The assessment and classification of waste packaging

Industry guidance for assessing whether packaging to be taken offsite is waste or not and if waste, whether it is waste packaging or not and whether it should be classified as hazardous or non-hazardous

WP1 Rev 1 May 2018

This guidance was developed by trade associations representing companies operating in the chemicals supply chain that use packaging. The Environment Agency, Natural Resources Wales and Scottish Environment Protection Agency have welcomed the development of this guidance and have agreed to its adoption in England, Wales and Scotland.

Industry assessment and classification of waste packaging

Contents

1 Executive Summary

1.1 Companies that produce waste from their operations must assess and classify their wastes in accordance with the Environment Agency's Technical Guidance WM3[1]. WM3 provides comprehensive technical guidance on the assessment and classification of all wastes which fall within the scope of the European Waste Framework Directive.

1.2 This document, which is intended to be complementary to WM3, focuses on waste packaging (containers, ranging from bags, boxes, bottles and tins to kegs, barrels, drums, and IBCs) and includes a flow chart for assessing whether packaging to be taken offsite is waste or not and, if it is waste, whether it is waste packaging or not and whether it should be classified as hazardous or non-hazardous. It does not cover pallets in its scope.

1.3 This document in particular gives guidance on a method for the assessment and classification of effectively empty packaging containing residues that contain hazardous substances which allows companies to classify such waste packaging as non-hazardous, subject to certain criteria being met. This method allows for the weight of the packaging to be taken into account in assessing whether it should be classified as hazardous or non-hazardous and is referred to in this document as the 'Packaging and residue' method. Use of this method takes time and resources but the option to classify such packaging as non-hazardous may be of sufficient value to some producers of waste packaging to justify its use.

1.4 The assessment process is shown in the flowchart in Section 2 below. This is supported with detailed guidance later in the document.

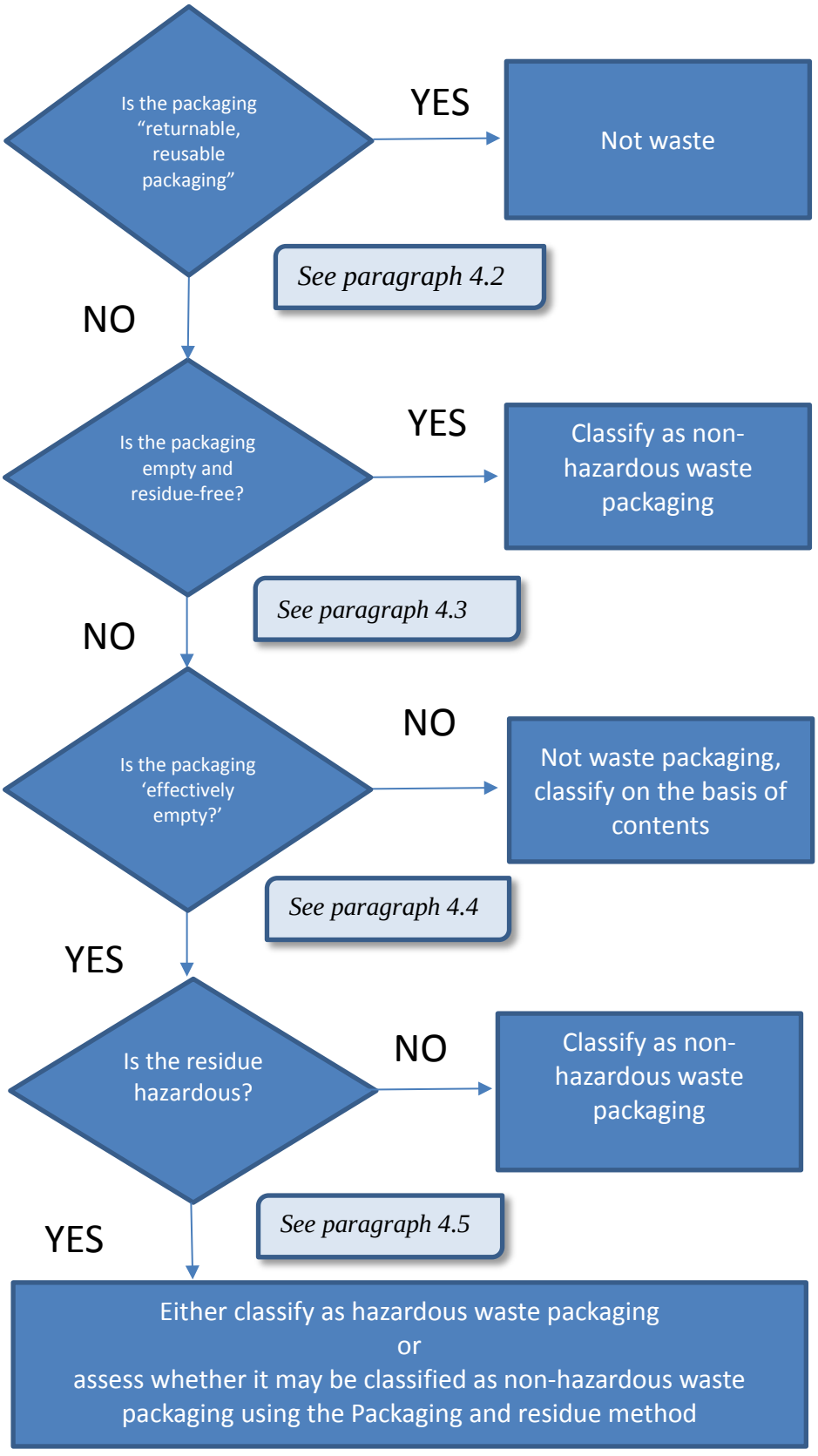
1.5 A template is provided to assist in the assessment process. It is not compulsory to use this format.

