management of their waste and promote 'high quality recycling' of the materials separately collected. Waste producers must take all reasonable steps to ensure that at least metals, glass, plastics, paper and card are presented for collection and subsequent recycling. A well-managed collection system should aim to ensure a high capture rate of recyclable materials, with low contamination from non-recyclable materials.

1.10. The Waste Scotland Regulations 2012 mandates the requirement for all organisations to present source segregated waste for recycling. Although it is likely that the collection and management of recyclate will reflect the services offered by the collection contractor(s), it is the responsibility of both the NHSScotland Board's management team and its contractor(s) to ensure it is fully compliant with the requirements set out in the regulations.

Persistent Organic Pollutants

1.11. Persistent Organic Pollutants (POPs) are organic chemical substances which pose a risk to human health and the environment due to their persistence in the environment, bioaccumulation through the food chain and long-range environmental transport across a wide geographical range. They are present in a variety of manufactured materials including car parts, electronic equipment, soft furnishings, Waste Upholstery Domestic Seating (WUDS) and some firefighting foams.

1.12. You must make sure you send your waste to a suitably authorised disposal or recovery site that can destroy POPs or irreversibly transform them using an appropriate method. It is important that POPs contaminated waste foam, and any other associated wastes, are dealt with appropriately, and in accordance with the requirements of the POPs Regulations.

1.13. If you are unsure or unable to confirm the presence of POPs in the WUDS a precautionary approach must be adopted, and you should assume that the waste contains POPs and the relevant associated hazardous chemicals and manage the waste accordingly.

1.14. Landfill of POP's waste is prohibited and has been since 2004, this ban applies regardless of when POP's are found in the waste stream. There will be no derogation given to this position. The Brominated Flame Retardants in Waste Upholstery Domestic Seating (WUDS) are suitable for Municipal Solid Waste (MSW) incinerators and can be shredded before destruction to allow incinerators to accept them and also to create a mixed waste stream (blending) required by the plants to operate effectively. Blending can only take place at site of destruction. All reasonable steps should be taken to prevent and contain escape of POPs contaminated materials or dust.

1.15. Regulations require producers and holders of POPs contaminated waste to avoid, contamination and mixing with other wastes. If mixing does occur the mixed waste is also classed as being contaminated POPs waste until it is separated, where this is possible. If separation of the waste is not possible the mixed additional waste should be treated as POPs waste and dealt with as such.

1.16. Where separate collection is not feasible, POPs contaminated WUDS can be collected in the same vehicle as other waste items as long as they are not damaged, mixed with other waste, are segregated from other waste during movement and are segregated when unloaded.

1.17. Contractors removing this waste must be a registered waste carrier and any documentation moving with the waste clearly notes the type of waste that is being moved and indicates that the waste type is POP. If the treatment of the waste does not destroy the POP's, any waste that comes from that treatment containing POP's is still considered POP waste. This must be destroyed even if the concentration levels are below the concentration limit, this waste cannot be diluted.

Food waste

1.18. The Waste (Scotland) Regulations 2012 introduced a requirement for food waste businesses to separate food waste for recycling. NHSScotland premises fall within this requirement.

1.19. Although, in principle, waste producers across Scotland have had to comply with this requirement since 1 January 2014, there are currently a number of exceptions which may affect NHSScotland premises, depending on their type and/ or location:

- The requirement does not currently apply to premises in rural areas.
- Businesses producing less than 5kg per week (260kg per year) have no requirement to comply under current regulation.
- It should be noted that given the upcoming ban on biodegradable to landfill in January 2025 the exemption on rural sites will be lifted.

1.20. The nature of the segregation of food waste will, to an extent, be dictated by the contractor's (or end-treatment process) requirements and ability to process and remove contamination adequately. For example, a contractor may have the facility to remove packaging from food.

Macerated food waste disposed to sewer

1.21. In Scotland, there is currently a ban on the practice of disposing of macerated food waste to public sewer. Whilst not seen as the preferred options (due to loss of organic value) that de-watering of segregated food waste is still permitted.

Municipal waste treatment and disposal

1.22. From 1 January 2021, the Waste (Scotland) Regulations 2012 introduced restrictions on the disposal and incineration of MSW; for instance. this principally affects wastes with European Waste Catalogue (EWC) codes in Chapter 20 (domestic and/ or residual black/ clear bag waste generated on healthcare premises). Although the requirements are placed on operators of incineration or landfill facilities, there will be impacts both on the way in which waste producers segregate materials at source, and for the waste management options (including related goods or services) they procure.

1.23. From 1 January 2025, there will be an absolute ban on the landfill of MSW in Scotland where its biodegradable content is higher than prescribed levels (which in practical terms, means that all black bag wastes will be banned from landfill from this date). In practice this will require that mixed MSW waste is either:

- treated through an aerobic or anaerobic process (likely to be a form of Mechanical Biological Treatment (MBT) to a degree that it is sufficiently stabilised to meet the prescribed reduction on biodegradable content

- incinerated

1.24. Ash disposed to landfill from incinerators burning MSW will also have to meet prescribed limits on organic content.

1.25. The Waste (Scotland) Regulations 2012 have also introduced a duty on operators of incinerators burning municipal waste to ensure that hard plastics and non-ferrous metals have been removed for recycling before the process. This requirement will require the further mechanical treatment of waste prior to incineration and will also have implications for the degree of separation of these materials required by the producer.

Note 4: the requirements for landfill and incineration described in this section only apply to MSW that is treated or disposed in Scotland.

Waste contractors' responsibilities

1.26. Waste contractors' obligations under the Duty of Care are designed to link in with those of the waste producer and with any subsequent part of the waste management chain.

1.27. Waste collectors and contractors transporting waste and recyclate to their final destination are also required to apply the waste hierarchy in the delivery of their services, and to promote high quality recycling.

1.28. The Duty of Care requires the following responsibilities of waste collectors and, therefore, NHSScotland waste managers should expect these to be provided through the contract:

Note 5: The main responsibilities of the waste collector, in line with the duty of care, are:

- applying the waste hierarchy as a priority order to all waste that you collect and ensuring recycling services are designed and operated to promote 'high quality' recycling
- collecting and carrying dry recyclables and food waste that have been presented to you separately by your customer
- ensuring that recyclable materials are not mixed with other wastes in a manner which may hamper recycling whilst you are the holder
- checking that the transfer note is correctly completed and that it contains sufficient information to enable you to manage the waste properly and safely
- being registered with a relevant authority (SEPA, Environment Agency (EA), Natural Resource Wales (NRW) to carry waste (if you are required to be registered)
- ensuring that your waste is transferred to someone who is authorised to receive it (by virtue of holding the relevant authorisation covering each EWC code it receives)
- taking reasonable measures to ensure that your waste does not cause pollution or harm to human health

Local authorities' responsibilities

1.29. Where local authorities operate as the waste contractor for commercial or industrial waste, their responsibilities in terms of the Duty of Care mirror those of a private contractor in terms of requirements for recycling and food waste collections.

1.30. Local authorities have specific duties in relation to healthcare waste. Section 45 of the Environmental Protection Act 1990 requires a waste collection authority to arrange for the collection of household waste in its area (including healthcare waste arising from a domestic property, if requested). It also allows the authority to make a reasonable charge for the collection of certain types of household waste to reflect the higher disposal costs and the costs of separate collection arrangements that may be required. Types of household waste for which a charge for collection can be made are listed in Schedule 2 of the Controlled Waste Regulations 1992 (and these include clinical waste from a domestic property).

Waste management licenses, pollution prevention and control permits

1.31. The Environmental Protection Act 1990, the Waste Management Licensing (Scotland) Regulations 2011, and the Pollution Prevention and Control (PPC) (Scotland) Regulations 2012 provide the legislative framework for waste management activities. These Regulations specify, through waste management licensing and related exemptions and pollution prevention control permits (PPC permits), the way the waste should be managed, and the specific conditions which sites must adhere to.

1.32. Waste management licences and PPC permits are required for the storage, treatment and disposal of many different types of waste. Generally, a licence is not required for the storage of waste on the site where it was produced, as this is covered by a waste management licence exemption (Refer to Section 10.4).

1.33. Waste management licences (and related exemptions) and permits are regulated in Scotland by the SEPA. Elsewhere in the UK the appropriate regulatory bodies are:

- in England, the EA
- in Wales, NRW
- in Northern Ireland, the Northern Ireland Environment Agency (NIEA)

Health and safety legislation

1.34. The Health and Safety Executive (HSE) is the regulatory body with responsibility for enforcing health and safety in the workplace legislation in the United Kingdom.

1.35. Health and safety legislation is based on the assessment of risk. The Control of Substances Hazardous to Health Regulations (COSHH) 2002 and the Management of Health and Safety at Work Regulations 1999, in line with health and safety at work legislation, specifically require those dealing with potentially infectious substances (including waste) to assess the risk to the public and staff who may come into contact with it. In practice, this involves the development of risk assessment policies and procedures and putting in place arrangements to manage the risks effectively.

1.36. Arrangements for managing healthcare waste need to be part of an employer's overall health and safety management system. A number of guidance documents are available in relation to the management of infectious waste, including:

- 'Biological agents: Managing the risks in laboratories and healthcare premises (gla.ac.uk)'
- 'Infection at Work: Controlling the Risks' produced by the Advisory Committee on Dangerous Pathogens in 2003 (this guidance is aimed at those who may be inadvertently exposed to micro-organisms rather than those deliberately working with them)

1.37. In addition, NHS Boards are required to follow the framework for managing corporate risk, which includes the production and use of risk registers.

Management Responsibilities

1.38. Employers are responsible for complying with health and safety legislation. Even if staff are self-employed for tax or national insurance purposes, they are treated as employees for health and safety purposes. If any doubt exists about who is responsible for the health and safety of a worker, this should be clarified and included in the terms of a contract. However,

legal duties with respect to Health and Safety at Work legislation cannot be passed on by means of a contract.

The Control of Substances Hazardous to Health Regulations 2002 (COSHH)

1.39. The COSHH Regulations set out the duty of employers to manage the risk of exposure to hazardous substances, including healthcare waste.

COSHH - list of key points

1.40. Employers must, among other things:

- assess the risks to employees and others from hazardous substances, including healthcare waste
- make arrangements for reviewing the assessment as and when necessary, but at no less than two-yearly intervals - and sooner if there is any reason to suggest the risk assessment is no longer valid
- aim to eliminate or prevent these risks and, if this is not possible, to control the risks adequately
- provide suitable and sufficient information, instruction and training for employees about the risks
- provide health surveillance and immunisation where appropriate

The management of Health and Safety at Work Regulations 1999

1.41. The Management Regulations and their associated Approved Code of Practice (ACOP) provide a framework for managing risks at work, including risks from healthcare waste not covered by more specific requirements such as COSHH.

The Management Regulations - list of key points

1.42. Employers must, among other things:

- make a suitable and sufficient assessment of the risks to employees and others. If they have five or more employees, they must record the significant findings of the assessment
- take particular account in their assessment of risks to new and expectant mothers and their unborn and breast-feeding children
- take particular account in their assessment of risks to young people
- make arrangements for the effective planning, organisation and control of risks
- monitor and review any precautions
- provide health surveillance where appropriate
- have access to competent health and safety advice

- provide information for employees
- co-operate with other employers who may share the workplace

Consulting employees

1.43. The Health and Safety (Consultation with Employees) Regulations 1996 and the Safety Representatives and Safety Committees Regulations 1977 deal with consultation of employees directly and via recognised trade unions.

1.44. Employers must consult employees and their representatives about aspects of their health and safety at work, including:

- any change which may substantially affect their health and safety
- the employer's arrangements for getting competent health and safety advice
- the information provided on reducing and dealing with risks
- the planning of health and safety training
- the health and safety consequences of introducing new technology

1.45. By incorporating health and safety requirements in healthcare waste policy, employers are able to provide staff with information relevant to their job or role. The policy can then be used as a basis for training and discussions.

The Genetically Modified Organisms (Contained Use) Regulations

1.46. The Genetically Modified Organisms (Contained Use) Regulations 2000 are concerned with the protection of human health and safety (and the environment) from contained-use activities involving genetically modified organisms (GMOs) and genetically modified microorganisms (GMMOs). The Regulations provide information on containment measures including inactivation requirements for waste contaminated with GMMOs.

1.47. The Regulations' definition of genetic modification activity covers culture, storage, transport, destruction, disposal and other uses for which physical, chemical or biological barriers limit the contact of the GMO and provide a high level of protection for humans and the environment.

1.48. All those involved in genetic modification activities, including waste contractors, are required to be registered as Genetically Modified (GM) centres.

1.49. Guidance on registration of a GM centre (notification), packaging, transport and disposal of this waste stream is given in HSE's 'The Genetically Modified Organisms (Contained Use) Regulations 2014 - L29 and in detailed scientific advice provided by the Scientific Advisory Committee on Genetic Modification (SACGM). Sites which manage GMOs and GMMOs also need to be authorised via their Waste Management Licence/ permit). For further useful information, visit HSE's website.

Transport legislation

1.50. Transport legislation is based on the principles of hazard and risk assessment. Substances (including waste) are classified according to their primary hazard.

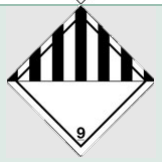
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009

1.51. The carriage of dangerous goods is subject to regulatory control. Also known as the 'Carriage Regulations', these Regulations are intended to reduce to reasonable levels the risk of harm or damage to people, property and the environment posed by the carriage of dangerous goods. Dangerous goods are defined as substances with intrinsic hazards posing a potential risk to persons or the environment while in the transport chain.

1.52. The Carriage Regulations do not specifically regulate waste materials. They apply to all dangerous goods regardless of whether a substance is waste or not. Goods are assessed on their hazardous characteristics and classified into one of nine classes of dangerous goods. Once classified, this information is used to identify appropriate packaging, labelling and transport requirements.

Table 1.1 - Overview of the nine classes of dangerous goods.

United Nations (UN) Classification	Hazard warning label (pictogram)	Examples from healthcare premises
Class 1 - Explosives		Estates chemicals and gases from contractors on site
Class 2.1 - Flammable gases		• Liquefied Petroleum Gas (UN1978) • Aerosols (UN1950)
Class 2.2 - Non flammable and non toxic gases		• Oxygen (UN1072) • CO_2 (UN1978) • Nitrous oxide (UN1070)
Class 2.3 - Toxic gases		Often Estates chemicals/ gases on site
Class 3 - Flammable liquids		• Fuel (UN1202, UN1203) • Alcohol • Adhesives • Solvents • Paints

United Nations (UN) Classification	Hazard warning label (pictogram)	Examples from healthcare premises
Class 4.1 - Flammable solids		This class provides raw materials for a number of different drugs and medicines
Class 4.2 - Spontaneously combustible materials		This class provide raw materials for a number of different drugs and medicines
Class 4.3 - Dangerous when wet		This class provide raw materials for a number of different drugs and medicines
Class 5.1 - Oxidisers		Disinfectants and laundry chemicals
Class 5.2 - Organic peroxides		Disinfectants and laundry chemicals
Class 6.1 - Toxics		• Poisons • Some disinfectants • Dangerous drugs/ medicines
Class 6.2 - Infectious substances (including pathogens)		• Infectious Waste (UN3291) • Category A Substances (UN2814, UN2900, UN3549) • Category B substances (UN3373)
Class 7 - Radioactive materials		Radiotherapy Isotopes
Class 8 - Corrosives		• Bleaches • Cleaning materials
Class 9 - Miscellaneous		• Laundry additives • Medical devices • Batteries • Some drugs/ medicines

1.53. In the UK, the Carriage Regulations implement the requirements of the agreement concerning the international carriage by road (ADR), regulations concerning the international carriage of dangerous goods by rail (RID) and International Maritime Dangerous Goods regulations (IMDG). The Carriage Regulations make direct reference to ADR, RID and IMDG. The UK Carriage Regulations are reviewed and, if required, updated bi-annually to reflect changes in ADR, RID and IMDG.

1.54. Other European and international regulations apply to the movement of dangerous goods by air, sea, and inland waterway. It is recommended that producers seek specialist advice if healthcare waste is to be transported by means other than road transport (such as via ferries and so on, which will require maritime coastguard agency approval when moving over open water). In the UK, the vast majority of dangerous goods are carried by road.

Carriage Regulations - list of key points

1.55. The regulations cover (by reference to ADR) among other things:

- training of personnel involved in the chain of distribution
- substance clarification and identification
- packaging
- marking, labelling and documentation
- safety equipment and emergency procedures
- safe loading
- vehicle specification and operation

1.56. Duties are imposed on parties at all stages of the supply chain including manufacturers, consignors, loaders, carriers and receivers. The Carriage Regulations requires healthcare organisations to appoint or contract a ‘Dangerous Goods Safety Advisor’ (DGSA).

1.57. The HSE is the regulatory body responsible for enforcing transport legislation in Great Britain. Police officers and the Vehicle and Operator Services Agency (VOSA) carry out ‘on the road’ enforcement under an agency agreement with the HSE.

1.58. Further information on the Carriage Regulations can be found on HSE's website and the Department for Transport website.

Dangerous goods safety advisor

1.59. The Carriage Regulations requires healthcare management to appoint a DGSA dependent on the type/ quantity of dangerous goods transported and how it is transported (refer to Table 1.2).

1.60. DGSAs are required when the quantity of healthcare waste classified as dangerous in transport exceeds the load thresholds set in ADR (refer to Section 8.7) and/ or where radioactive material subject to the Ionising Radiations Regulations 1999 is carried out.

Table 1.2 - Requirement to appoint a DGSA (UN3291 only)

Method of carriage (UN3291)	Consignor (healthcare facility producing the waste)	Waste carrier
Transport in 'Bulk' (any quantity)	Yes	Yes
Transport in 'Packages' - up to 333kg	No	No
Transport in 'Packages' - over 333kg	Yes	Yes

1.61. As seen in Table 1.2 above (and subject to what is actually being transported), larger healthcare organisations may need to appoint a DGSA while small clinics and surgeries will probably not. Advice should be sought from the NHS Board Waste Management Officer who will be able to provide details about the qualified DGSAs available to the Board.

1.62. DGSAs do not need to be employees, and third party consultants may be used.

1.63. The number of DGSAs to be appointed is not prescribed other than there should be a sufficient number appointed to ensure their functions and duties can be carried out effectively

Functions of the DGSA

1.64. The main functions of the DGSA are as follows:

- monitoring compliance with the rules governing the transport of dangerous goods
- advising the employer on the transport of dangerous goods
- ensuring that an annual report to the employer is prepared on the activities of the employer concerning the transport of dangerous goods
- monitoring practices and procedures relating to the activities of the employer which concern the transport of dangerous goods

1.65. It is the duty of the DGSA to monitor and advise on dangerous goods carriage compliance and ensure that relevant incidents/ accidents are properly investigated and reported. They must also prepare for the duty-holder an annual report on dangerous goods activities.

1.66. It is important that all those involved in the movement of healthcare waste are aware who provides DGSA support. The name and contact number(s) of the DGSA(s) should be listed in the site's waste management policy.

1.67. Those healthcare sites that do not need to appoint DGSAs may still find it useful to approach DGSA consultants for general advice on an ad hoc basis, to ensure that they, as consignors of dangerous goods, are complying with the requirements concerning classification, packaging, marking, labelling and documentation. As all waste contractors will have to appoint DGSAs, some of them may be prepared to assist with advice to their own customers.

The Radioactive Material (Road Transport) Regulations 2002

1.68. In addition to the requirements of the Carriage Regulations, the consignment and carriage of radioactive material such as medical isotopes is regulated by the Radioactive Material (Road Transport) Regulations 2002. Carriage of radioactive material is regulated in Great Britain by the Office for Nuclear Regulation (ONR).

Procurement regulations

European procurement regulations

1.69. In addition to waste, transport, and health and safety regulations, procurement regulations must also be taken into consideration.

1.70. All publicly funded organisations must ensure that all contracts established to collect and treat waste conform to The Public Contracts (Scotland) Regulations 2012 and Utilities Contracts (Scotland) Regulations 2012.

1.71. Information about public procurement regulations and Official Journal of the European Union (OJEU) thresholds can be obtained from the Scottish Government Procurement website.

Procurement guidance

1.72. Further information on the European Commission public procurement regulations and how to develop and competitively tender waste collection and disposal contracts is available from National Services Scotland (NSS) Strategic Sourcing (SS) division. NSS is also a source of information and guidance on the Procurement Reform (Scotland) Act 2014, and the sustainable procurement duty. Procurement has a duty to consider the management of the whole lifecycle of the item. Information and guidance in relation to the disposal of procured items such as single use medical items and so on should, in the first instance, be sought from procurement.

Producer responsibility

1.73. The revised European Waste Framework Directive includes the provision of 'producer responsibility', whereby producers, usually original equipment manufacturers or importers, are required to take responsibility for the environmental impact of their products. Additionally, Scotland operates under a number of extended producer responsibility (EPR) systems. Producer responsibility regulations for the following products exist and are enforced in Scotland:

- waste electrical and electronic equipment (WEEE)
- waste batteries
- waste packaging

- end-of-life vehicles (ELVs)

1.74. When purchasing new products subject to producer responsibility regulations, advice should be sought from procurement experts.

2. Healthcare waste policy

2.1. To manage healthcare waste effectively, all those involved in the management of the waste stream should have access to an appropriate healthcare waste management policy. The policy should clearly identify who is responsible for the waste and how it should be managed in accordance with other NHS Board policies, procedures and risk register.

2.2. The policy should clearly identify the legal obligations set out in health and safety, environment (waste), and transport legislation.

2.3. The policy should provide clearly written instructions on the way waste should be managed.

2.4. As a minimum, a healthcare waste management policy should contain:

- a clear statement, outlining the aims of the policy
- legal and statutory obligations
- an outline of who has waste management responsibilities and the lines of accountability
- arrangements for implementing the policy
- processes for identifying improvement programmes and monitoring progress
- sources of further information and guidance (for example, a healthcare organisation's waste guidance)
- current waste management arrangements

2.5. Ownership of the policy needs to be accountable at the senior managerial level, following initial review. Subsequent reviews should be undertaken bi-annually or following a significant change in regulation.

2.6. To be successful, the policy needs to address all key issues and be actively supported by those involved in each stage of the management of the waste. This is likely to involve a multi-function forum/ committee in order to reflect operational issues.

2.7. The policy should take into consideration all aspects of waste management, should identify the roles and responsibilities of those involved in the waste management chain from 'cradle to grave', and should take into consideration procurement and disposal contractor requirements.

2.8. The policy should state clearly how all parties involved in waste management should communicate with each other ensuring compliance throughout the waste management chain.

2.9. The responsibilities of line managers and others need to be clear, and the waste management arrangements need to be properly monitored and regularly audited.

2.10. The existence of a policy should not be assumed to be an indication of practice. Practice can only be determined and monitored by robust audit procedures.

2.11. It is recommended that the organisation has access to a designated competent waste manager to coordinate and manage all healthcare waste and other waste management activities.

2.12. To be used effectively, the healthcare waste policy should link with other healthcare policies and guidance and should be used as the basis for staff training and awareness.

3. Regulatory definitions and classifications

3.1. This Section outlines the definitions and classifications used in the UK for healthcare waste, transport, and health and safety legislation.

3.2. Section 4 of this guidance document provides a simplified definition and classification system which complies with the requirements identified in this chapter.

Waste management definitions and classifications

3.3. Waste is defined in the Waste Framework Directive as "*any substance or object the holder discards, intends to or is required to discard*". Waste regulation requires the classification of waste on the basis of hazardous characteristics and point of production. Examples of the types of waste produced by the healthcare sector, that are classified as special (hazardous) and non-hazardous, are listed in table 3.1 below.

Table 3.1 - Examples of special (hazardous) and non-hazardous waste

Special (hazardous) wastes	Non-hazardous wastes
Infectious or potentially infectious waste	Residual waste, including non-clinical waste usually placed in black or clear sacks
Fluorescent tubes	Source segregated recyclates (paper, glass, cans, and so on)
Laboratory chemicals	Food waste (including cooking oils)
Cleaning chemicals	Offensive/ hygiene/ sanpro waste
Photo chemicals	Packaging wastes
Oils (other than cooking)	Furniture
Some pharmaceutical/ medicinal wastes	Construction and demolition waste
Some batteries and waste electronics (waste electrical and electronic equipment (WEEE))	Grounds (green) wastes
Asbestos	Waste batteries and electronics (WEEE) not classified as special waste)
Paints and solvents	Food waste
Dental amalgam and mercury containing wastes	Some pharmaceutical/ medicinal wastes
Contaminated land	Gypsum wastes
Contaminated construction and demolition waste, including waste with asbestos	Persistent Organic Pollutants (POPs)
Contaminated packaging	Non-infectious high grade plastics

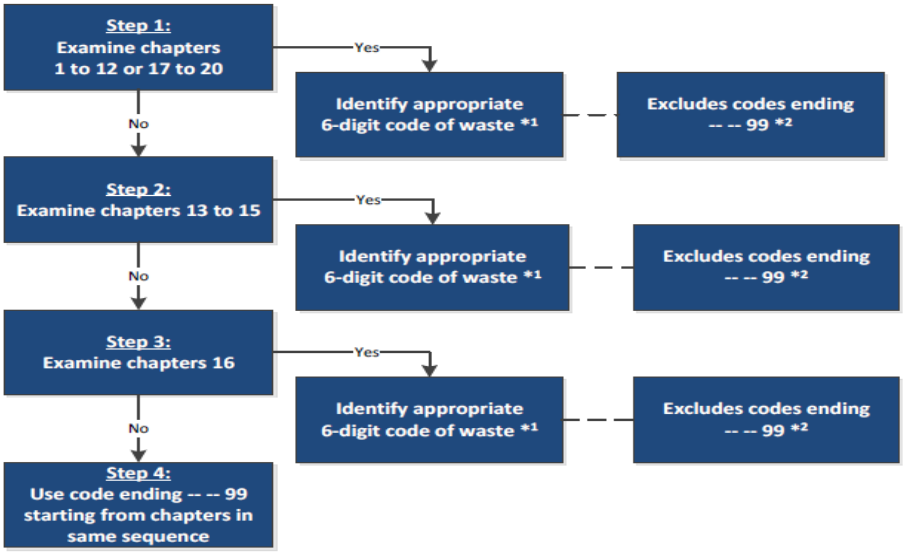
European Waste Catalogue

3.4. The use of EWC codes is a requirement of the Duty of Care. The Landfill (Scotland) Regulations 2003 and the Special Waste Amendment (Scotland) Regulations 2004, require producers to describe their waste adequately using both a written description and the use of the appropriate EWC code(s).

3.5. The EWC is produced by the European Commission in accordance with the revised European Waste Framework Directive (2008/98/EC) to provide common terminology for describing waste throughout Europe. The EWC list is reviewed periodically and incorporates the European Hazardous Waste List.

3.6. The correct EWC code can be determined by following the steps illustrated in Figure 3.1 below:

3.7. Figure 3.1 - Determining the correct EWC code flowchart. (SOURCE: *Scottish Environmental Protection Agency* (SEPA) Guidance on using the European Waste Catalogue to code waste (2015))



3.8. NHS bodies should use all Chapters of the EWC. However, the vast majority of waste produced will be classified in Chapter 18 (healthcare waste) and Chapter 20 (municipal waste), with photochemicals from x-ray and imaging departments classified in Chapter 9 and packaging waste classified in Chapter 15.

3.9. Tables 3.3, 3.4, 3.5 and 3.6 show the European Waste Catalogue (EWC) Codes in Chapter 18, 20, and selected photochemical entries in Chapter 9 These are taken from the latest (Sept 2021) joint UK regulatory agency guidance on special (hazardous) waste, Waste classification technical guidance

3.10. The entries are annotated with the following abbreviations: AH, AN, MH and MN. These are explained more fully below.

Table 3.2 - Descriptions of EWC Codes

Abbreviation	Full name	Description
AH	Absolute Hazardous Entry	These wastes are always classified as hazardous (special) waste and an assessment of hazardous characteristics is not required. In addition to the colour-coding, an asterisk (*) is used to identify hazardous EWC entries.
AN	Absolute Non Hazardous Entry	These wastes are always classified as non-hazardous and an assessment of hazardous characteristics is not required.
MH	Mirror Hazardous Entry	These wastes may be hazardous and a threshold assessment is required to identify if the waste contains hazardous substances and/or has hazardous properties (HP1 - HP15) exceeding threshold limits. Guidance on the assessment of dangerous substances and hazardous properties is found within WM3.
MN	Mirror Non Hazardous Entry	These wastes are non-hazardous but are linked to a mirror hazardous entry (MH), for example following assessment using the WM3 guidance, the waste has been determined as non-hazardous.

Table 3.3 - EWC codes for Chapter 18 (Healthcare Wastes)

Chapter 18	Wastes from human or animal healthcare and/ or related research (except kitchen and restaurant wastes not arising from immediate healthcare)	Abbreviation
18.01	Wastes from natal care, diagnosis, treatment or prevention of disease in humans	N/A
18.01.01	Sharps (except 18.01.03)	AN
18.01.02	Body parts and organs including blood bags and blood preserves (except 18.01.03)	AN
18.01.03	Wastes whose collection and disposal is subject to special requirements in order to prevent infection	AH
18.01.04	Wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)	AN
18.01.06	Chemicals consisting of or containing hazardous substances	MH

Chapter 18	Wastes from human or animal healthcare and/ or related research (except kitchen and restaurant wastes not arising from immediate healthcare)	Abbreviation
18.01.07	Chemicals other than those mentioned in 18.01.06	MN
18.01.08	Cytotoxic and cytostatic medicines	AH
18.01.09	Medicines other than those mentioned in 18.01.08	AN
18.01.10	Amalgam from dental care	AH
18.02	Wastes from research, diagnosis, treatment or prevention of disease involving animals	N/A
18.02.01	Sharps (except 18.02.02)	AN
18.02.02	Wastes whose collection and disposal is subject to special requirements in order to prevent infection	AH
18.02.03	Wastes whose collection and disposal is not subject to special requirements in order to prevent infection	AN
18.02.05	Chemicals consisting of or containing hazardous substances	MH
18.02.06	Chemicals other than those mentioned in 18.02.05	MN
18.02.07	Cytotoxic and cytostatic medicines	AH
18.02.08	Medicines other than those mentioned in 18.02.07	AN

3.11. NHS bodies will normally only be required to use the appropriate healthcare waste codes within Section 18.01 (waste from human healthcare activities). However, in certain circumstances when working with animals it may be appropriate to use the codes within Section 18.02 (waste from animal healthcare activities).

Table 3.4 - EWC Codes for Chapter 20 (Municipal Wastes)

Chapter 20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	Abbreviation
20.01	Separately collected fractions (except 15.01)	N/A
20.01.01	Paper and cardboard	AN
20.01.02	Glass	AN
20.01.08	Biodegradable kitchen and canteen waste	AN
20.01.10	Clothes	AN
20.01.11	Textiles	AN
20.01.13	Solvents	AH

Chapter 20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	Abbreviation
20.01.14	Acids	AH
20.01.15	Alkalines	AH
20.01.17	Photochemicals	AH
20.01.19	Pesticides	AH
20.01.21	Fluorescent tubes and other mercury-containing waste	AH
20.01.23	Discarded equipment containing chlorofluorocarbons	AH
20.01.25	Edible oil and fat	AN
20.01.26	Oil and fat other than those mentioned in 20.01.25	AH
20.01.27	Paint, inks, adhesives and resins containing hazardous substances	MH
20.01.28	Paint, inks, adhesives and resins other than those mentioned in 20.01.27	MN
20.01.29	Detergents containing hazardous substances	MH
20.01.30	Detergents other than those mentioned in 20.01.29	MN
20.01.31	Cytotoxic and cytostatic medicines	AH
20.01.32	Medicines other than those mentioned in 20.01.31	AN
20.01.33	Batteries and accumulators included in 16.06.01, 16.06.02, or 16.06.03 and unsorted batteries and accumulators containing these batteries	AH
20.01.34	Batteries and accumulators other than those mentioned in 20.01.33	AN
20.01.35	Discarded electrical and electronic equipment other than those mentioned in 20.01.21 and 20.01.23 containing hazardous components	AH
20.01.36	Discarded electrical and electronic equipment other than those mentioned in 20.01.21, 20.01.23 and 20.01.35	AN
20.01.37	Wood containing hazardous substances	MH
20.01.38	Wood other than that mentioned in 20.01.37	MN
20.01.39	Plastics	AN
20.01.40	Metals	AN
20.01.41	Wastes from chimney sweeping	AN

Chapter 20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	Abbreviation
20.01.99	Other fractions not otherwise specified	AN
20.02	Garden and park wastes (including cemetery waste)	N/A
20.02.01	Biodegradable waste	AN
20.02.02	Soil and stones	AN
20.02.03	Other non-biodegradable wastes	AN
20.03	Other municipal wastes	
20.03.01	Mixed municipal wastes	AN
20.03.02	Waste from markets	AN
20.03.03	Street-cleaning residues	AN
20.03.04	Septic tank sludge	AN
20.03.06	Waste from sewage cleaning	AN
20.03.07	Bulky waste	AN
20.03.99	Municipal wastes not otherwise specified	AN
20.02.01	Biodegradable waste	AN

Table 3.5 - EWC Codes for Chapter 9 (Photographic Wastes)

Chapter 09	Wastes from the photographic industry	Abbreviation
09.01	Wastes from the photographic industry	N/A
09.01.01	Water-based developer and activator solutions	AH
09.01.02	Water-based offset plate developer solutions	AH
09.01.03	Solvent-based developer solutions	AH
09.01.04	Fixer solutions	AH
09.01.05	Bleach solutions and bleach fixer solutions	AH
09.01.06	Wastes containing silver from on-site treatment of photographic wastes	MH
09.01.07	Photographic film and paper containing silver or silver compounds	AN
09.01.08	Photographic film and paper free of silver or silver compounds	AN
09.01.99	Wastes not otherwise specified	MN

Table 3.6: EWC Codes for Chapter 15 (Packaging Wastes)

Chapter 15	Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	Abbreviation
15.01	Packaging (including separately collected municipal packaging waste)	N/A
15.01.01	Paper and cardboard packaging	AN
15.01.02	Plastic packaging	AN
15.01.03	Wooden packaging	AN
15.01.04	Metallic packaging	AN
15.01.05	Composite packaging	AN
15.01.06	Mixed packaging	AN
15.01.07	Glass packaging	AN
15.01.09	Textile packaging	AN
15.01.10	Packaging containing residues of or contaminated by hazardous substances	AH
15.01.11	Metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers	AH
15.02	Absorbents, filter materials, wiping cloths and protective clothing	N/A
15.02.02	Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances	MH
15.02.03	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15.02.02	MN

Note 6: In the UK, the joint-agency guidance document on special (hazardous) waste entitled 'WM3' uses a colour-coded EWC to aid identification of hazardous wastes.

- A copy of the WM3 can be downloaded from the SEPA website.

Special (hazardous) waste

3.12. The Special Waste Regulations 1996 (as amended) define and regulate the segregation and movement of special waste in Scotland from the point of production to the final point of disposal or recovery. These Regulations, among other things, require producers of special (hazardous) waste to complete consignment notes restricts the mixing of special/hazardous wastes (unless authorised in a licence/ permit). Guidance on consigning special waste is available from SEPA's website.

3.13. In England, Wales and Northern Ireland the term 'hazardous' is used in place of the term 'special' waste. The Hazardous Waste Regulations (separate regulatory instruments for England, Wales and Northern Ireland) define the procedures and requirements for the movement of this waste stream.

3.14. Irrespective of the regulatory regime, comprehensive guidance on the identification and classification of special waste is available from the joint agency guidance: WM3 (which identifies 15 hazardous properties (HP), labelled HP1-HP15 (as shown in Table 3.7 below). Appendix C of WM3 provides comprehensive guidance on the assessment and classification of waste in each of the hazard groups.

Table 3.7 - Hazard groups defined in the Waste Framework Directive and their associated HP Codes (required for use on Consignment Notes)

'HP' code	Hazard groups
HP1	**Explosive** - waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organise peroxide waste and explosive self-reactive waste is included
HP2	**Oxidising** - waste which may, generally by providing oxygen, cause or contribute to the combustion of other materials
HP3	**Flammable** • flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil diesel and light heating oils having a flash point > 55°C and ≤ 75°C • flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes are coming into contact with air
HP4	**Irritant - Skin Irritation and Eye Damage** - waste which on application can cause skin irritation or damage to the eye
HP5	**Specific Target Organ Toxicity/ Aspiration Toxicity** - waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration
HP6	**Acute Toxicity** - waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure
HP7	**Carcinogenic** - waste which induces cancer or increases its incidence
HP8	**Corrosive** - waste which on application can cause skin corrosion
HP9	**Infectious** - waste containing viable micro-organisms on their toxins which are known or reliably believes to cause disease in man or other living organisms

'HP' code	Hazard groups
HP10	**Toxic for Reproduction** - waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring
HP11	**Mutagenic** - Waste which may cause a mutation that is a permanent change in the amount or structure of the genetic material in a cell
HP12	**Release of an Acute Toxic Gas** - Waste which releases acute toxic gases (Acute Tox 1, 2 or 3) in contact with water or an acid
HP13	**Sensitising** - Waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs
HP14	**Ecotoxic** - Waste which presents or may present immediate delayed risks for one or more sectors of the environment
HP15	Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste after disposal

Note 7: When classifying special waste in Scotland, it is normal practice to only use a single EWC code that reflects its characteristics (and where it has more than one characteristic, the code relating to the highest level of protection and disposal must be used). However, in all cases, an adequate written description is still required, as well as reference to all relevant HP codes.

- For example, infectious sharps waste (EWC 18.01.03* - HP9) which are contaminated by cytotoxic medicines (EWC 18.01.08* - HP6, HP7, HP10 & HP11) would be classified as "*18.01.08* infectious sharps contaminated with cytotoxic medicines (HP6. HP7, HP9, HP10 & HP11)*".

Infectious waste

3.15. Waste which is known or suspected to pose a risk of infection is classified as a special (hazardous) waste. WM3 defines HP9 'Infectious' as "*substances and preparations containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.*"

3.16. It is unlikely that it will always be practical or possible to identify specific pathogens or toxins within the waste, therefore clinical assessment should be used to identify waste which poses a risk of infection. On this basis, infectious waste includes waste defined as 'clinical waste', as the definition of clinical waste includes waste 'which may pose a risk of infection'.

3.17. WM3 provides UK guidance on the interpretation and risk-based identification of infectious waste. Failure to segregate infectious waste from non-infectious waste will mean that the entire waste stream (that is, where it includes any quantity of infectious waste) will need to be classified as infectious waste (therefore special waste) and consigned for appropriate treatment and recovery or disposal.

Classification of infectious waste for the purpose of transport

3.18. Class 6.2 of international carriage by road (ADR) international Road Transport Regulations classifies infectious substances. Infectious waste is classified into two categories - Category A and Category B:

- **Category A** (UN 2814, UN2900 & UN3549[1]) - an infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease to humans or animals
- **Category B** (UN 3291 & UN3373[2]) - an infectious substance which does not meet the criteria for inclusion in Category A

3.19. Waste which is known or suspected to be contaminated with pathogens presenting the most severe risk of infection is classified as a Category A waste. Category A waste includes infectious waste from highly infectious diseases such as the Ebola virus and cultures of certain infectious diseases including Clostridium botulinum. When classifying Category A wastes, reference **must** be made to the 'named pathogen'.

3.20. With the exception of certain laboratory waste, very little Category A waste will be produced from healthcare premises within the UK. The vast majority of infectious waste produced from the healthcare sector will be classified as Category B. This has been reinforced in recent guidance to National Services Scotland (NSS) from the Department for Transport (DfT) which indicated that "*Healthcare laboratories, including CL3 facilities, are highly unlikely to produce waste classified as a Cat A Infectious Substance in line with ADR. Cultures of biological agents used for the purpose of healthcare diagnostics (as opposed to research) will not routinely be produced either in sufficient quantities and/or be presented in a form which will pose a risk of infection consistent with Category A Infectious Substances (ADR 2021: 2.2.62.1.4.1). The most likely agents that may be cultured in a CL3 laboratory environment, including HIV, HBV, cultured tuberculosis etc….. arising from healthcare diagnostic laboratories should not be classed a Category A Infectious substance but as Category B (standard clinical waste). However, existing laboratory guidance regarding disposal applies e.g. waste from the CL3 environment should be autoclaved prior to final disposal in line with existing local guidance*".

1 UN2814 and UN2900 are usually used for infectious waste from laboratory or other similar research settings. UN3549 should be used to classify all patient waste and related items from patient care and treatment.

2 Waste which may pose a risk of infection in Category B should be assigned UN3291. UN 3373 is assigned to biological specimens and the code is used when sample/ specimens are in transit. UN 3373 is not a 'waste' code.