1.6 Companies have a duty of care to ensure that they have the correct permits or exemptions in place, that waste is correctly classified, stored and handled safely and securely, is moved safely in accordance with the carriage of dangerous goods regulations and that any business they use to deal with their waste is licensed. Waste producers may be asked to provide some evidence to either inspectors or waste handlers that the waste has been correctly assessed and handled. In addition, companies have a duty of care towards the health and safety of those further along the waste chain.

[1] https://www.gov.uk/government/publications/waste-classification-technical-guidance

2 Assessment and classification flow chart

The flow chart for assessing whether packaging to be taken offsite is waste or not and, if waste, whether it is waste packaging or not and whether it should be classified as hazardous or non-hazardous is shown below:



3 Definitions

3.1 Throughout this document, the terms 'hazardous waste' and 'List of Wastes' are used in respect of England, Northern Ireland and Wales. In relation to legislation applicable in Scotland, the terms 'special waste' and 'Special Waste (Amendment) Regulations' should be substituted.

3.2 'Returnable reusable packaging'

Reusable packaging may be waste in certain scenarios. Where a reusable container is:

- *designed to be re-used; and*
- *intended and destined to be re-used; and*
- *is 'effectively empty', and*
- *requires only simple rinsing out,*

then it is not likely to be waste.

Indicators that packaging may be waste include a package that:

- *is not reusable*
- *requires treatment other than simple rinsing to remove chemical residues*
- *is not 'effectively empty'*
- *is damaged and requires repair before it can be re-used*

Note: "Loads of multiple containers should not contain mixed types of packaging such as returnable reusable packaging, part re-usable packaging and waste packaging unless clearly segregated.

3.3 'Effectively Empty'

The packaging has been treated in such a way that all reasonable efforts have been made to remove any left-over contents from the packaging, by applying normal industrial standards or processes, or, if the packaging is sealed, has been designed in such a way so that the residue when the packaging has been emptied is minimal. Normal industrial standards or processes for treating packaging that is not sealed may involve, for example, washing, pouring, draining or scraping. The method of emptying will depend on the industrial sector, the packaging and the type of material it contains. These processes may also leave a residue of the original contents within the packaging.

Means of emptying packaging:

- Pouring
- Open Pumping
- Closed pumping
- Draining
- Pressure emptying
- Follower plates/press discharging.
- Pre-heating
- Heating
- Secure Incline (Gravity)
- Manual/Mechanical grab for solid items
- Complete Removal of Bag or other internal liner
- Scraping – Open Head Packagings only
- Washing

Regarding powders, the use of bag shakers/massagers to remove the powder from FIBCs or tipping and shaking of smaller bags would constitute 'all reasonable efforts' and the package would be considered 'effectively empty'.