Note 8: Hygiene/ sanpro waste is not considered to be infectious for transport purposes; this waste is not classified as 'dangerous goods'.

Medicinal waste

3.21. As medicinal waste is produced from healthcare establishments and from treatment in the wider community, this waste stream is classified in two separate chapters of the EWC; Chapter 18 (healthcare waste) and Chapter 20 (municipal waste).

3.22. The EWC differentiates between two types of medicinal waste:

- cytotoxic and cytostatic wastes
- medicines other than those classified as cytotoxic and cytostatic

3.23. According to the WM3 guidance, cytotoxic and cytostatic wastes have at least one of the following hazardous properties:

- toxic (HP6)
- carcinogenic (HP7)
- toxic for reproduction (HP10)
- mutagenic (HP11)

3.24. WM3 states that the following types of medicinal products should be classified as cytotoxic and cytostatic waste:

- antineoplastic
- antiviral
- immunosuppressant
- a range of hormonal drugs
- a range of hormonal drugs

3.25. This means that "Cyto" medicines are likely to be found in a many more areas than just oncology. For example, family planning and maternity departments will use many hormonal medicines and ophthalmology and Accident and Emergency (A&E) using antiviral medicines (some of which will be cytostatic in nature and therefore, classed as hazardous). The Pre Acceptance Audit (refer to 15.11) will indicate all areas producing "Cyto" medicines.

3.26. Cytotoxic and cytostatic medicines are classified as special (hazardous) waste; other medicinal wastes are not. However, other ('non-cyto') medicinal waste still requires specialist treatment/ disposal.

Note 9: the hazardous properties of 'non-cyto' medicinal waste should still be considered for the purposes of the duty of care, for example medicinal waste may have the following properties:

- HP3 Flammable
- HP5 Harmful
- HP4 Irritant
- HP14 Eco-toxic

If applicable, all properties should be listed on the relevant duty of care paperwork and therefore require specialist disposal.

Controlled drugs

3.27. Controlled drugs are subject to special legislative controls as they are potentially harmful.

Definition of controlled drugs

3.28. The Misuse of Drugs Regulations 2001 (as amended) list the medicines which are classified as controlled drugs. There are currently five schedules which dictate the level of control applied to each medicine - Schedule 1 having the most controls, and Schedule 5 the fewest.

Legal framework for working with controlled drugs

3.29. The Misuse of Drugs Regulations also set out the regime of control that governs the various legitimate clinical activities associated with controlled drugs, for example:

- which professionals are allowed to prescribe, order, supply or administer the drugs
- destruction and/ or disposal procedures
- associated record-keeping requirements

3.30. The Misuse of Drugs (Safe Custody) Regulations 1973 list additional requirements in terms of safe storage (for example lockable cupboards of sufficient strength).

3.31. Under the Misuse of Drugs Regulations, all Schedules 1 and 2 stock-controlled drugs can only be destroyed using approved denaturing kits in the presence of a person authorised under those Regulations to witness destruction.

Classification of medicinal waste for the purpose of transport

3.32. Medicinal waste must be classified in accordance with the rules of classification for transport. Many types of this waste will fall into Class 6.1 (toxic substances), but others may fall into Class 3 (flammable liquids). Table 3.8 shows the most commonly used United Nations (UN) numbers for medicinal waste, but other UN numbers may be applicable.

Table 3.8 - UN classifications for medicines

UN code	Description
UN1851	Medicine, liquid, toxic, not otherwise specified (N.O.S).
UN3248	Medicine, liquid, flammable, toxic, N.O.S
UN3249	Medicine, solid, toxic, N.O.S

Note 10: waste medicines in their original packaging placed into rigid outer packaging (in quantities no greater than 30kg) are classed as Limited Quantities (LQ) meaning they do not need to be classified for transport as they will be exempt (refer to ADR 3.4.1). The vast majority of pharmacy waste from NHS Scotland will be presented in a manner that complies with the limited quantity exemption.

Amalgam and mercury containing waste

3.33. The only entry for amalgam waste is in Chapter 18 of the EWC and it is classified as a special (hazardous) waste. All dental practices are required to have amalgam separators fitted in accordance with British Standards (BS) EN ISO 11143:2000.

3.34. All waste materials containing or contaminated with mercury are classified as special (hazardous) waste (as this is an absolute entry, no assessment is required, it will always be hazardous regardless of concentrations).

Classification of amalgam and other chemicals for the purpose of transport

3.35. A number of other waste substances cannot be assigned to the entries for medicinal waste but must be assigned to the most appropriate entry in the dangerous goods regulations. For example:

- because amalgam contains mercury, it must be assigned to “UN 2025 MERCURY COMPOUND, SOLID N.O.S Class 6.1 PG III”
- aerosols used in healthcare must be assigned to “UN 1950 AEROSOLS Class 2” (these may have number of different hazards such as being flammable, oxidising, toxic and so on)
- developers for X-rays are often corrosive or environmentally hazardous liquids and must be classified accordingly (normally the original packaging from the supplier or material safety data sheet will indicate the appropriate UN number or advice can be sought from a Dangerous Goods Safety Advisor (DGSA)

Medical devices

- Medical devices are defined in the Medical Devices Regulations 2002 as “An instrument, apparatus, appliance, material or other article, whether used alone or in combination, together with any software necessary for its proper application, which:
  - *is intended by the manufacturer to be used for human beings for the purpose of*

- *diagnosis, prevention, monitor, treatment or alleviation of disease*
- *diagnosis, monitoring, treatment, alleviation of or compensation for an injury or handicap*
- *investigation, replacement or modification of the anatomy or of a physiological process, or control of conception, and*

- *does not achieve its principle intended action in or on the human body by pharmacological, immunological or metabolic means, even if it is assisted in its function by such means and includes devices intended to administer a medicinal product or which incorporates as an integral part of a substance which, if used separately, would be a medicinal product and which is liable to act on the body with action ancillary to that of the device."*

Infected/ used medical devices

3.36. Where implanted medical devices have been in contact with infectious bodily fluids and have been assessed to be infectious, they should be classified and managed as infectious waste and should be consigned as special (hazardous) waste prior to being moved off-site.

3.37. Where the implant can be effectively disinfected it may be returned to the manufacturer for recycling with the appropriate certificate of decontamination.

3.38. If the device contains hazardous substances or components including nickel cadmium and mercury-containing batteries, the description of the waste on the consignment note must fully describe the waste and all its hazards.

3.39. For example, an implanted device with a nickel cadmium battery should be classified as:

Table 3.9 - Classification of an implanted device with a nickel cadmium battery

18.01.03 - Infectious waste containing nickel cadmium batteries
Hazardous properties: • HP9 (infectious) • HP6 (toxic) • HP7 (carcinogenic) • HP8 (corrosive) • HP10 (toxic for reproduction) • HP11 (mutagenic) • HP13 (sensitising) • HP14 (ecotoxic)

Note 11: Wherever possible, thought should be given to see if the batteries can be removed prior to disposal.

Disinfected/ unused medical devices

3.40. Disinfected medical devices should be classified as non-infectious healthcare waste but may still be special waste. The description given of the waste must adequately describe the waste and any hazardous characteristics.

3.41. For example, a disinfected device containing a nickel cadmium battery should be classified as:

Table 3.10 - Classification of a disinfected device containing a nickel cadmium battery

16.02.13 - Discarded equipment containing hazardous components other than those mentioned in 16.02.09 to 16.02.12
Hazardous properties: • HP6 (toxic) • HP7 (carcinogenic) • HP8 (corrosive) • HP10 (toxic for reproduction) • HP11 (mutagenic) • HP13 (sensitising) • HP14 (ecotoxic)

Implants

3.42. Special care should be taken if a deceased person has an implant, particularly where electronic components such as an implantable cardioverter defibrillator or other implanted cardiac aid are present. For example:

- there may be a risk of electric shock to a person removing and subsequently handling the implant
- cremation or disposal by incineration might cause batteries to explode, leaking toxic gas

3.43. Such implants should be deactivated, removed with consent, decontaminated, and disposed of in a safe manner in the special (hazardous) waste stream or returned to the manufacturer.

Radioactive waste

3.44. This guidance covers the management of low-level radioactive infectious waste produced from healthcare activity. It does not cover the management and disposal of sealed radioactive sources.

Radioactive waste generated from healthcare includes radionuclides used in therapeutic and diagnostic medicine. Generally, this waste is considered to be low-level radioactive waste and is subdivided into three categories:

- long half-life: 3H, 14C

- radioiodines: 123I, 125I, 131I (any mixed waste containing radioiodine will be in this category)
- other Beta/Gamma emitters: 89Sr, 35S, 32P, 51Cr, 201Tl, 111In, 67Ga, 99mTc, 57Co, 75Se,65Zn, 59Fe, 22Na, 24Na, 45Ca

3.45. SEPA regulates the storage and use of radioactive material in hospitals. Users of small amounts of radioactive sources (including hospitals) require authorisation to discharge or dispose of radioactive waste except where it is permitted under an exemption order. The Environmental Protection Act 1990 gives the regulators authorisation to permit discharges and disposal. Guidance provided by government on the scope of regulatory exemptions can be found on the UK Government website.

3.46. Most radioactive waste comes under the Radioactive Substances Act 1993. However, if radioactive waste is exempt from the requirements of Section 13 or 14 of the Radioactive Substances Act and has one or more hazardous properties, this waste will be a special (hazardous) waste were classified as such in the EWC.

Note 12: for information on the EWC description requirements for radioactive waste in Scotland, contact your local SEPA office.

Classification of radioactive waste for the purpose of transport

3.47. Radioactive waste should be labelled with the appropriate class according to its hazard characteristics in accordance with the Radioactive Material (Road Transport) Regulations 2002. Radioactive waste is classified as Class 7 substances.

Radiation protection adviser

3.48. The Ionising Radiations Regulations 2004 specify that a Radiation Protection Adviser (RPA) should be appointed to advise on the use and management of radioactive materials. In addition, a suitably qualified Radioactive Waste Advisor (RWA) must also be appointed to advise of the management of radioactive waste. The RWA should work with healthcare staff and the DGSA to ensure the safe management and transfer of radioactive waste. Both the RPA and the RWA should be identified in the boards waste management policy.

Anatomical/ ethical waste

3.49. For the purpose of this guidance document, the definition of anatomical waste includes body parts or other recognisable anatomical items, such as pet carcasses, which may be offensive to those who come into contact with such items.

3.50. The EWC classifies anatomical waste with blood bags and blood preserves under 18.01.02 (an absolute non-hazardous entry). In Scotland, all liquid blood must be solidified using preparatory gels prior to disposal.

Gypsum containing waste

3.51. Plaster casts and other healthcare wastes containing gypsum (calcium sulphate) such as dental impressions which are deemed to pose a risk of infection may be treated as infectious waste but, in line with SEPA's Position Statement WST-PS-030, must not end up in landfill facilities. The breakdown of gypsum in a landfill results in the production of hydrogen sulphide gas. More information on gypsum and landfill can be obtained from the SEPA website. In practical terms, gypsum waste will be disposed of via the yellow waste stream or other approved waste stream (care must be taken, if placed into the orange waste stream as it may subsequently be disposed of to landfill after treatment).

Teeth

3.52. As the disposal of teeth from dental premises is unlikely to cause offence, dental practitioners may treat this as non-anatomical infectious waste. Dental practitioners must ensure that all waste is treated appropriately, and teeth containing amalgam (mercury) should be segregated and sent for appropriate recovery/ disposal.

Pregnancy losses up to and including 23 weeks and 6 days gestation

3.53. The key issue is about open and sensitive communication with the mother (or parents), and for bereavement managers (or other relevant NHS staff) to be aware of the issues and make arrangements that meet the wishes of the parents in the most sensitive manner possible. This will involve close liaison with cremation managers in most cases.

3.54. The Human Tissue Authority has published 'Code of Practice 5 - Disposal of Human Tissue' (refer to paragraphs 91-123).

3.55. In Scotland, Scottish Government Health Directorate/ Chief Medical Officer SGHD/CMO(2012)7 - Guidance on the disposal of pregnancy losses up to and including 23 weeks and 6 days gestation should be referred to.

Waste generated from funeral services

3.56. Guidance on the disposal of waste generated from funeral services can be found in Health and Safety Executive's (HSE's) 'Managing infection risks when handling the deceased'

Use of the definition of 'clinical waste'

3.57. The definition of clinical waste in Scotland originates from the Controlled Waste Regulations 1992 (issued under the Environmental Protection Act 1990), and is defined as *"…any waste which consists wholly or partly of human or animal tissue, blood or other bodily fluids, excretions, drugs or other pharmaceutical products, swabs or dressings, syringes, needles or other sharp instruments, being waste which unless rendered safe may prove hazardous to any person coming into contact with it, and*

…any other waste arising from medical, nursing, dental, veterinary, pharmaceutical or similar practice, investigation, treatment, care, teaching or research, or the collection of blood for transfusion, being waste which may cause infection to any person coming into contact with it."

3.58. Broadly, therefore, clinical waste can be divided into two categories of materials:

- waste which poses a risk of infection
- medicinal waste

3.59. The term 'clinical waste' is not used within the EWC and the relationship between this definition and those in Chapter 18 (healthcare waste) of the EWC often causes confusion.

3.60. Healthcare waste is a much broader classification than clinical waste and includes items which do not pose a risk of infection or have hazardous characteristics.

3.61. The definition of clinical waste is used to describe waste produced from healthcare and similar activities that pose a risk of infection or that may prove hazardous due to their medicinal (chemical) content or their physical nature, for example sharp.

3.62. The definition of 'healthcare waste' and 'clinical waste' has different regulatory origins but both are current regulatory terms. It is often easier to think of clinical waste as being a sub-set of healthcare waste ('Clinical waste - requires specialist handling and disposal due to hazardous characteristics. Some of this waste is classified as Special Waste'). It is important that the definitions are not used synonymously.

3.63. Waste documentation, including transfer and consignment notes, should refer to the classifications and terminology used in the EWC.

4. Unified definitions, classification and assessment framework for healthcare wastes

Introduction

4.1. This document has considered the regulatory requirements of health and safety, transport, and waste legislation. It summarises the methodology and definitions that enable the producer to determine whether the waste is:

- infectious healthcare (clinical) waste
- medicinal healthcare (clinical) waste
- offensive/ hygiene waste

4.2. Waste producers should also refer to guidance and terminology in other sections of the Scottish Health Technical Note (SHTN) 03-01 guidance.

4.3. This 'unified approach' has been developed to help waste producers comply with regulatory requirements. Use of the unified approach is not mandatory but is considered best practice. Compliance with the unified approach will ensure that producers comply with the regulatory requirements.

Unified definition of infectious waste

4.4. To produce a single classification system for infectious waste, the following definitions and classifications have been considered:

- the definition of clinical waste given in the Controlled Waste Regulations 1992
- those definitions given in the Special Waste Amendment (Scotland) Regulations 2004 and WM3 guidance
- the definition of infectious substances given in international carriage by road (ADR)

Identification of infectious waste

4.5. Infectious waste is essentially healthcare waste that poses a known or potential risk of infection, regardless of the level of infection posed. Even minor infections are included within the definition of infectious.

4.6. Healthcare waste generated from healthcare practices, or produced by healthcare workers in the community, is considered to be infectious waste unless assessment has taken place. This assessment is based on item and patient-specific clinical assessment by a healthcare practitioner, such as a GP or community nurse.

4.7. Municipal waste from domestic minor first-aid and self-care of a type that does not involve recourse to a healthcare practitioner is assumed to be non-infectious unless a healthcare practitioner indicates otherwise. Therefore, soiled waste such as nappies, sanitary products and plasters are not considered to be infectious unless a healthcare practitioner gives the waste producer advice to the contrary.

4.8. Similarly, municipal-type waste from industrial and commercial premises is assumed to be non-infectious providing that a risk assessment has been conducted. Therefore, soiled waste such as sanitary products and plasters are not considered to be infectious unless a healthcare practitioner gives specific advice to the contrary.

4.9. Waste contaminated with non-infectious bodily fluids is capable of causing offence and therefore requires appropriate packaging to alert those in the waste management chain of the contents. This document identifies such waste as offensive/hygiene waste; it may also be known as ‘sanpro waste’.

Offensive/ human hygiene waste

4.10. Offensive/ human hygiene waste is waste which may cause offense to persons coming into contact with it but does not pose a risk of infection.

4.11. Examples of offensive/ hygiene waste may include:

- incontinence and other waste produced from human hygiene
- sanitary waste
- nappies
- medical/ veterinary items and equipment which do not pose a risk of infection, including gowns for example.
- animal faeces and soiled animal bedding (offensive animal hygiene waste).

4.12. Offensive waste from human healthcare activities should be described using the European Waste Catalogue (EWC) code 18.01.04, and the written description ‘offensive/ hygiene waste from human healthcare’.

Unified definition of medicinal waste

4.13. Medicinal waste includes expired, unused, spilt, and contaminated pharmaceutical products, drugs, vaccines, and sera that are no longer required and need to be disposed of appropriately.

4.14. Medicinal waste is listed in both Chapter 18 and Chapter 20 of the EWC, Chapter 18 medicinal waste codes should be used for medicines generated from healthcare practices, whilst Chapter 20 codes are suitable for household returns to pharmacy premises.

4.15. The category also includes discarded items contaminated from use in the handling of pharmaceuticals, such as primary packaging (bottles or boxes with residues, including blister packs), gloves, masks, connecting tubing, syringe bodies, drug vials and other associated paraphernalia.

4.16. The EWC differentiates between two types of medicinal waste:

- cytotoxic and cytostatic wastes
- medicines other than those classified as cytotoxic and cytostatic

4.17. According to the WM3 guidance, cytotoxic and cytostatic wastes have at least one of the following hazardous properties:

- toxic (HP6)
- carcinogenic (HP7)
- toxic for reproduction (HP10)
- mutagenic (HP11)

4.18. WM3 states that the following types of medicinal products should be classified as cytotoxic and cytostatic wastes:

- antineoplastic
- antiviral
- immunosuppressant
- a range of hormonal drugs

Segregation of cytotoxic and cytostatic medicinal wastes

4.19. Traditionally, within NHSScotland only chemotherapy (antineoplastic) drugs were routinely referred to as cytotoxic. However, in line with the assessment criteria set out in WM3, other drugs (including certain antiviral, immunosuppressant and hormonal drugs) are also classified as cytotoxic/ cytostatic. All cytotoxic and cytostatic wastes must be segregated at source into colour-coded containers with a purple/ violet lid and the EWC code 18.01.08* is used to describe this waste stream.

4.20. All other medicines are sent (as a mixed waste stream) for disposal, in a container with a blue lid. This mixed waste stream will contain a mixture of non-hazardous products and therefore should be classified as a non-hazardous waste (EWC code 18.01.09).

4.21. The Special Waste Regulations 1996 (as amended) prohibits the mixing of hazardous and non-hazardous wastes so the correct identification and segregation (at source), is vital to ensure this does not occur. Disposal in dispensed packaging and the total mass of each box not to exceed 30kg to ensure compliance with limited quantities (LQ) provisions in Dangerous Goods and avoid the need to segregate items into each of three dangerous goods classifications for medicinal waste.

Management of used sharps and other items contaminated with medicinal wastes

4.22. Items used to administer, or that are contaminated with, chemotherapy (antineoplastic) medicines, for example discharged sharps and empty primary packaging, should be segregated at source into colour-coded (yellow/ purple) containers and managed separately from other medicinally contaminated wastes.

Note 13: remember when classifying special waste in Scotland you must only use a single EWC code that reflects the characteristics of the waste (and where it has more than one characteristic, the code relating to the highest level of protection and disposal must be used).

Therefore, infectious waste (EWC 18.01.03* - HP9) contaminated by cytotoxic medicines (EWC 18.01.08* - HP6, HP7, HP10 & HP11) would be classified as "*18.01.08* infectious waste contaminated with cytotoxic medicines (HP6. HP7, HP9, HP10 & HP11)*".

4.23. Items used to administer, or that are contaminated with, other (non-cyto) medicinal waste such as used syringes (including those from vaccination programmes using attenuated live vaccines) may be treated as infectious clinical waste but are not suitable for clinical waste treatment within the orange stream as it requires disposal via high temperature incineration. This waste should be classified as pharmaceutically contaminated infectious waste and the single EWC code 18.01.03* should be used.

5. Waste segregation and national colour - coding approach

5.1. Segregation of waste at the point of production into suitable colour-coded and suitably labelled packaging is vital to good waste management. Health and safety, carriage and waste regulations require that waste is described, handled, transported and disposed of in a safe and effective manner. The following colour-coded waste segregation guide represents NHSScotland accepted best practice and ensures, at minimum, compliance with current regulations.

Colour-coding

5.2. The colour-coded segregation system outlined in this section identifies and segregates waste on the basis of waste classification and suitability of treatment/ disposal options and is shown in Figure 3.2. The use of this colour-coding system is mandatory. It has been agreed with the current waste contractor (and forms part of their safe systems of work and waste management procedures) and Scottish Environmental Protection Agency (SEPA) as the regulator, consider it best practice as it aids identification and helps ensure effective and appropriate treatment of waste from cradle to grave.

Waste receptacle standards

5.3. In Scotland, waste producers are able to procure, via a national contract from National Services Scotland (NSS) National Procurement, colour-coded containers which meet the requirements of the NHSScotland best practice colour-coding system. These containers should meet the requirements of NHSScotland Fire codes and safety, and the National Infection Prevention Control Manual (NIPCM) and Guidance (published by NHSScotland Assure). Evaluation of receptacle suitability should be made at Board level, taking into consideration local circumstances.

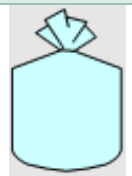
Colour-coding and European Waste Catalogue (EWC) codes by waste management option

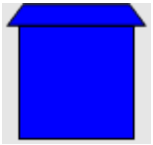
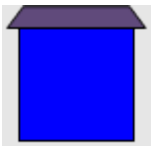
5.4. Reference is made to the minimum required standard of waste treatment/ disposal. However, waste may be sent to alternative treatment/ disposal methods which operate to an equivalent or higher standard. Disposal facilities should hold the appropriate authorisation (licence/ permit) for the waste to be treated or disposed of.

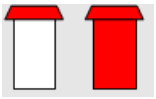
Note 14: EWC codes used to classify special (hazardous) waste and non-special wastes should not be used together. If the waste contains a known hazardous constituent, the entire load is special waste and only the special waste EWC code should be used. Only one EWC code should be used to describe a waste stream.

5.5. The colour-coding for segregation of primary waste receptacles is shown in Table 5.1 below.

Table 5.1 - Colour-coding segregation for primary waste receptacles

Colour-coded packaging	Description	EWC code(s)	Management route
	**Orange lidded sharps box** containing sharps, broken glass and IV sets with no medicinal contamination	18.01.03	Consigned to clinical waste treatment facility for treatment and disposal.
	**Orange lidded leak resistant bin** for solidified infectious liquids (including blood), tube and suction sets, unrecognisable tissue waste and dialysis waste	18.01.03	Consigned to clinical waste treatment facility for treatment and disposal.
	**Orange bag** for non-sharp potentially infectious items incl. dressings, swabs, disposables, used Personal Protective Equipment (PPE), gelled suction liners, contaminated wipes, spillage sets, nappies, incontinence pads, empty blood bags and autoclaved lab waste. *Not suitable for liquids and any residual liquid must be gelled*.	18.01.03	Consigned to clinical waste treatment facility for treatment and disposal.
	**Light blue bag** for waste which must be autoclaved on site before final treatment, including microbiological cultures and pathogenic laboratory wastes.	18.01.03	Once waste treated using on-site autoclave, it may be disposed of via orange bag route.
	**Yellow lidded leak resistant bin** for items which require disposal by incineration. **Note**: some NHS Boards use this type of container for anatomical waste or medicinal wastes; this practice is acceptable as long as container is clearly marked.	18.01.03	Consigned to clinical waste incineration facility for disposal (high temperature incineration).

Colour-coded packaging	Description	EWC code(s)	Management route
	**Blue lidded leak resistant bin** for non-hazardous pharmacy and medicinal waste including waste medicines from the preparation and supply of non-cyto medicinal products, patient returned medicine from community setting and information obscured. **Not for cyto medicinal wastes.**	18.01.09	Consigned to clinical waste incineration facility for disposal (high temperature incineration).
	**Blue lidded sharps box** for Infectious pharmaceutical (non-cyto) SHARPS waste and glassware including vials. Needles, injectables for example that are infectious and contaminated with Non-hazardous pharmaceuticals and medicinal products. **Not for cyto medicinal wastes**	18.01.03	Consigned to clinical waste incineration facility for disposal (high temperature incineration).
	**Purple lidded sharps box** for Cytotoxic and Cytostatic SHARPS waste (including chemotherapy, immunosuppressants, antivirals and hormonal drugs)	18.01.08	Consigned to clinical waste incineration facility for disposal (high temperature incineration).
	**Purple lidded leak resistant bin** for hazardous (cyto) pharmacy & medicinal waste which may also be infected such as administering materials, gloves, aprons and PPE from cytotoxic treatment **No sharps**	18.01.08	Consigned to clinical waste incineration facility for disposal (high temperature incineration).
	**Purple lidded leak resistant bin** for Cytotoxic & Cytostatic waste **NOT sharps** including unused, partially used or surplus medicines. Likely to be in pharmacies and used for cyto meds in dispensed packaging	18.01.08	Consigned to clinical waste incineration facility for disposal (high temperature incineration).

Colour-coded packaging	Description	EWC code(s)	Management route
	**Red lidded leak resistant bin** used for a variety of waste streams that require specialist storage and treatment including recognisable anatomical waste & contaminated metal parts (joints, and so on) and instruments. **Wastes must not be mixed and bins clearly labelled with contents**.	18.01.03	Consigned to appropriate treatment, recovery or disposal based on waste stream.
	**Red lidded leak resistant bin** for Amalgam waste from dental care - tooth pots and amalgam; teeth extractions with and without fillings. Note the body of this bin may either be white or red	18.01.10	Consigned to appropriate treatment or recovery.
	**Non colour coded packaging** (suitable for the waste) can be used for chemical waste. Size and type of packaging will depend on waste type and the waste contractor's requirements.	Dependent on actual waste type	Consigned to appropriate treatment or recovery
	**Clear plastic bag inside colour coded recycling bin**. This packaging is used for source-segregated mixed dry recyclate and source-segregated single recyclate streams such as paper, cardboard and plastics). Board dependant and subject to contract arrangements.	See EWC Chapter 20 Section 01	For appropriate recycling and recovery.
	**Black plastic bag inside colour coded bin for residual waste**. This packaging is used for residual waste remaining after all source-segregated recyclates have been removed.	20.03.01	For treatment (which may include recovery of materials), then disposal.

Note 15: if medicinal wastes are produced in the community the following EWC codes should be used:

- 20.01.31 for cytotoxic and/ or cytostatic waste
- 20.01.32 for 'non-cyto' medical wastes

Colour-coding systems for source-segregated recyclates

5.6. Tables 5.2 and 5.3 summarise the two approved colour-coding systems for secondary waste receptacles (bin colour) for recyclates within NHSScotland. The pan-Scotland colour-coding system, referred to as the 'Recycle for Scotland' colour-coding scheme', was introduced by Zero Waste Scotland and is used across Scotland in public areas such as hospitals, airports and shopping centres.

Table 5.2 - 'Recycle for Scotland' colour-coding scheme

Material	Colour	Pantone colour ref
Mixed recyclables	Light green	376 C
Paper	Azure blue	300 C
Cardboard	Azure blue	300 C
Metals	Grey	431 C
Plastics	Warm red	Warm red C
Glass	Dark aqua	3272 C
Food and organic waste	Bright green	354 C
Residual waste	Black	Black C

Table 5.3 - Alternative NHSScotland colour-coding scheme for recyclates

Material	Colour	Pantone colour ref
Mixed recyclables	Dark green	349 C
Source-segregated dry recyclables (including cans, plastics, glass and cardboard)	Light green	376 C
Paper	White	White C
Confidential paper	Blue	
Food and organic waste	Brown	4635 C
Residual waste	Black	Black C

Purple and purple/ blue stream – used for cytotoxic and cytostatic waste in Scotland

5.7. Purple and purple/ blue stream waste is waste consisting of or contaminated with cytotoxic and cytostatic products and requires incineration in suitably licensed or permitted facilities. Healthcare facilities that produce this waste stream need to ensure that suitable purple receptacles are available for this waste stream.

5.8. Purple and purple/ blue stream waste is special (hazardous) waste and is subject to the controls of the Special Waste Regulations.

Yellow and red stream infectious waste

5.9. Yellow stream infectious waste is waste known or suspected to contain pathogens classified in Category B (UN3291) as specified in the Carriage Regulations. Yellow stream infectious waste requires disposal by incineration in a suitably licensed or permitted facility. This waste stream includes anatomical waste (yellow and red) and may include other types of waste that require incineration to comply with national or regional policy.

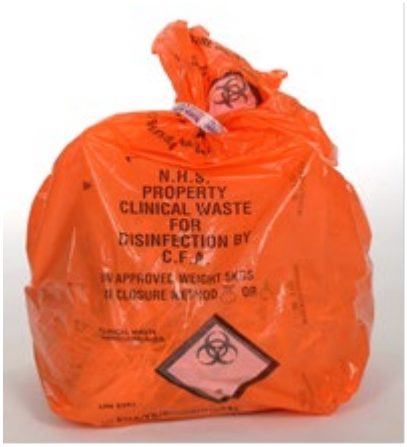
5.10. On rare occasions, such as laboratory autoclave breakdown, microbiological cultures and other infectious waste classified as Category A (UN2814/ UN 3549) infectious substances (in line with international carriage by road (ADR) 2021: 2.2.62.1.4.1) may require disposal off-site. However, in real terms healthcare laboratories, including CL3 facilities, are unlikely to produce Cat A waste in quantities and/or presented in a form which will pose a risk of infection consistent with the classification of a Category A Infectious Substance. In such instances the waste should be classified as UN3291 and placed in appropriate yellow UN-approved packages for this type of waste. (These may differ from other yellow containers used in hospitals). In the highly unlikely event that the waste does meet the criteria for Category A waste (such as a notifiable disease), it should be classified as UN3549 and placed in appropriate yellow UN-approved packages for this type of waste (which may differ from other yellow containers used in hospitals). Wherever possible, Category A infectious substances (including waste) should be treated on site (using an autoclave or equivalent) before being transported for disposal. Once treated it should be classified as clinical waste (Category B infectious substance - UN3291) on a precautionary basis and to ensure it is rendered unrecognisable.

5.11. Yellow stream infectious waste is special (hazardous) waste and is subject to the controls of the Special Waste Regulations.

Orange stream infectious waste

5.12. Orange stream infectious (clinical) waste may be treated to render it safe prior to final disposal. Treatment may only take place in a suitably licensed or permitted facility.

Figure 5.1 - Sack used for orange stream infectious waste



5.13. Orange stream infectious waste is waste known or suspected to contain pathogens classified in Category B (UN3291) as specified in the Carriage Regulations.

5.14. Orange stream infectious waste is hazardous waste and is subject to the controls of the Special Waste Regulations.

Note 16: under the Landfill Regulations, it is prohibited to send infectious waste direct to landfill for disposal.

Red and red/ white – amalgam waste

5.15. Amalgam waste may only be treated/ recovered in facilities authorised to accept this waste stream. Care should be taken to label the package accordingly if it also contains infectious materials.

Blue and blue body – medicinal products

5.16. Non-chemotherapy medicinal products contained within their original primary packaging (foil packs, bottles and so on) may be packaged in non-UN-compliant packages subject to limited quantity (LQ) exemptions in line with the Carriage Regulations.

5.17. The limited quantity exemption permits the use of non-UN-compliant combination packages up to thresholds specified by the LQ code for the substance concerned. Above this threshold, medicinal products must be transported in UN-compliant packages. Further guidance can be obtained from a qualified Dangerous Goods Safety Advisor (DGSA).

5.18. Residual medicinal waste is waste pharmaceuticals no longer in their original packaging; such waste should be placed in UN-compliant packages for disposal by incineration. Waste items should be segregated into each of the three appropriate classifications for transport. Care should be taken to ensure that the medicinal wastes do not react with each other as this may lead to the production of toxic gases and/ or fires. Where practicable items should be packaged and treated and managed as limited quantity pharmaceutical waste, allowing management alongside other pharmaceutical waste generated on site.

5.19. All cyto medicinal waste should be segregated and packaged and disposed of in suitably colour-coded (purple/ yellow or purple/ blue) packages.

Segregation of specific waste streams

Radioactive waste

5.20. Radioactive healthcare waste is waste contaminated with low-level radioisotopes. This waste requires disposal in suitably licensed facilities, which will normally be by incineration. The use of 'over- stickers' on yellow packaging is appropriate for this waste.

Liquid waste

5.21. Liquid waste or solidified liquid waste should be placed in a rigid leak-proof receptacle for disposal. Many infectious waste treatment facilities require infectious liquid wastes (such as blood and other bodily fluids) to be solidified prior to removal and producers should seek guidance from their waste management contractor regarding this.

5.22. Infectious liquid waste may be treated to render it safe in suitably licensed or permitted facilities. However, not all treatment facilities are licensed to accept such waste and producers should seek guidance from their waste contractor regarding the most appropriate disposal route for this waste. Appropriate colour-coded receptacles should be used.

Note 17: under the Landfill Regulations, liquid waste cannot be sent for disposal to a landfill site.

Sharps waste

5.23. Sharps are items that could cause cuts or puncture wounds, including needles, syringes with needles attached, broken glass ampoules, scalpel and other blades, and infusion sets (the sharps part thereof). Sharps receptacles should be colour-coded and fit for purpose.

5.24. Sharps waste receptacles (sharps bins) should not be used for the disposal of other waste streams such as medicinal products, dressings or syringe bodies used without a sharp, for example for feeding, wound irrigation, and so on.

5.25. Sharps may be treated to render them safe in suitably licensed or permitted facilities prior to final disposal. However, if the sharps are contaminated with medicinal products (for example those used to administer medicines) they should be placed in suitably coloured receptacles (purple/ yellow for cyto contamination and blue/ yellow for non cyto) and disposed of in suitably authorised incineration facilities.

Category A infectious waste

5.26. Infectious waste known or suspected to be contaminated with pathogens classified in Category A (UN3549) of ADR should be treated on site prior to removal to a disposal facility; on-site treatment may include autoclaving in purpose-built autoclave facilities.

5.27. In exceptional circumstances (for example an autoclave malfunction), waste that is normally autoclaved should be packaged for carriage and transferred to an incinerator as soon as possible. It should not be allowed to accumulate for more than 24 hours. Where waste is stored for any period, it should be stored securely, and access restricted to authorised trained personnel.

Amalgam

5.28. Amalgam waste consists of amalgam in any form, and includes all other materials contaminated with amalgam. Amalgam waste should be placed in white and red rigid receptacles with a mercury suppressant. Amalgam waste should be sent to suitable licensed or permitted waste management facilities where the waste undergoes a mercury recovery process prior to final disposal.

Fixer and developer

5.29. Fixer and developer may be classified as special (hazardous) waste depending on the type of materials used. Reference should be made to the manufacturer's safety data sheets for product information.

5.30. If appropriate, fixer and developer should be sent to a suitably licensed or permitted waste facility for material recovery. If recovery is not appropriate, fixer and developer should be incinerated at suitably licensed or permitted facilities.

5.31. If the material is recycled or processed on the site of production, for example for silver extraction, the premises may be subject to waste management licensing controls and may also require a trade effluent consent.

Large equipment

5.32. Where practicable, equipment should be decontaminated prior to disposal. Once decontaminated, it may no longer be classified as infectious. However, the equipment may still have other hazardous properties which will be subject to statutory waste management controls.

5.33. Where disinfection is not practicable, producers should contact their waste management contractor to establish the best practice packaging and treatment/ disposal options.

5.34. Disposal of large electronic equipment will need to be in accordance with the UK Waste Electrical and Electronic Equipment Regulations 2013 and, if special (hazardous) waste, the Special Waste Regulations.

Implanted devices

5.35. Implanted devices are defined in Section 3. It is suggested that producers contact their waste contractor to establish the best practice disposal route for implanted devices. It is also recommended that the producer contacts the manufacturer of the device to establish whether the device may be disinfected and whether a 'take-back' scheme exists for this waste.

Hygiene waste

5.36. Hygiene waste is not considered to be an infectious waste. However, it may cause offence and should not be compacted unless in accordance with the conditions of a waste management licence or permit. It should be noted that in a healthcare/ clinical setting the use of the offensive/ hygiene waste stream must be supported by a robust risk assessment which also considers all circumstances such as enteric infections for example. Guidance on offensive/ hygiene wastes can be found on the NetRegs website.

5.37. Hygiene waste may be landfilled in suitably licensed facilities.

Successful waste segregation

5.38. For segregation systems to be effective, staff need to be provided with:

- background information and reasons for segregation
- appropriate equipment, such as sufficient colour-coded waste receptacles
- clear instruction and training

Background information and rationale for segregation practices

5.39. Background information should be provided to staff for them to understand fully why waste segregation is required. Information can be made available to staff in a number of ways including the use of posters, training materials and information leaflets.

Appropriate equipment

5.40. For segregation systems to work effectively, it is important that staff be provided with the necessary equipment, including appropriate colour-coded and labelled waste receptacles and sack holders. The location of waste receptacles is important, as they must be positioned in locations that meet the requirements of work practice.

5.41. Staff are likely to adapt with ease to new segregation systems if the design of the system means that staff actions are intuitive. If the actions required are time-consuming or laborious, staff may struggle to comply with the system, resulting in the inappropriate segregation of waste.

5.42. The following issues should be considered in the design and supply of receptacles for waste segregation:

- waste should be placed in waste receptacles or sacks in holders, or other appropriate receptacles, as close to the point of waste production as possible
- receptacles/ sacks should be replaced when three-quarters full
- receptacles should be securely sealed; the use of plastic tie closures is recommended for healthcare waste sacks
- labelling of sacks to indicate their origin, for example by coding on the sack itself, by suitable permanent marker, by a label showing clearly the name of the hospital and the department, or by pre-printed self-adhesive labels or tape
- collections should be at an appropriate frequency
- budgets relating to receptacles should be held/ controlled centrally for each site (ideally with the waste lead)

Staff training

5.43. Clear information, instruction and training on categorising waste needs to be provided for everyone working in areas where healthcare waste arises. It is helpful if posters showing the different waste streams and types of waste are displayed at appropriate locations.

5.44. Implementing a system for segregation of healthcare waste streams may involve significant changes in waste management practices. Preparation is essential to ensure that:

- staff are involved in the process of change
- that non-clinical (for example domestic-type residual) waste is redirected from the healthcare infectious waste stream in order to minimise the risk of system failure

5.45. All staff who come into contact with healthcare waste should receive training. Ideally this should be specific to their job function. Section 14 provides further information on training. Training is also available via NHSScotland Assure and waste training modules can be delivered by NHSScotland Assure on request.

Evaluation and monitoring

5.46. It is essential that the procedures used for segregating waste are monitored and evaluated on a regular basis. Waste audits are an ideal way of evaluating the success of segregation procedures (refer to section 15). Once the results of the audit are known, it is important to give feedback to staff on how the arrangements are working.

Frequency of collection

5.47. Where waste accumulates in small quantities daily, the interval between collections should be as short as reasonably practicable. With regard to infectious waste, excluding sharps, the collection period should be no less than once a week, unless the waste is refrigerated. It is recommended that sharps receptacles are exchanged at regular intervals of no less than three months.

5.48. Arrangements should be made to transport waste routinely from ward level to a storage area pending collection by a waste contractor.

5.49. If waste is permitted to accumulate, producers should seek guidance from the appropriate environmental regulatory authority (SEPA in Scotland) regarding the need for a waste management licence or exemption.

5.50. Healthcare waste should be stored securely. Failure to do so is a breach of the duty of care. This applies to storage at the point of production as well as intermediate and bulk storage areas.

6. Packaging, marking and labelling

Marking and labelling

6.1. Container labels should clearly identify the waste type(s) present within. The purpose of this is to ensure that everyone in the waste management chain is aware of the contents and manages them appropriately. Many sealed bins used for healthcare waste are opaque and the contents are not visible.

6.2. The container should also be labelled or tagged to identify the source of the waste for example ward number and the date of production. This may be achieved using numbered tags. Traceability is also a requirement of the waste contractors Pollution Prevention and Control (PPC) Permit and failure to provide this may lead to waste being rejected.

NHSScotland approved packaging

6.3. A range of approved colour-coded primary packaging and colour-coded bins is available from National Services Scotland (NSS) National Procurement. These products have been assessed and meet fire standard and infection control requirements.

Packaging requirements for dangerous goods

6.4. Guidance on the classification of dangerous goods can be found in Sections 1 and 8.

6.5. The Carriage Regulations specify the requirements for packaging, marking and labelling of dangerous goods.

6.6. The person or entity responsible for requiring the dangerous goods to be transported off-site (the consignor in this case the individual Health Board) has responsibility for packaging and labelling.