3.4 Additionally, for the packaging to be considered 'effectively empty', any contamination on the outside of the packaging must be minimal. Likewise, whether or not packaging is absorbent needs to be considered as any contents absorbed by the packaging prior to its being rendered "effectively empty" may contribute to the weight of each hazardous substance present in the residue and would need to be included as part of the "residue" for calculation purposes, just as contamination on the outside should be.

3.5 The term 'packaging' is used throughout this document to mean any bag, box, bottle, tin, keg, barrel, drum, IBC, etc.

3.6 Throughout this document it is assumed that the packaging itself does not need to be classified as hazardous.

4 Assessment Steps in Detail

Step 1 - Determine whether packaging is waste

4.1 Is the packaging to be discarded? If not, it is not waste. A substance or object only becomes waste when it is discarded, within the meaning of the waste regulations.

4.2 If the packaging is 'returnable, reusable packaging' it is not waste (see 3.2).

Step 2 - Determine whether it is waste packaging

4.3 If a container is completely empty and residue-free inside, and additionally free from contamination on the outside, then it may be classified as non-hazardous waste packaging using the relevant List of Waste code, for example 15 01 02, plastic packaging, in the list shown in **Annex 2**.

Note: The term 'contamination' means a residue on the outside of the packaging. It should be included as part of the 'residue' for any calculations.

4.4 Is the packaging 'effectively empty'? If not, such as a part-filled container, it is not waste packaging. It should be classified as waste on the basis of the contents.

Step 3 – If effectively empty, is the waste packaging hazardous?

4.5 If either the residue inside, or any contamination on the outside of, an 'effectively empty' container possesses a hazardous property, two options are available for the classification of the waste packaging, the 'Presence/absence' and 'Packaging and residue' methods (a full assessment of the residues, involving the quantification of the substances present and their hazards).

The 'Presence/absence' method

4.6 If either the residue inside, or any contamination on the outside, of an 'effectively empty' container possesses a hazardous property, then it can be classified as hazardous waste packaging without any further assessment using the List of Waste code 15 01 10* 'Packaging containing residues of or contaminated by hazardous substances', shown in **Annex 2.**

The 'Packaging and residue' method

4.7 The alternative method to determine whether waste packaging that is 'effectively empty' is hazardous or non-hazardous is by an assessment of whether individual substances cause the waste packaging to be hazardous. A template is provided to help in this procedure (see **Annex 3**)

4.8 The CLP[2] classification, including hazard statements, of each hazardous substance present in the residue or contamination should be identified. This can be obtained from Section 3 of the safety data sheet (e.g. raw materials or finished products) or from knowledge of the composition (e.g. intermediates/process wastes).

4.9 For physical hazards (HP1 Explosive, HP2 Oxidising, HP3 Flammable) the waste packaging will be hazardous if the package is contaminated with residues of a product (substance or mixture) that was classified with relevant hazard statements. Only if the composition of the residues differs from those of the original product should the residues be retested for these properties.

4.10 For health hazards, the concentration of the substance in the waste packaging should be compared to the relevant thresholds. Table 2 in **Annex 1** (reflecting Annex C of WM3) lists all CLP hazard statements, classes and categories and hazardous properties, together with concentration thresholds expressed as a percentage of the waste and cut-off values*.

Note: Some hazard classes have cut-off values (see Table 2). An individual substance present at a concentration below this cut off value does not need to be included in the assessment.*

4.11 Concerns over inadequate controls and record keeping associated with its use led to the removal, from earlier Technical Guidance WM2, of the option to take the weight of the packaging into account when assessing whether this should be classified as hazardous or non-hazardous. Its re-introduction comes with the proviso that adequate controls are put in place and adequate records are maintained to be able to demonstrate that waste packaging assessed using this method has been correctly assessed and classified.

4.12 Therefore, to calculate the concentration of hazardous substances, the weight of the packaging both with and without residue must be known, as well as the weight of each hazardous substance in that residue.