6.7. The Carriage Regulations use criteria that are different from other legislative systems and when waste is moved the consignor must ensure that they use both the appropriate ‘waste’ and ‘carriage’ classifications and descriptions.

6.8. The Regulations require that all dangerous goods be identified using a four-digit number (United Nations (UN) number) and a description (proper shipping name) and are assigned to a ‘class’ of dangerous goods.

Packaging

6.9. Once the UN number of a substance is known, international carriage by road (ADR) provides information on the packing group, packing instruction and any special packing provisions (including any restrictions applying to mixed packaging) that apply.

6.10. Table 6.1 shows the packing provisions for healthcare wastes.

Table 6.1 - Packing provisions for healthcare wastes

Dangerous goods (UN number)	Proper shipping name	Packaging instruction	Packaging examples
Category A • UN2814 • UN2900 • UN3549	• Infectious substance, affecting humans • Infectious substance, affecting animals • Medical waste Category A affecting humans, solid	• P620 • P620 • P622 • LP622	Three-part packaging
Category B UN3291[3]	Clinical waste, unspecified not otherwise specified (N.O.S)	• P621 • LP621 • IBC620 • Bulk also allowed via VC3 (BK2)	Rigid packaged or back in wheeled bins Bulk approved bags may be used in combination with BK2 approved containers or vehicles
Medicinal waste[4] • UN1851 • UN3248 • UN3249	• Medicine, liquid toxic N.O.S. • Medicine, liquid, flammable, toxic, N.O.S. • Medicine, solid, toxic, N.O.S.	• P001 • P001 • P002/ LP002	Boxes, drums
Dental amalgam UN-2025	Mercury compound, solid, N.O.S.	Limited quantity	Boxes, drums
Aerosols UN1950	Aerosols	Limited quantity	Box

3 UN-3773 'Biological substance, category B' should never be used for waste consignments (as this is for specimens only).

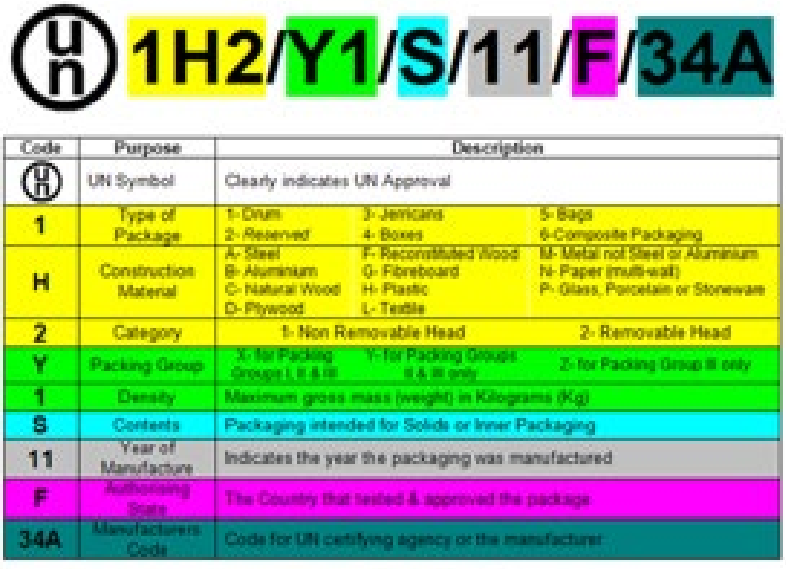
4 The three entries are generic and will not be appropriate for all medicines as wherever possible, 'LQ' should be used; reference to the appropriate SDS and guidance from a DGSA may be required.

6.11. Where a packing instruction is indicated, only packaging that has been UN-tested and approved (unless otherwise specified) must be used. Such packaging can be identified by the UN mark (example marks are shown in Figures 6.1 and 6.2). UN Approved packages come in 3 different types which are illustrated below.

Table 6.1 - Types of UN-approved packages

Container type	Description
	Package - a container with a capacity smaller than that of either a large Package or an Intermediate Bulk Container (IBC).
	Large package - an outer package that contains articles or inner packaging with a minimum capacity of 400 Kg net weight or 450 Litres. The total volume should not exceed 3 M³.
	Intermediate Bulk Container (IBC) - rigid or flexible package that has a capacity of not more than 3 M³ and is designed for mechanical handling.

Figure 6.1 - Guide to UN approval codes for packages (P621)



Code	Purpose	Description		
UN	UN Symbol	Clearly indicates UN Approval		
1	Type of Package	1- Drum 2- Reserved	3- Jerricans 4- Boxes	5- Bags 6-Composite Packaging
H	Construction Material	A- Steel B- Aluminium C- Natural Wood D- Plywood	F- Reconstituted Wood G- Fibreboard H- Plastic L- Textile	M- Metal not Steel or Aluminium N- Paper (multi-wall) P- Glass, Porcelain or Stoneware
2	Category	1- Non Removable Head		2- Removable Head
Y	Packing Group	X- for Packing Groups I, II & III	Y- for Packing Groups II & III only	Z- for Packing Group III only
1	Density	Maximum gross mass (weight) in Kilograms (Kg)		
S	Contents	Packaging intended for Solids or Inner Packaging		
11	Year of Manufacture	Indicates the year the packaging was manufactured		
F	Authorising State	The Country that tested & approved the package		
34A	Manufacturers Code	Code for UN certifying agency or the manufacturer		

Figure 6.2 - Guide to UN approval codes for large packages (LP621)

Code	Purpose	Description
UN	UN Symbol	Clearly indicates UN Approval
50	Type of Package	50- Rigid Large Packaging 51- Flexible Large Packaging
H	Construction Material	A- Steel B- Aluminium C- Natural Wood D- Plywood F- Reconstituted Wood G- Fibreboard H- Plastic L- Textile M- Metal not Steel or Aluminium N- Paper (multi-wall) P- Glass, Porcelain or Stoneware
Y	Packing Group	X- for Packing Groups I, II & III Y- for Packing Groups II & III only Z- for Packing Group III only
11	Year of Manufacture	Indicates the year the packaging was manufactured
F	Authorising State	The Country that tested & approved the package
AH	Manufacturers Code	Code for UN certifying agency or the manufacturer
0	Stack Test Load	The stack test load in Kg (0 means the package is not designed for stacking)
400	Maximum Gross Mass	The Maximum permitted gross Mass (weight) in Kg

Note 19: large packages must only be used in conjunction with inner packages (bags or sharps containers) and must be marked/ labelled on two opposite sides.

6.12. If the letter ‘S’ appears in the UN mark, as shown above, the packaging may only be used for solids and not free liquids. Most sharps boxes are type- approved for solids only and must not be used for the disposal of liquids.

6.13. Some large plastic wheeled bins in circulation are marked and tested as IBC (codes for these will start with either 11, 13, 21 or 31) and care should be exercised when using these as they have a shelf life of 5 years from the date of manufacture and cannot be used for transport after this date.

Limited quantities

6.14. ADR specifies that some dangerous goods in small quantities need not be packaged in UN-type approved packaging. This is referred to as LQ exemptions. Such dangerous goods will be packaged in a small receptacle (never more than 5 litres for liquids or 5 kg for solids), several of which may be placed in an outer packaging that may not exceed a gross mass of 30 kg in total. ‘Limited quantities’ is a widely misunderstood concept, and it is recommended that advice is sought from a DGSA if using these provisions.

6.15. There are no limited quantities for Infectious waste (clinical waste) UN3291 but it can be used for medicinal wastes in their original or dispensed packaging, in outer packages less than 30kg.

Marking and labelling

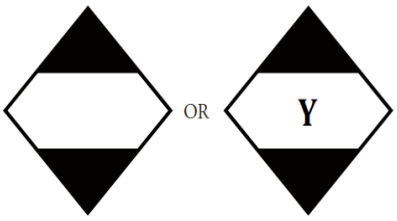
6.16. Marking is the application of the relevant UN number and, where necessary, the proper shipping name onto the package.

Figure 6.3 - UN marking

6.17. Labelling is the application of the label (commonly referred to as the hazard warning diamond) appropriate to the class of dangerous goods and including any ancillary labels (such as any secondary hazard markings, orientation arrows

6.18. For dangerous goods in limited quantities, the only mark required is as follows:

Figure 6.4 - Limited quantity marking



6.19. The limited quantities mark on the left should be used for land transport, whilst the one on the right is suitable for multi-modal transport, for example land, sea and/ or air.

Cleaning receptacles

6.20. Transport regulations require that no dangerous goods residue shall adhere to the outside of packaging. If any dangerous substances adhere to the inside of a receptacle, the receptacle, even though nominally empty, must continue to be treated as dangerous goods.

6.21. It is important that local waste policies include a cart-cleaning procedure, clearly specifying frequency and monitoring of the cleaning process to avoid the potential for cross-contamination between sites (uncleaned carts are stilled classed as dangerous goods).

6.22. The cleaning procedure should ensure that drainage bungs are properly replaced after cleaning and that missing bungs are replaced to prevent leakage of waste liquids. This

should be agreed between the healthcare organisation and the waste disposal contractor.

Dangerous goods - specific packaging requirements

Solid surgical instruments

6.23. Previously, contaminated medical devices were classified as infectious waste (clinical waste) for the purpose of carriage by road, even though it was widely acknowledged that the items were not waste and were being returned for decontamination prior to re-use.

6.24. ADR states that medical devices or equipment potentially contaminated with or containing infectious substances (other than those classified in Category A) carried for the purpose of disinfection, cleaning, sterilisation, repair or equipment evaluation do not need to be classified as infectious waste and are not subject to the requirements of ADR provided that:

- they are packaged in such a way that under normal conditions of carriage, they cannot break, be punctured or leak and that the packages are designed to meet the construction requirements listed in ADR Sections 6.1.4 or 6.6.4
- the packaging meets the general packaging requirements of ADR Sections 4.1.1.1 and 4.1.1.2 and is capable of meeting the drop test requirement
- the packaging shall be marked ‘Used medical device’ or ‘Used medical equipment’

6.25. This exemption does not apply to medical devices or equipment contaminated with infectious substances in Category A. Contamination with infectious substances in Category A is very rare and contaminated items should not routinely be returned to Disinfection Units, due to their highly infectious nature.

Used linen

6.26. The majority of used linen being transported to off-site laundries will not normally be assessed as dangerous for transport.

6.27. There will be some occasional circumstances where soiled laundry will need to be classified as dangerous for transport, such as when a consignment is thought to contain pathogens which pose a significant risk of spreading disease. In such instances (and the load is being disposed of), the load should then be classified and packaged as UN3291.

Waste medicines

6.28. Medicinal waste will come in two types for the purpose of transport regulations:

- solids (pills and powders)
- liquids (ampoule contents and so on)

- Medicines unopened in original retail packaging ready for use are exempt from the Carriage Regulations (refer to ADR Special Provision 601) but this does not apply to waste medicines, but they may be subject to LQ if packed correctly.

6.29. In situations where the conditions for LQ cannot be met, the responsibility is on the packer/ loader (usually the pharmacy), to ensure no incompatible substances are packed together if there is a danger that a chemical reaction could take place, causing heating, fire or even explosion. ADR 4.1.1.6 states *'Dangerous goods shall not be packed together in the same outer packaging or in large packaging's, with dangerous or other goods if they react dangerously with each other and cause:*

- *combustion or evolution of considerable heat, evolution of flammable, asphyxiant, oxidising or toxic gases*
- *the formation of corrosive substances, or the formation of unstable substances."*

6.30. Therefore, waste medicines should, as far as possible, be disposed of in their original primary packaging (receptacles) or dispensing packaging whilst secondary packaging is removed for recycling/ disposal:

Figure 6.5 - Types of waste medicine packaging

- **Primary packaging** - packaging touching the medicines (blister packs, vials)
- **Secondary packaging** - packaging not touching the medicines (outer boxes and packaging)

6.31. If solids are still in their original blister packs or are bagged/ bottled, they should be collected and placed in suitable outer packaging for transport (such as blue lidded and bodied plastic boxes of no more than 30kg). This will require labelling as LQ in accordance with ADR.

6.32. A similar procedure can be adopted for liquids, provided measures are taken to minimise breakage of the primary packaging (such as cushioning/ absorbent material).

6.33. Where the pills are loose or the liquids container has lost its closure (stopper/ cap), a suitable receptacle that is compatible with the product should be used. Once a suitable receptacle is found, the procedures above can be followed. Empty blister packs, bottles used for pharmacy should also be disposed of via the pharmaceutical waste stream.

6.34. Where the requirements of LQ cannot be met, it is incumbent on the waste producer (pharmacy) to identify individual products, confirm no adverse reactions will take place (as per 6.29) and it is classified in relation to UN No and packaged appropriately.

6.35. Sharps bins are tested for solids. They are not approved for the carriage of liquids. It is recognised that most sharps will be contaminated with liquids/ fluids. A few millilitres of liquid are unlikely to present a risk of adverse chemical reaction, and such tiny quantities in a sharps box are acceptable for transport.

6.36. However, the pouring of partially used vials of liquid or discharges of syringes into sharps boxes is not in compliance with the regulations and is not permitted (unless suitable absorbent material such as gel sachets are added in sufficient quantities to absorb any free liquids).

Radioactive material

6.37. This section does not address packaging for radioactive material. However, packaging must be rigid and comply with the requirements of the material. Any clinical waste contaminated with radioactive material and placed in a plastic bag is not adequate for transport. Staff should contact their Board's Radiation Protection Adviser (RPA) for advice on any waste which may have radiological contamination.

7. Storage

7.1. Healthcare waste receptacles may need to be stored before being transported to treatment/ disposal sites. They should not be allowed to accumulate in corridors, wards or other places accessible to unauthorised personnel or members of the public.

7.2. Healthcare waste should be stored securely so as to prevent the escape of waste, prevent harm to the environment and/ or human health. Failure to do so is a breach of the statutory duty of care. This applies to storage at the point of production as well as intermediate and bulk storage areas.

Storage at the point of production

7.3. Storage areas at ward level should be secure and located away from public areas. Storage areas should be sufficient in size to allow packaged waste to be segregated and to avoid waste of different classifications being stored together in the same area.

Bulk storage

7.4. Bulk storage areas may be situated within healthcare premises or at a licensed or permitted transfer or treatment/ disposal facility.

7.5. Regardless of location, bulk storage areas should be:

- reserved for specific waste streams only
- well-lit and ventilated
- sited away from food preparation and general storage areas and from routes used by the public
- totally enclosed and secure
- provided with separate storage for each waste stream
- of sufficient size to ensure sharps receptacles and waste medicines, which may need a higher degree of security, are kept in a safe area in order to prevent unauthorised access
- sited on a well-drained, impervious hard standing
- readily accessible to authorised people
- kept locked when not in use
- secure from entry by animals and free from insect or rodent infestations
- provided with wash-down facilities and spillage equipment
- provided with washing facilities for employees
- clearly marked with warning signs

- provided with separate, clearly labelled areas for waste that requires, rather than is destined for, different treatment/ disposal options
- provided with access to first-aid facilities
- appropriately drained, that is, to a sewer (with discharge consent)

Size of bulk storage areas

7.6. All bulk stores should have storage capacity to match the proposed frequency of collection. Bank (or other) holidays need to be taken into account, and a margin provided for any interruption in the disposal system.

Refrigerated storage

7.7. Refrigerated storage will be required in hot weather if the waste poses a statutory nuisance due to odour. If refrigeration is required, refrigerated storage units must be fitted with a device for opening from inside as a precaution against people being trapped.

Licenses, permits and exemptions

7.8. A waste management licence or pollution prevention control permit may be required for the bulk storage of waste, even at the site of production.

7.9. Waste brought into healthcare premises from other healthcare sources (for example other premises within a health board) may also require a suitable authorisation.

7.10. Section 10 provides further information on waste management authorisations and exemptions.

8. Transport operations

On-site transport

8.1. On roads to which the public do not have access, dedicated trucks, trolleys, tugs or wheeled containers can be used to transport waste receptacles to storage areas. To prevent contamination, they should not be used for any other purpose. They need to be designed and constructed so that they:

- are easy to clean and drain
- contain any leakage from damaged receptacles or containers
- are easy to load and unload
- do not offer harbourage for insects or vermin
- do not allow particles of waste to become trapped on edges or crevices

8.2. Containers for on-site transport need to be steam-cleaned or disinfected following leakages or spills, and at regular intervals. If containers are heavily used, cleaning is likely to be required at least weekly. The healthcare waste procedures need to specify the method and frequency of steam cleaning or disinfection.

8.3. Internal vehicles should not be used to transport waste materials on roads to which the public have access unless they meet the full provisions of the Carriage Regulations as appropriate.

External transport

8.4. There are specific requirements for the movement of waste also classified as dangerous goods in line with the Carriage of Dangerous Goods Regulations. The scope of the requirements varies with the type and quantity of dangerous goods to be carried and advice should be sought from a Dangerous Goods Safety Advisor (DGSA).

8.5. Most dangerous goods, for example infectious and medicinal waste generated from the healthcare environment, will be segregated at source into colour-coded receptacles in line with the requirements of the Carriage of Dangerous Goods Regulations. Where dangerous goods are not placed in compliant packaging there are restrictions on the movement of the goods.

Load thresholds

8.6. The requirements placed on the transporter by the Carriage Regulations vary depending on the way the goods are packaged, and the amount (expressed in kg or litres) loaded into a vehicle.

8.7. Table 8.1 shows the load thresholds for healthcare wastes transported in United Nations (UN) approved packages; further guidance on other waste streams should be sought from a DGSA.

Table 8.1 - Load thresholds for healthcare wastes

Dangerous goods (UN number)	Proper shipping name packaging instruction	Packaging examples
0	Category A substances (UN2814/ 2900/ 3549)	0
1	Medicines/ chemical wastes PG I (cytotoxic drugs)	20 kg/l
2	Clinical waste (UN 3291)	333 kg/l
2	Medicines / chemical wastes PG II (UN1851/ 3248/ 3249)	333 kg/l
3	Medicines / chemical wastes PG III (UN1851/ 3248/ 3249)	1000 kg/l

8.8. Below the load thresholds, the following vehicle and driver requirements apply:

- one 2kg fire extinguisher must be carried on the vehicle (international carriage by road (ADR) 8.1.4.2)
- general awareness training for the driver and all involved in the transport operation (ADR 1.3.2)
- the dangerous goods must be stowed securely (ADR 7.5.7).

8.9. Where small quantities (less than 15 kg) of infectious waste (UN 3291) are carried in private cars and car-derived vans (M1 vehicles), such as happens in community healthcare, there is no need to carry a 2kg fire extinguisher (refer to GB Road Derogation 17). Bags of waste must not be placed directly into any vehicle. They must be placed in a rigid, secure and leak-proof outer packaging. General awareness training in line with ADR 1.3.2 is still required).

8.10. Above the load threshold, or where no load threshold applies, the requirements include:

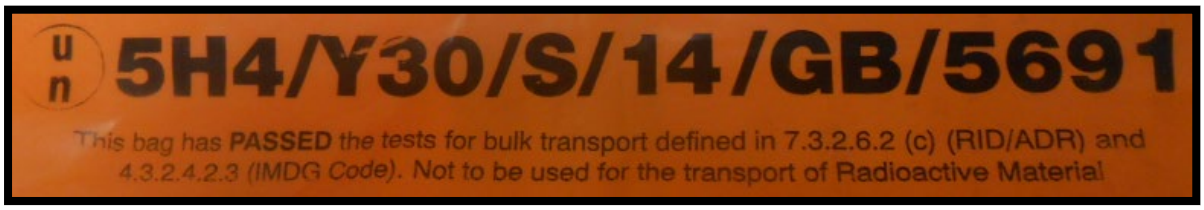
- additional vehicle equipment, fire extinguishers, information in writing and Personal Protective Equipment (PPE) must be provided
- vehicles must be marked with plates as described in Schedule 1 of the Carriage Regulations
- formal ADR-approved driver training must be provided (covering the mode of transport and specific class carried, so for UN3291, this would be class 6.2 for carriage “other than in tanks”)
- a DGSA must be appointed.

Bulk transport of infectious waste

8.11. The vast majority of infectious waste (UN3291) is transported in UN-approved rigid packages. This could be a single package, such as a sharps box, or an approved combined package such as a wheelie bin containing sacks. Where infectious waste is transported in a suitable bag on its own (for example not in a rigid container) the movement of this waste is permitted but is classified as 'bulk'.