[2] Regulation (EC) No. 1272/2008[2] on the classification, labelling and packaging of substances and mixtures

4.13 For certain classes of hazardous substances, the thresholds are so high that it is unlikely for these to be exceeded if a packaging has been 'effectively emptied' (see Table 1). Therefore, once evidence has built up that containers are consistently non-hazardous, simpler or less frequent checks could be adopted. However, it will still be necessary to confirm that the packaging is 'effectively empty' in all cases by the use of a regular sampling programme (see paragraphs 4.15 - 4.21). Assessment/sampling results should be recorded.

For example, if a producer has assessed the waste packaging and knows that an empty clean package weighs a minimum of 54kg, and the residue is a hazardous substance with a 10% hazardous waste threshold, checking that the weight of a container with residue is <60Kg would be a reasonable method to classify the packaging as non-hazardous.

Table 1: Lower hazard residues: assessment of waste packaging

Hazardous Property	Hazard Class	Hazard Statement Codes	Concentration Threshold (%)
HP4 Irritant See WM3 for mixtures with pH <2 or >11.5	Eye dam. 1	H318	≥10%
	Skin irrit. 2 + Eye irrit. 2	H315 + H319	≥20%
HP5 STOT / Aspiration Toxicity	STOT SE 2	H371	≥10%
	STOT SE 3	H335	≥20%
	STOT RE 2	H373	≥10%
	Asp. Tox. 1	H304	≥10%
HP6 Toxic	Acute Tox 4 (Oral)	H302	≥25%
	Acute Tox. 3 (Dermal)	H311	≥15%
	Acute Tox 4 (Dermal)	H312	≥55%
	Acute Tox. 4 (Inhal.)	H332	≥22.5%
HP 13 Sensitising		H317 H334	≥10%

4.14 For the other hazardous properties, an assessment must be carried out as below.

Package weight assessment

4.15 The weight of the packaging should be assessed. Whilst, in some cases it may be appropriate to weigh individual packaging, in many this will not be practically feasible. In such instances, an approximation method may be used.

4.16 If all packages being used are the same, a minimum representative weight can be determined and used. This weight should be checked regularly to ensure no changes have occurred.

4.17 If different package types are used, e.g. when emptying raw materials, the weight of each package type can be determined by contacting the supplier, carrying out a sampling programme or using minimum weights, as ascertained by sampling. These should be reassessed regularly to ensure no changes occur.

4.18 It may be possible to ascertain the minimum weight that a packaging of a certain size will ever be, by an accurate sampling programme (which will need to be re-verified occasionally). These minimum weights should be conservative enough to give confidence that they will not be exceeded in practice.

4.19 The procedure is likely to be producer, product and packaging type dependent. Supporting data will need to be kept in case of inspection.

4.20 A procedure should be set up to ensure that treatment such as draining or scraping out of packaging can be done systematically. This will allow standardised figures to be used for residue levels for various types of materials, avoiding the need to take continual measurements. The procedure needs to provide for the identification of non-conforming packagings.

4.21 A sampling programme can be established to show that packagings are always effectively emptied by the process and that any remaining hazardous substances are always below the relevant thresholds.

Substance weight assessment

4.22 The weight of each hazardous substance in the residue should be assessed. If the weight percentage for the substance in the residue is below the cut-off value, it can be excluded from the calculation. Note that any Persistent Organic Pollutants (POPs) present in the waste should also be assessed as in WM3.

4.23 The assessment should be justifiable to inspectors and should be carried out in a statistically significant manner in accordance with Appendix D of WM3

4.24 The weight of each hazardous substance in the residue should be divided by the combined weight of the residue and packaging for the relevant hazardous property.

4.25 Some hazard categories are additive and all the substances with such a Hazard Statement Code should be aggregated. Some hazard categories are non-additive and require substances to be assessed individually (see Table 2).

4.26 The resultant concentration (%) should be compared against the relevant hazardous property threshold given in Annex C of WM3 – (see Table 2, **Annex 1)**. Some hazard classes may need to be considered against more than one hazardous property, as described in Appendix C of WM3.

4.27 If any hazardous property threshold is met or exceeded, the packaging will be hazardous waste packaging. If below the threshold, it will be non-hazardous. The most appropriate List of Waste Code can then be allocated.