8.12. In accordance with provision VC3 of ADR, the bulk transport of Catergory B infectious waste UN 3291 is permitted in approved 'BK2' bags placed into approved 'BK2' containers and/or load compartment of a van or lorry.

Figure 8.1 - Example of UN approval codes for BK2 approved waste bags



8.13. There are no load thresholds applicable to bulk transport in accordance with VC3. In practice this means that the transport requirements apply to a single bag of waste in the same way they would apply to 100 bags of waste.

8.14. A qualified DGSA can provide further information on the requirements applicable to the movement of infectious waste in bulk. The requirements are however onerous and bulk movements should be avoided wherever possible, especially for movements of small quantities of waste.

8.15. In a community setting, bulk transport can be avoided by placing bags of clinical waste within re-usable rigid containers in the back of small vehicles, for example cars and vans.

8.16. Further guidance on the use of provision VC3 and requirements for a BK2 container can be obtained from the Health & Safety Executive (HSE) website.

Carriage on ships in UK waters

8.17. When transporting dangerous goods, including waste materials, by sea the International Maritime Dangerous Goods (IMDG) code must be followed, and Maritime Coastguard Agency approval is required (refer to National Services Scotland (NSS) Waste Contract Manager for advice).

8.18. Dangerous goods for sea passage must be declared on a dangerous goods note to the shipping line (at least 24 hrs prior to the material being loaded).

9. Treatment and disposal

Healthcare waste (infectious and medicinal wastes)

9.1. All treatment and disposal facilities for healthcare waste, regardless of size or type of technology used, are required to 'render safe' the waste. The requirements of rendering safe depend on the type of waste treated, and on the nature of the contaminants present in the waste.

Rendered safe

9.2. 'Rendered safe' is an accepted method or process that has been applied which:

- demonstrates the ability to reduce the number of infectious organisms present in the waste to a level whereby no additional precautions are needed to protect workers or the public against infection by the waste
- destroys anatomical waste such that it is no longer generally recognisable
- renders sharps unusable and no longer in their original shape and form
- destroys the component chemicals of medicinal waste

Treatment and disposal systems

9.3. Treatment and disposal systems for healthcare waste can be segregated into two broad types:

- high temperature (incineration/ combustion processes)
- non-burn/ low temperature, so-called 'alternative' technologies

9.4. While there are many systems available to treat healthcare waste, they all use heat, chemicals, irradiation or combinations of these methods. The selection of the most appropriate system is dependent on:

- the composition of the waste
- the volume of the waste to be treated
- support capabilities of the supplier
- staffing requirements
- initial and continuing operating costs

9.5. Treatment and disposal methods need to be reliable and consistently achieve the required standard of treatment. Their performance needs to be measurable, and the process controlled to reproduce the target standards.

9.6. Managers of waste treatment and disposal need to work to audited procedures which take into account the risks to operators as well as other people on the site, as well as the need to maintain standards of waste treatment.

9.7. All treatment and disposal facilities that accept hazardous waste require a waste management licence or permit.

High temperature process

Incineration

9.8. Healthcare waste incinerators come in a variety of designs, but all are required to meet temperature and emission limits. Generally, they have a primary combustion chamber operating at 800-1000°C and a secondary chamber operating at 850-1200°C with a guaranteed gas retention time.

9.9. Not all incinerators are authorised to treat all types of healthcare waste and only certain plants are authorised to accept medicinal and cytotoxic wastes.

Pyrolysis

9.10. Pyrolysis involves the high temperature treatment of waste in the absence of oxygen. In generating these high temperatures, the systems treat, destroy and reduce the volume of waste.

Plasma technology

9.11. In a plasma system, an electric current is discharged through an inert gas (for example argon) to ionise it and in turn cause an electric arc to create temperatures as high as 6000°C. The clinical waste within the system is brought to temperatures between 1300 and 1700°C, destroying potentially pathogenic microbes and converting the waste into a glassy rock or slag, ferrous metal, and inert gases.

Gasification

9.12. Gasification is similar to the process of controlled air incineration in that the waste materials are thermally decomposed, but in an oxygen-starved (sub-stoichiometric) atmosphere. The waste in the gasification process is ignited and reduced in a self-sustaining process. No support fuel is consumed except for that required to initiate combustion. The decomposition results in the generation of volatile gaseous material and, depending on the waste content, various vaporised tar-oil fractions. The waste gas is passed through a series of scrubbers/ filters and cyclonic separators to provide a clean ‘producer gas’.

Non-burn/ low temperature 'alternative' technologies

Heat (thermal) disinfection systems

9.13. These systems rely on heating the waste to a fixed temperature for a specified time to deactivate the infectious elements in the waste. Heat disinfection systems are not suitable for the treatment of medicinal wastes. The continuous monitoring and recording of waste temperature and time are critical to ensuring that the required temperature level is achieved for the entire body of the waste.

Autoclaves

9.14. Saturated steam (steam holding water as a vapour) is introduced into a vessel above atmospheric pressure. Some autoclaves are designed to shred waste during the treatment cycle while other systems rely on the use of a pre- treatment process to macerate the waste before the waste is heated.

Steam auger

9.15. This industrial thermal disinfection process operates at atmospheric pressure using a combination of residence time and temperature to treat the waste and render it safe. Waste is shredded prior to its entry into a steam auger where it is turned and treated with steam to achieve the required inactivation of pathogens.

Dry heat

9.16. These waste treatment systems thermally inactivate potentially pathogenic micro-organisms through the use of electrically generated heated air, oil or molten plastic.

Microwaves

9.17. Microwaves are electromagnetic waves with a frequency between radio waves and infrared waves on the electromagnetic spectrum. When applied to the treatment of waste the mechanism of microbial inactivation is thermal. It is important for the waste to be wet, either as a result of moisture naturally occurring in the waste stream or by the addition of moisture in the form of steam. The combination of the two - microwaves and moisture - creates a thermal treatment process. Some treatment processes utilise microwaves to heat water to form steam which is then applied to the infectious waste stream. 'Dry' microwave systems are also available. These use direct microwave energy in a nitrogen atmosphere to treat the waste and produce higher treatment temperatures than those used by 'wet' microwave technologies.

Chemical systems

9.18. Chemical disinfection, primarily through the use of chlorine products, has an extensive and well-documented history in the clinical setting in disinfecting environmental surfaces and medical devices. Chemicals commonly used are sodium hypochlorite,

chlorine dioxide, peracetic acid, gluteraldehyde and quaternary ammonium compounds. The waste is first shredded to bring all surfaces in contact with the chemicals.

9.19. Other chemical processes have a potentially wider application than disinfection. Alkaline hydrolysis exposes the waste to hot alkali for a period of several hours and can, for example, reduce carcasses or cadavers to bone shadows. The organic rich outflow from these units is likely to have a very high biological oxygen demand (BOD) and should be subjected to additional treatment to ensure that effluent is dewatered, with only the water being discharged to foul sewers.

9.20. Chemical treatment systems are not used widely in the UK.

Discharge to sewer

9.21. Any discharge to sewer, other than domestic sewage, must have the prior agreement of the statutory responsible bodies. Anyone intending to dispose to sewer any waste that may present a substantially greater risk than domestic sewage should first seek advice from the sewerage undertaker, Scottish Water.

9.22. Known issues with regard to discharges are:

- **bodily fluids** - blood and similar substances, for example from suction canisters or wound drains, may be discharged to foul sewer subject to any restrictions imposed by the discharge consent and compliance with any local infection control procedures
- **photochemicals (X-ray)** - these are suitable for recycling. It is poor practice, even if permitted by a discharge consent, to discharge this material to foul sewers
- **cardboard bed-pans and urine bottles** - maceration and discharge of shredded material to foul sewer is known to cause obstruction of the sewage network. It is essential that the sewerage undertaker is aware of the presence of this material and that its disposal is permitted by the producer's 'trade effluent consent'
- **medicinal wastes** - all medicinal products, with the exception of saline/glucose solutions or water, should not be discharged and should be sent for appropriate disposal.

9.23. Radioactive waste from diagnosis and intensive radiotherapy has low radioactivity and a short half-life. If the waste is a water-miscible fluid, and the discharge authorisation permits, it may be disposed of to the sewer.

Specific treatment/ disposal requirements

Laboratory waste

9.24. Laboratory managers should refer to the following documents:

- 'Safe Working and the Prevention of Infection in Clinical Laboratories and Similar Facilities'

- 'Biological Agents: Managing the Risks in Laboratories and Healthcare Premises'
- The Control of Substances Hazardous to Health Regulations (COSHH) 2002

  Laboratory managers have a duty to ensure that waste produced within their laboratory facilities is appropriately classified and waste which requires inactivation on site, normally undertaken by autoclave, is undertaken to the appropriate standards. Table 9.1, summarises the onsite inactivation requirements:

Table 9.1 - Inactivation requirements for classes of biological agents

Class of biological agent	Inactivation requirements
1	Waste to be inactivated by validated means, this may be off-site
2	Waste to be inactivated by validated means (recommended best practice is within the building) on-site prior to transfer off-site for final disposal
3	Waste to be inactivated within the laboratory suite prior to off-site treatment/ disposal
4	Waste to be inactivated within the laboratory prior to off-site treatment/ disposal

TSE-infected waste

9.25. Waste known or suspected to be contaminated with transmissible spongiform encephalopathy (TSE) agents, including variant Creutzfeldt-Jakob disease (vCJD), must be disposed of by high-temperature incineration in suitable authorised facilities.

9.26. Additional guidance on the management of TSE-infected waste is given at the UK Government website.

Note 20: NHSScotland Bodies should refer to the Glennie Framework: Sterile Services Provision Review.

Cytotoxic and Cytostatic waste

9.27. Waste contaminated with cytotoxic and/ or cytostatic substances should be disposed of in suitably authorised facilities which will normally be high temperature incineration facilities.

9.28. Sharps boxes containing sharps contaminated with cytotoxic and/ or cytostatic products should be disposed of in suitable authorised facilities that accept cytotoxic and cytostatic waste.

Gypsum containing waste

9.29. Gypsum (calcium sulphate) often used in plaster casts and dental moulds generates hydrogen sulphide gas if it enters a normal mixed landfill. Therefore, precautions should be taken to avoid landfill disposal of this waste stream. This will include the

landfill of residues from clinical waste treatment processes. The two main disposal options for this waste stream are:

- gypsum recycling
- landfill in a separate cell of a landfill that has been set aside specifically to receive gypsum waste
- incineration

Waste containing genetically modified organisms (GMMs)

9.30. Waste contaminated with genetically modified microorganisms (GMMs) must be inactivated by a validated means.

9.31. 'Inactivation' is defined as the "*complete or partial destruction of GMMs so as to ensure that any contact between the GMMs and humans or the environment is limited to an extent commensurate with the risks identified in the risk assessment and to provide a high level of protection for humans and the environment*".

9.32. There are commercial treatment/ disposal facilities currently used for infectious waste that are able to inactivate genetically modified organisms (GMO) or GMM waste effectively. However, inactivation of contaminated waste by these facilities does not obviate the requirement to have an autoclave on site, in the building, or in the laboratory suite (depending on the risk classification of the waste involved).

9.33. Waste containing GMMs that is collected for treatment/ disposal by contractors before it has been inactivated is subject to the requirements of the Genetically Modified Organisms (Contained Use) Regulations 2000. For example, contractors may collect waste in sealed receptacles which they then incinerate or otherwise treat to ensure inactivation. The contractor in this case is undertaking a contained use activity, namely destruction of the GMOs, and must register as a Genetically Modified (GM) centre with the competent authority. Guidance on the activity notification (registration) is available from the Health and Safety Executive (HSE).

9.34. Where the waste has been treated to inactivate it prior to collection by a waste contractor, the contractor is not undertaking a contained use activity. The waste may be collected and treated or disposed of without the need to consider the Contained Use Regulations. Further guidance on the inactivation and disposal of GMO and GMM waste can be obtained from the Health & Safety Executive (HSE) website.

Source-segregated recyclates

Materials recycling/ recovery facilities

9.35. Materials Recycling/ Recovery Facilities sort co-mingled collections of dry recyclates into their separate components (sometimes called a 'clean Materials recovery facility (MRF)'). Waste is deposited at the plant where it is then separated through a system of

conveyer belts, screening, and other sorting techniques. The type of separation process utilised depends largely on both input and after-use of the separated materials. After the materials have been sorted, they can be bulked and then transported for further processing and material recovery. MRF facilities are not suitable for mixed or unsorted domestic waste. The Waste (Scotland) Regulations 2012 require separation of all recyclable material at source, either into mixed recyclates (as noted above) or single stream recyclates (for example metals, paper, plastic, cardboard and so on).

Food waste

Anaerobic digestion

9.36. Anaerobic digestion (AD) is a managed biological process in which biodegradable waste is broken down by naturally occurring micro-organisms in the absence of oxygen to produce a stabilised residue. This process produces biogas (a mixture of methane and carbon dioxide) which can be used to produce heat, electricity or transport fuels. It also creates rich bio-fertiliser which can be used in farming as a natural fertiliser.

9.37. Waste is collected and brought to the site where it is pre-treated to remove non-biodegradable materials such as plastics, metals and stones, and shredded to a uniform size in order to aid digestion. The biodegradable materials are transferred to an enclosed, oxygen-free, warmed container. Bacteria then digest the waste, which can take from 12-30 days, producing biogas. The digested matter, or digestate, is then pumped into a storage tank, where biogas continues to be produced. The residual digestate can then be separated to produce fibre and liquor which must be refined for use in horticulture or agriculture. Material going to landfill is stabilised and compacted in order to reduce leachates, dust and odour when it is in landfill.

9.38. Food wastes may be treated only if the AD plant is compliant with Animal By-Products (Scotland) Regulations 2003 and subsequent amendments. Technical Guidance on Composting Scottish Environmental Protection Agency (SEPA).

In-vessel composting

9.39. In-vessel composting (IVC) is a managed process in which biodegradable waste is broken down by naturally occurring micro-organisms in the presence of oxygen to produce a stabilised residue known as compost.

9.40. Waste is collected and brought to the site where it is initially sorted to remove any non-biodegradable waste and shredded to a consistent size. It is then put into a closed reactor where the composting process is speeded up through the management of water, air and heat. This process typically takes between 7 and 21 days. The material is then subject to another screening to remove any traces of metals and goes through a further maturation period of up to 10 weeks. It can then be used as compost or soil conditioner.

9.41. Food wastes may be treated only if the IVC plant is compliant with Animal By-Products (Scotland) Regulations.

Residual (domestic) waste

Energy from waste

9.42. Energy from waste (EfW) involves the incineration of residual waste to produce renewable energy. EfW can be integrated with combined heat and power (CHP) to improve the efficiency of the energy recovery process and provide electricity and heat to local homes and businesses. Emissions from the process must comply with strict emission limits which are regulated by SEPA to the same exacting standards as any other thermal treatment process. Metals can be recovered from the ash for recycling, while the ash itself can be turned into aggregate for use in the construction sector.

9.43. Waste is collected and delivered to the site where it is deposited in a bunker and mixed to ensure a more consistent and even calorific mix. It is then fed into a furnace where it is burned. The unburned residue, known as bottom ash, is stabilised and is deposited into a tank.

9.44. Magnets remove any ferrous metals from the ash for recycling, and the remaining ash can be recycled for use in construction. The hot gasses produced during combustion are then directed to a boiler where electricity can be generated, and heat recovered. Gases are thoroughly cleaned using a range of emission control systems before they are emitted to the atmosphere. Filtered particles are collected and sent to special waste landfill.

9.45. In accordance with the Waste (Scotland) Regulations 2012 there is a ban on metal, plastic, glass, paper, card and food collected separately for recycling from going to incineration from 1 January 2014. In addition, all new EfW plants must ensure that metals and dense plastics have been removed from residual municipal waste prior to incineration.

Mechanical biological treatment

9.46. Mechanical biological treatment (MBT) can be designed to a wide variety of specifications to suit local circumstances, but generally it involves the mechanical sorting of waste followed by a phase of biological treatment. The function of MBT varies depending on plant specification but it is predominantly a waste-drying and volume-reducing process. The main output from the drying process is ‘refuse-derived fuel’ (RDF) which can be used as a source of fuel.

9.47. Waste is collected and brought to the site where it can then be treated mechanically then biologically, or biologically then mechanically. Waste is treated mechanically in order to reduce its volume and separate it into different waste types. The biodegradable

fraction of the waste is treated in a managed biological process in which it is broken down by naturally occurring micro-organisms. The organic output may have a higher level of contaminants (for example plastics and glass) than other biological treatment processes such as Anaerobic Digestion. The recyclables recovered from this process are of much lower quality than those from source-segregated waste, due to greater levels of mixing and increased potential for contamination with other materials.

Mechanical heat treatment

9.48. Mechanical heat treatment (MHT) can be configured to varying specifications to meet local circumstances. However, it typically involves a mechanical sorting stage before the waste is treated by heat in a pressurised container. The application of heat reduces the volume of waste and allows for the recovery of recyclable material (for example metals and glass). The main output from the process is RDF which can be used as a source of fuel.

9.49. Waste is collected and brought to the site where it is placed in a pressurised container (autoclave) and then 'cooked' using steam for about 90 minutes at a temperature of 160°C. The process kills off viruses and pathogens and transforms the physical characteristics of the waste. The waste is then separated into recyclates, RDF and organic fibre. After separation glass, metals and plastics are cleaned and can then be sent on for further treatment.

Landfill

9.50. Modern landfill (known as Engineered or Sanitary landfill) are based on disposal into the land that has been engineered with a containment system comprising of a barrier which prevents the uncontrolled escape of contaminants into the soil and/ or groundwater.

9.51. Waste is tipped into specially engineered and lined cells and compacted in order to save space and drive out oxygen. The waste then ferments in a process of Anaerobic Digestion giving rise to methane which can then be harnessed and burned as a renewable fuel.

9.52. The EU Landfill Directive (1999/31/EC) enacted by the various devolved landfill regulations (Landfill (Scotland) Regulations 2003 (as amended) in Scotland) prohibits the disposal of many waste types via landfill including:

- liquids
- tyres
- corrosives
- explosives
- flammables
- oxidising substances

- clinical wastes
- any other wastes not meeting the acceptance criteria

9.53. From January 2025, landfill operators in Scotland will be prohibited from accepting Biodegradable Municipal Waste (BMW) for landfill disposal. The purpose of the ban is:

- to reduce the amount of waste landfilled by directing residual waste to alternative treatment
- to extract any remaining resource value from the residual waste stream
- to reduce greenhouse gas emissions which result from landfilling biodegradable waste

9.54. BMW includes biodegradable household waste together with biodegradable waste which is similar to household waste including residual ('black bag') waste and other mixed municipal wastes collected from healthcare facilities and coded as 20.03.01.

10. Waste management authorisations

Transporting waste

Waste carrier registration

10.1. NHS Boards wishing to transport other people's controlled waste, or their own construction and demolition waste, must register with Scottish Environmental Protection Agency (SEPA) as a “Waste Carrier”. Controlled waste includes commercial, industrial and household waste, as well as hazardous waste.

10.2. Registrations last for three years from the date of issue or renewal. Registered Carriers should be able to provide a certificate of registration on request.

Registration as a professional collector and transporter of waste

10.3. NHS Boards must register as a ’Professional Collector and Transporter of Controlled Waste’ if they carry their own waste. It is free to register, and the registration lasts indefinitely unless it is revoked or withdrawn. Registration may be made online at the Scottish Environment Protection Agency (SEPA) website.

Storage, treatment and disposal

Waste management licenses

10.4. A waste management licence is required for all activities that involve the storage, treatment or disposal of waste unless an exemption from licensing is provided or the required permit is held. A licence is not generally required to store waste on the site of production. However, there are limits to the types of storage and waste quantities that may be stored without a licence.

10.5. Information and guidance on applying for a waste management licence or exemption are available from the Scottish Environment Protection Agency (SEPA) website.

Waste management licence exemptions

10.6. Exemptions from waste management licensing are set out in Regulation 17 of the Waste Management Licensing (Scotland) Regulations 2011.

10.7. NHS Boards should review the exemptions available as a number of exemptions may be applicable to their activities including (but not limited to) those specified in:

- **paragraph 11** - baling, sorting, shredding, for example of specified wastes
- **paragraph 12** - composting

- **paragraph 17** - storage of specified wastes in a secure place
- **paragraph 27** - baling, compacting, crushing or shredding waste at the place it was produced
- **paragraph 28** - the use of autoclaves to sterilise waste
- **paragraph 39** - secure storage of medical, nursing or veterinary wastes (this includes community pharmacies)
- **paragraph 41** - temporary storage of waste at the place of production

Small-scale infectious waste treatment plant (on-site)

10.8. There is no exemption for the small-scale treatment of healthcare waste. Any plant, irrespective of size, that treats hazardous infectious categories of waste is subject to stringent controls and requires authorisation to operate.

Pollution prevention and control permits

10.9. Activities subject to control by permit under the Pollution Prevention and Control (PPC) (Scotland) Regulations 2012 are listed in Schedule 1 to the Regulations, and include:

- disposal of waste by incineration
- disposal of waste by landfill
- disposal of waste other than by incineration or landfill
- recovery of waste
- the production of fuel from waste

10.10. A PPC permit is required to operate facilities that have the capacity to store more than 10 tonnes of hazardous waste and/ or have the capacity to treat more than 10 tonnes of hazardous waste per day.

10.11. Applications for a PPC permit should be made to the relevant regulatory authority. Information and guidance on applying for a PPC permit is available from the SEPA website.

Waste management licence and permit conditions

10.12. Conditions attached to a PPC permit or licence will impose controls on the development and operation of the facility which are designed to ensure that no significant pollution is caused, setting out clearly the standards to be achieved and imposing ‘emission limit’ values for pollutants. Failure to comply with these conditions is an offence and may lead to the facility having its licence/ permit revoked and the operators being fined or even imprisoned.

10.13. Licence and permit conditions can be modified or varied, usually by amending conditions or changing the working plan. They can also be suspended or revoked, in part or whole.

Relationship with planning permission

10.14. Most waste management activities require planning permission to have been granted before a PPC permit or waste management licence can be issued for the proposed development.

11. Documentation

Transport documentation

11.1. The Carriage Regulations require that a completed transport document should accompany all loads of dangerous goods with the exception of goods being transported under 'limited quantity' (LQ) exemptions. The format and content of the transport document are specified in international carriage by road (ADR). In summary, the transport document should provide the following information:

- the United Nations (UN) number of the goods being carried
- the proper shipping name, supplemented where applicable with the technical name (also, where the material being transported is a waste, the proper shipping name shall be proceeded by the word "Waste")
- the UN class of the goods being carried (by reference to label model number)
- the packing group (where assigned)
- the number and description of the packages
- the total quantity of each item
- the name and address of the consignor
- the name and address of the consignees
- the tunnel code (if applicable)
- for goods of class 6.2 (infectious materials), the name and address of the consignee must be supplemented by the name and telephone number of the relevant responsible person (this will normally be the receiving sites Technically Competent Person (refer to ADR 5.4.1.2.4)

11.2. A properly completed waste consignment note (as issued by Scottish Environmental Protection Agency (SEPA)) will not contain this information so the consignor will have to prepare a separate transport document. For shipments from Scotland to other parts of the UK the waste documents may contain the additional (ADR) information but if they don't, other transport documents will be needed.

Note 21: when dangerous goods are being transported under the thresholds set in ADR (refer to 8.7, Table 11), a transport document is not required (refer to Department for Transport (DfT) Road Derogation No.2) however, in these circumstances, the Special Waste Consignment Note is still needed).

11.3. In addition to a transport document, those transporting dangerous goods above the load thresholds stated in ADR (or in bulk) are required to carry 'instructions in writing' as a precaution against accident or emergency during carriage. These written instructions are commonly referred to as a 'TREMCard'. ADR provides further details and copies can be sourced from the UK Government website.

Waste transfer note

11.4. A key element of the duty of care is keeping track of the waste. The holder of the waste is responsible for:

- taking adequate steps to ensure that the waste is managed safely and kept secure
- transferring it only to an authorised or exempt person

11.5. When waste, other than special (hazardous) waste, is transferred from one party to another, the person handing it on (the 'transferor') must complete a transfer note. The transferor and the recipient (the 'transferee') sign the note and both of them take and keep a copy of it. An annual transfer note may be used to cover all the movements of regular transfer of the same non-hazardous waste between the same parties.

11.6. A transfer note must state:

- the quantity of waste transferred, by weight where possible
- how it is packed
- the type of receptacle
- an adequate description of the waste

11.7. The description must provide enough information to enable subsequent holders to avoid mismanaging the waste.

11.8. The description of the waste should include:

- the European Waste Catalogue (EWC) code, as indicated elsewhere in this guidance
- the process that gave rise to the waste (by reference to the use of the appropriate Standard Industrial Classification (SIC) code)
- the name of the substance or substances
- a chemical and physical analysis
- any special problems identified

11.9. Special problems:

- any special containment requirements?
- type of receptacle required and the material the receptacle is made of?
- can it be mixed safely with other waste or are there types of waste with which it should not be mixed?
- can it be crushed safely and transferred from one vehicle to another?
- can it be incinerated safely, or does it require specific minimum temperatures or combustion times?
- can it be disposed of safely to landfill with other waste?
- is it likely to change physical state during storage or transport?

- any information, advice or instructions about the handling, recovery or disposal of the waste by the waste regulators or suppliers (such as the requirement for refrigerated storage for example
- details of problems previously encountered with the waste
- changes to the description since the previous load
- anything unusual about the waste that may pose a problem

11.10. It is best practice to label drums and receptacles with the description of the waste.

11.11. Copies of transfer notes should be retained by all parties for a minimum of two years.

11.12. The Electronic Duty of Care (EDOC) system can also be used if required (refer to the EDOC Online website).

Consignment notes

11.13. Special Waste Consignment Notes (SWCN) are mandatory documentation for the transport of special (hazardous) waste. They may also be supplied by a waste contractor.

11.14. The completion and accuracy of the waste classification, description and composition of the waste on the consignment note is the sole legal responsibility of the waste producer. NHSScotland Boards have responsibility to complete consignment notes and in instances where the collection contractor provides the note, it is the responsibility of the Health Board to complete the note and check all details (including quantities) are correct. A Health Board represented should sign to confirm the waste is as described.

11.15. Waste contractors are not permitted to complete or amend details entered on a consignment note without the producer's permission.

11.16. In Scotland producers of special waste were previously required to 'pre-notify' SEPA of the movement of special waste at least 72 hours in advance of the first movement (although exemptions existed for subsequent collections made as part of a succession or carrier's round). SEPA have adopted a Regulatory position stating that will not take enforcement action when a copy of the SWCN is not supplied to SEPA before special waste is removed from the premises where it is being held (usually the place where it is produced) provided that the place where it is being moved from and the destination are both located in Scotland (this effectively removes the need for pre-notification unless the waste is destined for another part of the UK).

11.17. When completing a consignment note reference should be made to the definitions and EWC codes listed in the joint agency guidance: WM3 (see Section 2). SEPA requires that only EWC codes relating to special wastes are used on the consignment note. However, the written description of the waste and list of hazardous characteristics (by reference to the relevant 'HP' codes noted in Table 3.6) should be relevant to the entire waste stream.

11.18. Loads containing non “Cyto” medicinal waste (18.01.09) must not be consigned using a Special Waste Consignment Notes (SWCN) as they are non hazardous wastes. These must be consigned using a separate waste transfer note (refer to 11.4) and for regular transfers annual waste transfer notes (or season tickets) should be considered (as this will also reduce the burden of paperwork).

11.19. Where practical, special (hazardous) and non-special (non-hazardous) wastes should be kept separate. However, the nature of healthcare means that often a mixed-waste stream is produced which contains both special and non-special components which have been generated together. In such cases only the EWC codes relating to the special waste should be included on the consignment note but the written description and ‘HP’ codes should refer to the entire waste stream. It is important to note that many non-special (non-hazardous) wastes as defined within the EWC have hazardous characteristics and although these characteristics do not require consignment as special waste in their own right, they should be included on the note to inform those handling the waste downstream. An example of a non-special waste that often has hazardous properties is non-cytotxic medicinal products.

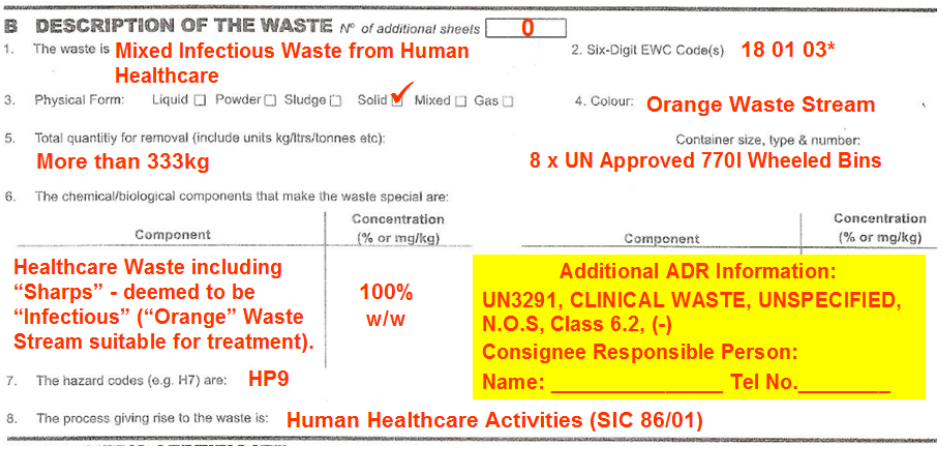
11.20. Where a collection is made which includes packages of segregated special (hazardous) and non-hazardous waste, both a consignment note (for the hazardous wastes) and a waste transfer note (for non-hazardous wastes) should be completed.

Note 22: guidance on the completion of consignment notes is published by SEPA and is available from their website.

Combined waste and transport documentation

11.21. The information contained on waste transfer and consignment notes is very similar to the information required for the transport note required by ADR. It is common practice to combine these notes. This can be done by providing an adequate description of the waste and any hazardous characteristics using both waste and carriage terminology (as shown in the example below):

Figure 11.1 - Example showing the information required by ADR added to a standard SEPA Special Waste Consignment Note (in order to comply with the Special Waste regulations and the Carriage regulations).



B **DESCRIPTION OF THE WASTE** N° of additional sheets: 0

1. The waste is: Mixed Infectious Waste from Human Healthcare
2. Six-Digit EWC Code(s): 18 01 03*
3. Physical Form: Liquid ☐ Powder ☐ Sludge ☐ Solid ☑ Mixed ☐ Gas ☐
4. Colour: Orange Waste Stream
5. Total quantitiy for removal (include units kg/ltrs/tonnes etc): More than 333kg
   Container size, type & number: 8 x UN Approved 770l Wheeled Bins
6. The chemical/biological components that make the waste special are:

Component	Concentration (% or mg/kg)	Component	Concentration (% or mg/kg)
Healthcare Waste including “Sharps” - deemed to be “Infectious” (“Orange” Waste Stream suitable for treatment).	100% w/w		

Additional ADR Information:
UN3291, CLINICAL WASTE, UNSPECIFIED, N.O.S, Class 6.2, (-)
Consignee Responsible Person:
Name: _____ Tel No._____

7. The hazard codes (e.g. H7) are: HP9
8. The process giving rise to the waste is: Human Healthcare Activities (SIC 86/01)

12. Accidents and incidents

Accident and incident procedures

12.1. Employers at all points in the waste chain need written procedures for dealing with accidents or incidents including spillages. These procedures should form part of the waste management policy and should include:

- immediate first-aid measures. In the case of sharps injuries, procedures also need to cover arrangements for suitable medical advice and counselling
- immediate reporting to a responsible designated person
- recording of the accident/ incident
- investigation of the incident and implementation of remedial action. Initial investigation should preferably take place before any damaged receptacle is removed
- retention, if possible, of the item and information about its source to help identify possible infection risks
- attendance of any injured person at an accident and emergency department or occupational health department as soon as possible
- involvement of the risk manager
- involvement of the waste manager
- involvement of the infection prevention and control team

12.2. All incidents involving spillages, damaged packaging, inappropriate segregation, or any incident involving sharps need to be reported to line management and investigated.

12.3. The depth of each investigation will vary depending on the nature of the incident. To be worthwhile, however, any investigation needs to carefully consider the underlying causes. Action after an accident will not be effective if it addresses only the superficial and obvious causes and misses more significant issues.

Spillages

12.4. Employers need clear written procedures for dealing with spillages which:

- specify the reporting and investigation procedures
- specify the use of a safe system of work for clearing up the healthcare waste
- set out appropriate requirements for decontamination
- specify the protective clothing to be worn

12.5. The ready availability of appropriate spillage kits helps ensure the correct action in the event of a spillage. Such kits are particularly useful at storage, waste treatment and waste disposal sites and should be carried on all vehicles carrying healthcare waste.

12.6. Spillage kits may contain, for example:

- disposable gloves
- a disposable apron
- an infectious waste sack/ medicinal waste receptacle
- paper towels
- disposable cloths
- disinfectant recommended, for example, by the local control of infection policy
- a means of safely collecting sharps

12.7. Employers need to provide appropriate equipment for collecting spilled waste and placing it in new receptacles. Sharps must not be picked up by hand. Spilled waste and any absorbent materials need to be placed in an infectious waste receptacle for disposal.

Use of disinfectants

12.8. The use of suitable disinfectants should be detailed in the local healthcare waste procedures which should be managed and monitored by the Board's Waste Management Officer. The procedures should clearly identify which products are to be used, where they are to be used and for what purpose.

12.9. The policy should also provide guidance on the relevant level of dilution required and the contact time required for the disinfectant to be safe and effective.

Mercury spillages

12.10. Employers who use mercury should carry out a risk assessment for dealing with mercury spillages and produce written procedures. A spillage kit needs to be available, which includes disposable gloves, paper towels, a bulb aspirator for the collection of large drops of mercury, a vapour mask, a suitable receptacle fitted with a seal, and mercury-absorbent paste (equal parts of calcium hydroxide, flowers of sulphur, and water). Under no circumstances should a vacuum cleaner or aspiration unit be used, as this will vent mercury vapour into the atmosphere.

Reporting accidents and incidents

12.11. The Social Security (Claims and Payments) Regulations 1979 require an 'accident book' or similar to be kept and accessible to staff.

12.12. In addition, NHS Boards will have their own adverse incident reporting procedures, in accordance with Chief Executive Letter (CEL) 43 (2009).

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)

12.13. The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 require that certain accidents, work-related ill-health and dangerous occurrences must be reported to the Health & Safety Executive (HSE).

Note 23: RIDDOR requirements changed on the 1 October 2013; comprehensive information can be found on the Health & Safety Executive (HSE) website.

13. Personal protection and hygiene

Personal protective equipment

13.1. Control of Substances Hazardous to Health (COSHH) Regulations (see Section 1) require that risks to health be eliminated, prevented or, where this is not reasonably practicable, reduced. Although the use of personal protective equipment (PPE) should be considered as additional to other control measures, it is likely that some PPE will still be required even after all reasonably practicable precautions have been taken to reduce the exposure of staff who handle, transfer, transport, treat or dispose of healthcare waste.

13.2. Employers have responsibility for carrying out risk assessments to identify PPE requirements.

13.3. Employers must ensure that these items are provided, used and maintained. They must also make appropriate arrangements for storage and cleaning.

13.4. Emergency situations, such as spillages, should also be addressed in any risk assessments. This might include the need for protective equipment to prevent exposure via routes such as skin contact (for example, disposable aprons and gloves) or inhalation/ ingestion (for example, respiratory protection and/ or face visors).

Basic hygiene

13.5. Basic personal hygiene is important in reducing the risk from handling healthcare waste. Employers need to ensure that washing facilities are conveniently located for people handling healthcare waste and this is particularly important at storage and incineration facilities.

Immunisation

13.6. Staff handling healthcare waste should be offered appropriate immunisation, including hepatitis A and B, and tetanus. Staff must be informed of both the benefits (for example, protection against serious illness and protection against spreading illness), and the drawbacks (for example reactions to the vaccine) of vaccination.

13.7. Where vaccination has been identified as a control measure required when working with healthcare waste, the employer must offer this free of charge.

13.8. Employers need to establish arrangements for dealing both with staff who decline to accept the immunisation services that are offered and those who do not ‘sero-convert’ (that is, do not produce/ develop antibodies as a result of immunisation).

14. Training

14.1. A policy for the safe management of healthcare waste cannot be effective unless it is applied carefully, consistently and universally. This requires that all healthcare staff should be aware of the policy/ procedure and that the policy is implemented by trained and competent people.

Training needs

14.2. Training needs vary depending on the responsibilities and job function. Ideally, separate training programmes should be designed for, and targeted on, the following groups:

- infection prevention and control staff, healthcare managers and administrative staff responsible for implementing regulations on healthcare waste management
- medical doctors
- pharmacies
- all nursing staff
- cleaners, porters, auxiliary staff and waste handlers

14.3. Those delivering training should have experience in teaching and training and be familiar with the risks and practices of healthcare waste management. Smaller establishments generating healthcare waste may not have this range of expertise available to them but should still have access to competent advice on waste issues.

Training procedures

14.4. Training procedures and information need to:

- be written in a way which can be understood by those who need to follow them, including those who may not have a good command of the English language
- take account of different levels of training, knowledge and experience
- be up to date
- be available to all staff including part-time, shift, temporary, agency and contract staff
- be available in all areas

14.5. Managers need to ensure that procedures are followed by all staff. Staff at all levels who generate the waste need to recognise that they are personally responsible for complying with agreed local procedures.

14.6. The risk assessments required by the Management of Health and Safety at Work Regulations and Control of Substances Hazardous to Health (COSHH) should identify which staff are involved in the handling of healthcare waste.

14.7. Under Health and Safety at Work legislation including the Management of Health and Safety at Work Regulations and COSHH, staff must receive information on:

- the risks to their health and safety, comprising the details of the substances hazardous to health to which they are likely to be exposed
- the significant findings of the risk assessment
- any precautions necessary
- the results of any monitoring carried out
- the collective results of any relevant health surveillance

Training records

14.8. A training record will readily enable line managers to identify members of staff who are not receiving the appropriate level of training.

Induction training

14.9. Training needs vary depending on the job and on the individual. All staff involved in handling healthcare waste need training, information and instruction in:

- the risks associated with healthcare waste, its segregation, handling, storage and collection
- personal hygiene
- any procedures which apply to their particular type of work
- procedures for dealing with spillages and accidents
- emergency procedures
- the appropriate use of protective clothing

14.10. Training for staff who collect, transfer, transport or handle healthcare waste needs to cover:

- checking that storage containers are sealed effectively before handling
- ensuring that the origin of the waste is marked on the receptacle
- handling sacks/ receptacles correctly
- using handles to move rigid receptacles
- checking that the seal on any used waste storage receptacle is unbroken when movement is complete
- special problems relating to sharps disposal
- procedures in case of accidental spillage and how to report an incident
- safe and appropriate cleaning and disinfection procedures

Job-specific training

14.11. Some staff require more specific training. These include:

- people who use protective equipment
- disposal facility operators
- drivers
- community and laboratory staff

14.12. Drivers of vehicles used to transport healthcare waste by road may need additional training under the Carriage Regulations (information on driver training requirements can be found on the Dangerous Goods Division website of the Department for Transport (DfT), and those responsible for the movement of the waste should have access to, or be, trained dangerous goods safety advisers (DGSAs).

14.13. In addition, transport regulations require that all those in the transport chain involved in the transport of dangerous goods receive appropriate training commensurate with their responsibilities. This would include loaders and packers. Information on general training requirements and DGSAs can be found on the Dangerous Goods Office website.

Delivery of training

14.14. Training can be delivered in a variety of ways depending on the audience. This may include workshops and formal seminars for senior staff and hands-on training in the workplace for smaller groups. The training can serve to educate staff and should include for each group:

- information on, and justification for, all aspects of healthcare waste policy
- information on the role and responsibilities of each healthcare staff member in implementing the policy
- technical instructions, relevant for the target group, on the application of waste management practices

15. Waste audits

Purpose of audit

15.1. Waste audits are an essential tool in assessing the composition of a waste stream for the purpose of duty of care and for monitoring waste segregation and minimisation schemes. Additionally, NHSScotland's current waste contractor is subject to the producer pre-acceptance audit requirements as set out in the Environmental Agencies guidance on the management of clinical waste - 'How to comply with your environmental permit: additional guidance for clinical waste (extended producer responsibility (EPR) 5.07))', and SEPA's guidance for the storage and treatment of healthcare waste.

15.2. Audit results identify the type and quantity of waste produced. This information can be used to develop and influence waste management policies and procedures. Audits also provide useful information on the composition of waste produced and the results may be used to identify:

- appropriate re-use or recycling options
- opportunities to minimise waste by amending purchasing policies

15.3. Audits play a vital role in demonstrating compliance and regulatory standards. Waste procedures are required, in line with the duty of care, to ensure that waste is effectively segregated, treated and disposed of appropriately.