[*Note: waste classification is subtly different from the supply classification. Waste classification uses the individual substance information e.g. from Section 3 of the safety data sheet rather than the mixture classification and compares the concentration of each against thresholds for the different hazard categories. The exception is physical hazards (e.g. flammability, where the two schemes are the same).*

4.28 Bear in mind the need to classify what is left in the residue, which may be different from the original contents. For instance, only hazardous constituents still present need to be considered e.g. if the residue is dry, assume 100% evaporation of any volatile hazardous substances. However, assessment of waste is legally required and the concentration of any remaining hazardous substances should be assessed. WM3 Step 4 gives guidance on determining the chemical composition of only partly known waste material.

4.29 As an example, a paint container, where the only hazard of the liquid material was flammability and the residue has fully dried, and none of the remaining components of the residue are hazardous substances, then the packaging can be classified as waste packaging e.g. 15.10 02 (plastic packaging) or 15 10 04 (metallic packaging) from the List of Wastes.

5 Record Keeping and Verification

5.1 Whatever method is used, regulators and waste contractors may require verification that waste packaging has been correctly assessed and handled. Assessments must be reviewed and updated regularly to pick up any relevant changes relating to:

- Material specification
- Supplier
- Substance classification
- Packaging design/weight
- Method of emptying

5.2 Therefore, companies need to maintain records of the assessments carried out and any sampling programmes used.

5.3 Records should also be made and kept up to date to reflect any on-site treatment and subsequent disposal or recovery. A tracking system should be implemented that operates as a waste inventory/stock control system and includes as a minimum:

- Details of the waste packaging by package type and size.
- Date of assessment.
- Any unique reference number.
- Assessment results – i.e. hazardous or non-hazardous waste.

5.4 Records should be held for a minimum of two years for non-hazardous waste, and three years for hazardous waste, after the waste packaging and any residue have been treated or removed off-site.

5.5 Consignment notes and waste transfer notes must also be retained, along with records from the consignee, where relevant.

Annex 1 Waste Packaging Hazard Classification

Table 2: Hazard classes and categories and concentration thresholds (from Appendix C of WM3)

Note:

- All assessments of hazardous properties must, ultimately, comply with the requirements of Appendix C of WM3, however, the information presented here may help clarify this.
- 'Additive' means that the concentration of all hazardous substances with this hazard statement are added together to compare to the threshold
- 'Individual' means that the concentration of each individual hazardous substance with this hazard statement are compared to the threshold separately
- Substances present in the residue below the cut-off value for that hazard can be excluded from the assessment (see 4.10)

Hazardous Property	Hazard Class and Category	Hazard Statement Code	Cut-off value	Concentration Threshold
HP1 Explosive See WM3: C1	Unst. Expl.	H 200	None	If the residue contains one or more substances assigned to one of these hazard statements, either test residue or assume the packaging is hazardous
	Expl. 1.1	H 201		
	Expl. 1.2	H 202		
	Expl. 1.3	H 203		
	Expl. 1.4	H 204		
	Self-react. A Org. Perox. A	H 240		
	Self-react. B Org. Perox. B	H 241		
HP2 Oxidising See WM3: C2	Ox. Gas 1	H 270	None	If the residue contains one or more substances assigned to one of these hazard statements either test residue or assume the packaging is hazardous
	Ox. Liq. 1	H 271		
	Ox. Sol. 1			
	Ox. Liq. 2 Ox. Liq. 3	H 272		
HP3 Flammable See WM3: C3	Flam. Gas 1	H220	None	If the residue contains one or more substances assigned to one of these hazard statements either test residue or assume the packaging is hazardous
	Flam. Gas 2	H221		
	Aerosol 1	H222		
	Aerosol 2	H223		
	Flam. Liq. 1	H224		
	Flam. Liq.2	H225		
	Flam. Liq. 3	H226		
	Flam. Sol. 1	H228		
	Flam. Sol. 2			
	Self-react. CD	H242		
	Self-react. EF			
	Org. Perox. CD			
	Org. Perox. EF			
	Pyr. Liq. 1	H250		
	Pyr. Sol. 1			
	Self-heat.1	H251		
	Self-heat. 2	H252		
	Water-react. 1	H260		
	Water-react. 2	H261		
	Water-react. 3			

HP4 Irritant See WM3 C4 See WM3 for residue with pH <2 or >11.5	Skin corr. 1A	H314	1%	≥1%<5% (Additive) If >5% see HP8
	Eye dam. 1	H318	1%	≥10% (Additive)
	Skin irrit. 2 + Eye irrit. 2	H315 + H319	1% 1%	≥20% (Additive)
HP5 STOT / Aspiration Toxicity See WM3 C5	STOT SE 1	H370	None	≥1% (Individual)
	STOT SE 2	H371		≥10% (Individual)
	STOT SE 3	H335		≥20% (Individual)
	STOT RE 1	H372		≥1% (Individual)
	STOT RE 2	H373		≥10% (Individual)
	Asp. Tox. 1	H304		≥10% (Additive)
HP6 Toxic See WM3 C6	Acute Tox.1 (Oral)	H300	0.1%	≥0.1% (Additive)
	Acute Tox. 2 (Oral)	H300	0.1%	≥0.25% (Additive)
	Acute Tox. 3 (Oral)	H301	0.1%	≥5% (Additive)
	Acute Tox 4 (Oral)	H302	1%	≥25% (Additive)
	Acute Tox.1 (Dermal)	H310	0.1%	≥0.25% (Additive)
	Acute Tox.2 (Dermal)	H310	0.1%	≥2.5% (Additive)
	Acute Tox. 3 (Dermal)	H311	0.1%	≥15% (Additive)
	Acute Tox 4 (Dermal)	H312	1%	≥55% (Additive)
	Acute Tox 1 (Inhal.)	H330	0.1%	≥0.1% (Additive)
	Acute Tox.2 (Inhal.)	H330	0.1%	≥0.5% (Additive)
	Acute Tox. 3 (Inhal.)	H331	0.1%	≥3.5% (Additive)
	Acute Tox. 4 (Inhal.)	H332	1%	≥22.5% (Additive)
HP7 Carcinogenic See WM3 C7	Carc. 1a Carc. 1b	H350	None	≥0.1% (Individual)
	Carc. 2	H351		≥1.0% (Individual)
HP8 Corrosive See WM3 C8 See WM3 for residue with pH <2 or >11.5	Skin corr.1A, 1B or 1C	H314	1%	≥5% (Additive) but if >1% see HP4
HP9 Infectious See WM3 C9			None	If the residue contains one or more substances assigned this hazard statements the packaging is hazardous
HP10 Toxic for reproduction See WM3 C7	Repr. 1A Repr. 1B	H360	None	≥0.3% (Individual)
	Repr. 2	H361		≥3.0% (Individual)

HP11 Mutagenic See WM3 C11	Muta. 1A, Muta. 1B	H340	None	≥0.1% (Individual)
	Muta. 2	H341		≥1.0% (Individual)
HP12 Release of an acute toxic gas See WM3 C12	(Acute Tox. 1,2 or 3)	EUH029, EUH031 and EUH032	None	See WM3 Appendix C12
HP13 Sensitizing See WM3 C13		H317, H334	None	≥10% (Individual)
HP14 Ecotoxic See WM3 C14	Aquatic Acute 1	H400	0.1%	See WM3 Appendix C14
	Aquatic Chronic1	H410	0.1%	
	Aquatic Chronic 2	H411	1%	
	Aquatic Chronic 3	H412	1%	
	Aquatic Chronic 4	H413	1%	
	Ozone	H420	Not available	
HP15 Capable of yielding another substance See WM3 C15	May mass explode in fire	H205	None	If the residue contains one or more substances assigned to one of these hazard statements either test residue or assume the packaging is hazardous
	Explosive when dry	EUH001		
	May form explosive peroxides	EUH019		
	Risk of explosion if heated under confinement	EUH044		

Annex 2 List of Waste Codes for Waste Packaging

Chapter 15 of the List of Waste contains the following codes for waste packaging classified as non-hazardous:

Code	Description
15 01	**Packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging

Chapter 15 of the List of Waste contains the following codes for waste packaging classified as hazardous:

Code	Description
15 01	**Packaging (including separately collected municipal packaging waste)**
15 01 10*	packaging containing residues of or contaminated by hazardous substances
15 01 11*	metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers

Annex 3 Waste Packaging Calculation Template

Waste Assessment Tool

To be completed only once the waste packaging has been determined to be effectively empty but with a residue containing hazardous substances. This is available as an interactive spreadsheet:

Description of Packaging:

- Type: (IBC, Steel Drum, Plastic bottle, etc)
- Capacity;
- Packaging identifier (colour, brand etc)

Minimum individual packaging weight (kg) (as determined through baseline assessment): **A**

Combined weight of packaging and residue (kg) (as determined through a baseline assessment): **B**

Weight of residue within the individual packaging item (kg) (as determined through a baseline assessment): **C = B-A**

Identification of residue (Name of original contents, and whether unchanged, etc, where relevant):

Composition of residue (Taken from the SDS of the original contents, or as otherwise determined, see WM3 for guidance):

Hazardous substance in residue	Hazard Statement (HS) Code(s)*	Percentage of hazardous substance in residue (**D**)	Weight of substance (kg) **(E = C x D/100)**	Additive/ Individual
Substance 1				
Substance 2				
Substance 3				
Substance 4				
Substance 5				
Substance 6				

* If substance has more than one HS code, include substance in each relevant line in table below.

If the hazard class/category is listed as 'additive' (see Table 2), the weight (E) for all the components, above any cut-off values, with the same hazard class and category should be combined to give the 'weight of remaining substances present for each hazard' (E_{Total}) in the table below:

$E_{total} = E_{substance\ 1} + E_{substance\ 2}$ +....

If the hazards are 'individual' (see Table 2), the calculation should be carried out for each different substance present above any cut-off value.

Hazardous Property	Hazard Class and Category	Hazard Statement Code	Wt of remaining subs for each hazard E_{total}	Wt subs*100/ wt residue + container E_{total}*100/B %	Cut off limit %	Above Cut-off limit? Y/N	Threshold	Substance present above threshold
HP1 Explosive See WM3: C1	Unst. Expl.	H 200			None		Present?	
	Expl. 1.1	H 201						
	Expl. 1.2	H 202						
	Expl. 1.3	H 203						
	Expl. 1.4	H 204						
	Self-react. A Org. Perox. A	H 240						
	Self-react. B Org. Perox. B	H 241						
HP2 Oxidising See WM3: C2	Ox. Gas 1	H 270			None		Present?	
	Ox. Liq. 1	H 271						
	Ox. Sol. 1							
	Ox. Liq. 2 Ox. Liq. 3	H 272						
HP3 Flammable See WM3: C3	Flam. Gas 1	H220			None		Present?	
	Flam. Gas 2	H221						
	Aerosol 1	H222						
	Aerosol 2	H223						
	Flam. Liq. 1	H224						
	Flam. Liq.2	H225						
HP4 Irritant	Skin corr. 1A	H314			1		≥1%<5 %	If >5% see HP8 See WM3 for residue with pH <2 or >11.5
	Eye dam. 1	H318			1		≥10%	
	Skin irrit. 2 + Eye irrit. 2	H315 + H319			1		≥20%	
HP5 STOT / Aspiration Toxicity	STOT SE 1	H370			0		≥1%	
	STOT SE 2	H371					≥10%	