15.4. Documented evidence from waste audits showing effective segregation demonstrates that the producer is complying with regulations. It also reassures the waste contractor that the waste received is suitable for disposal at the appropriate permitted waste facility. Audit and performance reports should be kept on file to demonstrate compliance required. NHSScotland's current waste contractor may breach their permit requirements and be forced to discontinue service if pre-acceptance audits are not completed, and Scottish Environmental Protection Agency (SEPA) may also be concerned in relation to full compliance if source segregation of wastes of different classifications is not evident and supported by audit documentation.

Frequency of audits

15.5. Audits are recommended prior to developing or updating waste management procedures and at routine intervals to monitor compliance with waste segregation schemes. Additionally, in line with the requirement for pre-acceptance audits set out in EPR 5.07, and SEPAs Storage and Treatment of Healthcare Waste, audits are required by the producer prior to the delivery of the first batch of waste to a permitted facility and then at the following minimum frequencies:

- every 12 months for each healthcare waste producer that produces five tonnes or more of clinical waste in any calendar year. The first audit must cover the whole

premises. Where the audit is satisfactory and identifies consistent practices, the scope of subsequent annual audits can be reduced to cover one third of the units, departments and wards. Each annual report must clearly identify which parts of the premises have been audited. The whole premises must be audited over the 3-year audit cycle

- every two years for each veterinary practice, medical practice, dental practice and laboratory that produces less than five tonnes of clinical waste in any calendar year, with each audit covering the whole premise.
- every five years for other healthcare producers of clinical waste, each audit must cover the whole premise.

15.6. Annual audits also provide a snapshot of waste management practices, while more frequent audits allow procedures to monitor the effectiveness of waste segregation and minimisation initiatives and to take action to remedy non-compliance as soon as practicably possible.

15.7. It is neither practical nor reasonable to expect healthcare producers to audit all waste produced on a site at the same time. Therefore, the use of periodic smaller audits, which over a year build up to provide coverage of all aspects of waste management, is considered best practice.

Scope of audits

15.8. Waste audits need to be carried out by a nominated person who is competent to undertake them or by an experienced and competent waste audit contractor or consultant (however, in this case, the designated waste manager should be in attendance to understand the issues and recommendations from the audit). A team approach is advocated to cover all relevant aspects (for example control of infection). Audits should only be undertaken by persons who are trained in the audit procedure and who are fully aware of the risk and hazards posed by the audit protocol. The audit protocol should be referenced in the waste management policy.

15.9. Audits should cover (at minimum) the following waste types:

- infectious waste (including sharps)
- anatomical wastes
- laboratory wastes (microbiological cultures etc. to which additional controls may apply)
- medicinal waste and medicinally contaminated wastes (including sharps)
- dental amalgam and other mercury containing wastes
- other special (hazardous) wastes (such as chemicals)
- offensive/ hygiene waste
- source-segregated recyclates
- food waste

- the residual waste stream (to verify if effective segregation is taking place)

15.10. Audit procedures for waste should take into account the specific risk posed and the audit procedure should be adapted to minimise exposure to the waste via risk assessment.

Pre-acceptance auditing

15.11. NHSScotland's current waste contractor is subject to the producer Pre-Acceptance Audit (PAA) requirements as set out in SEPA guidance.

15.12. Waste pre-acceptance is the process of assessing the characteristics of a waste to enable a decision to be made about an appropriate disposal/recovery method. Normal waste sampling isn't really possible for clinical/ healthcare wastes due to their hazards (which make handling of the waste inappropriate). This means that clinical/healthcare waste is sampled and assessed at source by inspecting it as its generated and reviewing the processes for its production and subsequent management.

15.13. Failure by a Health Board to provide a current and accurate PAA and/ or failure of the contractor to demonstrate they have possession of a current and accurate PAA could potentially lead to the contractor being in breach of their Permit (such breaches put the entire NHSScotland contract at risk). Failure to provide accurate information or providing false information will lead to waste being rejected by the contractor.

15.14. PAA audits should undertaken at the frequency stated in 15.5 (as a minimum) and be recorded in a format that is agreed and acceptable to the waste contractor (and these records retained for a period of 5 years).

Audit techniques

15.15. There are various methods that can be used to audit a waste stream. The type and effectiveness of the audit undertaken depends on the nature of the waste stream and the purpose of the audit. To audit the entire waste stream, more than one audit method may be required.

15.16. An audit protocol containing four audit tools commonly used for healthcare waste is shown in Table 19, below. The table provides a guide to the approach for auditing different waste streams.

Table 15.1 - Comparison of commonly used audit tools for healthcare waste

Type of audit	Sharps boxes application	Infectious waste application	Cytotoxic/ cytostatic substances application	Waste medicines application	Offensive/ hygiene waste application
Audit observation	Yes	Yes	Yes	Yes	Yes

Type of audit	Sharps boxes application	Infectious waste application	Cytotoxic/ cytostatic substances application	Waste medicines application	Offensive/ hygiene waste application
and recording of practice					
Observation of waste receptacles	Yes	Yes	Yes	Yes	Yes
Staff questionnaire	Yes	Yes	Yes	Yes	Yes
Detailed examination of waste	No	No	No	No	(Yes)*

* Yes, where it can be practicably achievable with an appropriate risk assessment

15.17. The audit should be representative of:

- the full range of waste receptacles in use
- the full range of departments where waste is produced
- all staff who may produce waste

Observation and recording of practice

15.18. Audits should involve a review of staff waste management practices and, in particular, the effectiveness of segregation procedures.

15.19. The audit entails the observation, recording and classification of each waste item as it is placed into a receptacle.

15.20. The final step in the audit is to confirm that the correct paperwork, for example consignment note or transfer note accompanying the waste when it leaves the premises, reflects the audit findings. This applies to all waste types, including hazardous waste, and should be carried out once a year at minimum.

Observation of waste receptacles

15.21. This provides a mechanism of spot checks intended to underpin the observation and recording of practice.

15.22. In-use receptacles are visually inspected without removing the waste. For example, the contents of a sharps box can be viewed from the aperture or opening on the box.

15.23. Receptacle observation applies to all waste types, including special (hazardous) waste, and should be carried out at a minimum frequency of once per quarter.

Detailed examination of waste

15.24. Detailed waste analysis is used to determine the nature and composition of waste materials and involves the manual sorting of waste to determine the effectiveness of segregation procedures.

15.25. Audit procedures should take into account the specific risks posed and risk assessments undertaken to reduce exposure to the waste, so far as is reasonably practicable. Exposure to the identified risks should be prevented. The use of personal protective equipment should be considered as additional to other control measures, when necessary, to control exposure adequately.

Staff questionnaire

15.26. Staff understanding and practice can be audited by the use of questionnaires. These can be used to target specific areas or may be used randomly. Questionnaires may be used to review staff practice for all waste types including hazardous waste. The main use of this tool is to identify issues for, and to establish, staff awareness.

Note 24: with regard to the effectiveness of segregation practice or waste composition, questionnaires do not provide sufficient information for use in completing waste documentation or in demonstrating compliance.

Undertaking audits

15.27. Audits should only be undertaken by staff that have been trained in the audit procedure and are fully aware of the risk and hazards posed by the waste audit protocol. The audit protocol should be stated in the Board's waste management procedures.

15.28. A detailed method statement should be produced for each audit tool clearly stating the following:

- who should undertake the audit
- what is included within the audit
- how the audit should be undertaken
- the method of recording and reporting the findings of the audit
- the management responsibility and mechanism to act on the findings

15.29. The method statement should also state any inherent risks and the control measures required, for example personal protection equipment required.

Waste audit trails and due diligence

15.30. Under environmental legislation, waste producers have a 'cradle-to-grave' responsibility for the control, management and disposal of their waste. To be sure that waste is being disposed of at appropriately licensed facilities in accordance with duty-of-care requirements and with local waste management procedures, it is recommended that

waste producers undertake a waste audit trail, at least every year. This will entail checking the route of the waste from collection to leaving the site, through to final disposal. Audit trails may be undertaken more frequently if circumstances require.

Use of contractors

15.31. Commercial contractors and consultants may be used to undertake waste audits. Producers are advised to consider the following:

- the producer is responsible for the health and safety of contractors working on their site
- waste removed from the site for the purpose of an audit should comply with relevant waste and transport legislation
- the organisation conducting the audit should not be affected by the outcome. Conflicts of interest should be avoided

References and information sources

Note 25: whilst the information below seeks to list all documents and legislation referred to and in the order used in Scottish Health Technical Note (SHTN) 03-01 this list should not be relied upon as being comprehensive or exhaustive for full legal compliance or requirement purposes. Additionally, the links provided, whilst correct at time of publication (October 2023), may become broken or be subject to change when original source websites, legislation or publications are updated.

1. Special Waste Amendment (Scotland) Regulations 2004
2. Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009
3. Waste (Scotland) Regulations 2012
4. Guidance for the-storage and treatment of healthcare waste
5. Zero Waste Plan (2010)
6. Environmental Protection Act 1990
7. Pollution Prevention and Control (Scotland) Regulations 2012
8. Landfill (Scotland) Regulations 2003
9. Waste Management Licensing (Scotland) Regulations 2011
10. Duty of Care - A Code of Practice (Oct 2012)
11. Section 34 of the Environmental Protection Act 1990
12. Controlled Waste Regulations 1992 (Schedule 2)
13. Control of Substances Hazardous to Health Regulations (COSHH) 2002
14. Management of Health and Safety at Work Regulations 1999
15. Safe working and the prevention of infection in clinical laboratories and similar facilities
16. Health and Safety (Consultation with Employees) Regulations 1996
17. Safety Representatives and Safety Committees Regulations 1977
18. Genetically Modified Organisms (Contained Use) Regulations 2000
19. Ionising Radiations Regulations 1999
20. The Public Contracts (Scotland) Regulations 2012
21. Utilities Contracts (Scotland) Regulations 2012

22. Technical guidance WM3. Guidance on the classification and assessment of waste (1st Edition V1.1GB Jan 2021)
23. Misuse of Drugs Regulations 2001 (as amended)
24. Misuse of Drugs (Safe Custody) Regulations 1973
25. Medical Devices Regulations 2002
26. Radioactive Substances Act 1993
27. Radioactive Material (Road Transport) Regulations 2002
28. Ionising Radiations Regulations 2004
29. Managing infection risks when handling the deceased
30. Controlled Waste Regulations 1992
31. Waste Electrical and Electronic Equipment Regulations 2013
32. Sterilization (SHTM 2010) | National Services Scotland (nhs.scot)
33. Decontamination - Washer-disinfectors (SHTM 2030) | National Services Scotland (nhs.scot)
34. Genetically Modified Organisms (Contained Use) Regulations 2000
35. Animal By-Products (Scotland) Regulations 2003
36. Technical guidance on composting
37. Social Security (Claims and Payments) Regulations 1979
38. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013

Glossary

Advisory Committee on Dangerous Pathogens (ACDP) - ACDP advises the Health and Safety Commission, the Health and Safety Executive, health and agriculture ministers and their counterparts under devolution in Scotland, Wales and Northern Ireland, as required, on all aspects of hazards and risks to workers and others from exposure to pathogens.

Approved Code of Practice (ACoP) - Approved by the Health and Safety Commission, with the consent of the Secretary of State, an ACoP gives practical advice on how to comply with the law. An ACoP has a special legal status. If someone is prosecuted for a breach of health and safety law, and it is proved that they did not follow the relevant provisions of an ACOP, they will need to show that they have complied with the law in some other way, or a court will find them at fault.

Accord relatif au transport international des marchandises dangereuses par route (ADR) - Agreement concerning the international carriage of dangerous goods by road.

Authorisation - Generic term used to denote that a regulatory agency has granted an approval.

Biodegradable waste (also referred to as organic waste) - Waste which can be broken down by micro-organisms and other living things, for example waste suitable for anaerobic digestion and/ or composting.

Category A/ Category B - Classification of infectious substances, in line with the 'Carriage Regulations' (the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 address transport of substances by road or rail).

Clinical waste - Waste that is clinical waste, as defined by the Controlled Waste Regulations 1992.

Culture - Cultures (laboratory stocks) are the result of a process by which pathogens are intentionally propagated.

Cytotoxic and cytostatic - Classification of hazardous medicinal waste used in the Special Waste (Amendment) Regulations 2004 and WM3 guidance.

Dangerous Goods - Substances with intrinsic hazards posing a potential risk to persons or the environment while in the transport chain.

Defra - (UK) Department for Environment, Food and Rural Affairs.

Diagnostic specimen - A specimen collected from a human or animal for the purpose of research, diagnosis, investigational activities, disease treatment or prevention.

Duty of Care - When used in relation to waste management, this term refers to the statutory responsibilities of individuals and organisations.

Environment Agency (EA) - Regulator responsible for environmental regulation (including waste) in England.

European Waste Catalogue (EWC) - The EWC is a hierarchical list of waste descriptions established by European Commission decision 2000/532/EC. It is divided into 20 main chapters. Each of these has a two-digit code between 01 and 20. Chapters have one or more subchapters (with four-figure codes, the first two of which are the two digits of the chapter). Within these there are codes for individual wastes, each of which is assigned a six-figure code. Special (hazardous) wastes are signified by entries where the code is followed by an asterisk. Also known as the List of Wastes in England and Wales.

Food waste - Unwanted food from patients, staff and visitors.

Hazardous waste - Waste classified as hazardous in accordance with the Hazardous Waste and List of Wastes Regulations 2005, applicable in England, Wales and Northern Ireland. The term 'hazardous waste' has identical meaning to the term 'special waste' used in Scotland in accordance the Special Waste Regulations 1996 (as amended).

Healthcare waste - Waste from natal care, diagnosis, treatment or prevention of disease in humans/animals. Examples of healthcare waste include:

- infectious waste
- laboratory cultures
- anatomical waste
- sharps waste
- medicinal waste
- laboratory chemicals
- offensive/human hygiene waste from wards or other healthcare areas

Health and Safety Executive (HSE) - Regulator responsible for health and safety in the workplace in Great Britain.

Health and Safety Executive for Northern Ireland (HSENI) - Regulator responsible for health and safety in the workplace in Northern Ireland.

Infectious waste - Waste that possesses the hazardous property "HP9: Infectious" – that is, substances containing viable micro-organisms or their toxins, which are known, or reliably believed, to cause disease in man or living organisms.

Licence - Approval or consent issued by a regulator for a specified activity.

Mechanical biological treatment (MBT) - Further detail is available on the Chartered Institution of Wastes Management (CIWM) website.

Medicinal waste - Medicinal waste includes expired, unused, spilt, and contaminated pharmaceutical products, drugs, vaccines, and sera that are no longer required and need to be disposed of appropriately. The category also includes discarded items used in the handling of pharmaceuticals, such as primary packaging contaminated with residues, gloves, masks, connecting tubing, syringe bodies, and drug vials. Some licensed medicinal products are not pharmaceutically active and possess no hazardous properties (examples include saline, glucose and sterile water). These wastes are not considered to be special (hazardous) waste.

Metabolite - Any substance that takes part in a chemical reaction in the body.

Municipal solid waste (MSW) - Defined by Scottish Environment Protection Agency (SEPA) is local authority collected municipal waste plus commercial and industrial waste similar to that generated by households which is collected by commercial operators (for example not by or on behalf of a local authority). This is the definition which will be used by Scotland and the UK for reporting against EU landfill diversion targets. It includes all waste types included under European Waste Catalogue Code 20 and some wastes under Codes 15 and 19.

Northern Ireland Environment Agency (NIEA) - Regulator responsible for environmental regulation (including waste) in Northern Ireland.

Offensive/ human hygiene waste - Offensive/ hygiene waste is waste that:

- infectious waste
- laboratory cultures
- anatomical waste
- sharps waste
- medicinal waste
- laboratory chemicals
- offensive/ human hygiene waste from wards or other healthcare areas

Organic waste (also referred to as biodegradable waste) - Waste which can be broken down by micro-organisms and other living things, for example waste suitable for anaerobic digestion and/ or composting.

Permit - Approval or consent issued by a regulator for a specified activity.

Pharmaceutically active - Pharmaceutically active products have hazardous properties and include, but are not limited to, cytotoxic and cytostatic medicinal wastes (special waste). Examples of non-active pharmaceutical products include saline, glucose and sterile water.

Pollution Prevention and Control (PPC) - This is a regime for controlling pollution from certain industrial activities.

Residual waste - The fraction of waste that remains once all special waste, recyclates, and food have been removed at source. This is typically described as 'black bag' or 'clear bag' waste depending on local arrangements.

Règlemant concernant le transport international ferroviaire des marchandises dangereuses (RID) - Regulations concerning the international carriage of dangerous goods by rail.

Radiation Protection Advisor (RPA) - Appointed person to advise on the use and management of radioactive substances, in line with the Ionising Radiations Regulations.

Sanpro - Sanitary products waste, now known as offensive/human hygiene waste. It includes feminine hygiene products, incontinence pads, etc. and is not 'clinical waste', 'hazardous' or 'special waste' in Scotland.

Scottish Environment Protection Agency (SEPA) - Regulator responsible for environmental regulation (including waste) in Scotland.

Sharps - Sharps are invasive items that could cause cuts or puncture wounds. They include needles, hypodermic needles, scalpels and other blades, knives, infusion sets, saws, broken glass, and nails. There are two primary sources:

- those used in animal or human patient care/treatment
- those arising from non-healthcare community sources, for example body piercing and decoration, and substance abuse

Source-segregated recyclates - Materials separated at source with the intention of recycling, these include (but are not limited to): paper, card, plastic, cans and other metals suitable for recycling

Special waste - Waste classified as special in accordance with the Special Regulations 1996 (as amended). The term 'special waste' has identical meaning to the term 'hazardous waste' used in England, Wales and Northern Ireland in accordance with the Hazardous Waste and List of Wastes Regulations 2005.

Waste electrical and electronic equipment (WEEE) - as defined by the Waste Electrical and Electronic Equipment Regulations 2013.

WM3 - Technical document produced by the Environment Agency (EA), Scottish Environment Protection Agency (SEPA), Natural Resource Wales (NRW) and the Northern Ireland Environment Agency (NIEA) to provide guidance on the assessment and classification of special (hazardous) waste based on the Waste Framework Directive definition.

Abbreviations

A&E	Accident and Emergency
ACDP	Advisory Committee on Dangerous Pathogens
ACoP	Approved Code of Practice
AD	Anaerobic Digestion (of food waste)
ADR	Accord relatif au transport international des marchandises dangereuses par route
AH	Absolute Hazardous
AN	Absolute Non Hazardous
BMW	Biodegradable Municipal Waste
BOD	Biological oxygen demand
BS	British Standards
CEL	Chief Executive Letter
CHP	Combined heat and power
CIWM	Chartered Institution of Wastes Management
COSHH	Control of Substances Hazardous to Health Regulations
DfT	Department for Transport
DGSA	Dangerous goods safety adviser
EA	Environment Agency
EDOC	Electronic Duty of Care
EfW	Energy from waste
ELV	End-Of-Life Vehicles
EPR	Extended Producer Responsibility
EWC	European Waste Catalogue
GM	Genetically modified
GMM	Genetically modified micro-organism
GMO	Genetically modified organism
HP	Hazardous Properties

HSE	Health and Safety Executive
HSENI	Health and Safety Executive for Northern Ireland
IBC	Intermediate Bulk Container
IMDG	International Maritime Dangerous Goods
IVC	In-vessel composting
LQ	Limited quantity
MBT	Mechanical biological treatment
MHT	Mechanical heat treatment
MRF	Materials recovery facility
MSW	Municipal solid waste
NIPCM	National Infection Prevention Control Manual
NIEA	Northern Ireland Environment Agency
N.O.S.	Not otherwise specified
NSS	NHS National Services Scotland
PAA	Pre Acceptance Audit
POPs	Persistent Organic Pollutants
PPC	Pollution Prevention and Control
PPE	Personal Protective Equipment
RDF	Refuse-derived fuel
RID	Règlemant concernant le transport international ferroviaire des marchandises dangereuses
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
RPA	Radiation Protection Advisor
SACGM	Scientific Advisory Committee for Genetic Modification
SDS	Safety Data Sheets.
SEPA	Scottish Environment Protection Agency
SHTM	Scottish Health Technical Memorandum
SHTN	Scottish Health Technical Note
SWCN	Special Waste Consignment Note

TSE	Transmissible spongiform encephalopathy
UN	United Nations
vCJD	Variant Creutzfeldt-Jakob disease
VOSA	Vehicle Operator Services Agency
WEEE	Waste electrical and electronic equipment
WMSG	Waste Management Steering Group