	STOT SE 3	H335					≥20%	
	STOT RE 1	H372					≥1%	
	STOT RE 2	H373					≥10%	
	Asp. Tox. 1 Note: only relevant if low viscosity - see WM3 C5	H304						
HP6 Toxic	Acute Tox.1 (Oral)	H300			0.1		≥0.1%	
	Acute Tox. 2 (Oral)	H300			0.1		≥0.25%	
	Acute Tox. 3 (Oral)	H301			0.1		≥5%	
	Acute Tox 4 (Oral)	H302			1.0		≥25%	
	Acute Tox.1 (Dermal)	H310			0.1		≥0.25%	
	Acute Tox.2 (Dermal)	H310			0.1		≥2.5%	
	Acute Tox. 3 (Dermal)	H311			0.1		≥15%	
	Acute Tox 4 (Dermal)	H312			1.0		≥55%	
	Acute Tox 1 (Inhal.)	H330			0.1		≥0.1%	
	Acute Tox.2 (Inhal.)	H330			0.1		≥0.5%	
	Acute Tox. 3 (Inhal.)	H331			0.1		≥3.5%	
	Acute Tox. 4 (Inhal.)	H332			1.0		≥22.5%	
HP7 Carcinogenic	Carc. 1a, Carc. 1b	H350			0		≥0.1%	
	Carc. 2	H351			0		≥1.0%	
HP8 Corrosive	Skin corr.1A, 1B or 1C	H314			1.0		≥5%	If > 1% see HP4 See WM3 for residue with pH <2 or >11.5
HP9 Infectious							Present ?	
HP10 Toxic for reproduction	Repr. 1A	H360			0		≥0.3%	
	Repr. 1B							
	Repr. 2	H361			0		≥3.0%	
HP11 Mutagenic	Muta. 1A,	H340			0		≥0.1%	
	Muta. 1B				0			
	Muta. 2	H341			0		≥1.0%	
HP12 Release of an acute toxic gas	(Acute Tox. 1,2 or 3)	EUH 029, EUH			0		See WM3 Appendix C12	

		031 EUH 032						
HP13 Sensitizing		H317, H334			0		≥10%	
HP14 Ecotoxic	Aquatic Acute 1	H400			0.1		See WM3 Appendix C14	
	Aquatic Chronic 1	H410			0.1			
	Aquatic Chronic 2	H411			1.0			
	Aquatic Chronic 3	H412			1.0			
	Aquatic Chronic 4	H413			1.0			
	Ozone	H420			0			
HP15 Capable of yielding another substance See WM3 C15	May mass explode in fire	H205			0		Present?	
	Explosive when dry	EUH 001			0			
	May form explosive peroxides	EUH 019			0			
	Risk of explosion if heated under confinement	EUH 044			0			

Annex 4 Waste Packaging Calculation Template – worked example

Waste packaging is effectively empty but with a residue containing hazardous substances.

Description of Packaging: - Type: (IBC, Steel Drum, Plastic bottle, etc) - Capacity - Packaging identifier (colour, brand etc)	Steel Drum 205lt Blue/red Smiths Packaging co

Minimum individual packaging weight (as determined through baseline assessment) (kg):	15	**A**
Combined weight of packaging and residue (kg) (as determined through a baseline assessment):	15.5	**B**
Weight of residue within the individual packaging item (kg) (as determined through a baseline assessment):	0.5	**C = B-A**
Identification of residue (Name of original contents, and whether unchanged, etc, where relevant):	Paint WS1	

Composition of residue (Taken from the SDS of the original contents, or as otherwise determined, see WM3 for guidance. Note: in this example, the residue does not have pH <2 or >11.5:

Hazardous substance in residue	Hazard Statement (HS) Code(s)	Percentage of hazardous substance in residue (**D**)	Weight of substance (kg) **(E = C x D/100)**	Additive/ Individual
Substance 1	H318	0.8	Ignore	A
Substance 2	*H310 cat1	5.0	0.025	A
Substance 3	*H310 cat 1	5.0	0.025	A
Substance 4	H370	20.0	0.1	I
Substance 5	H370	30.0	0.15	I
Substance 6				

* As the hazard class/category is listed as 'additive' , the weight (E) for all the components above any cut-off values with the same hazard class and category should be combined to give the 'weight of remaining substances present for each hazard' (E_{Total}) in the table below:

H310 $E_{total} = E_{substance\ 2} + E_{substance\ 3}$ = 0.025+ 0.025 = 0.05

If the hazards are 'individual' (see Table 2), the calculation should be carried out for each different substance present above any cut-off value.

Hazardous Property	Hazard Class and Category	H S Code	Weight of remaining substances present for each hazard above cut-off value? E_{total}	Wt subs*100/ wt residue + container E_{total}*100/B %	Cut off limit %	Above Cut-off limit? Y/N	Threshold	Substance present above threshold
HP1 Explosive See WM3: C1	Unst. Expl.	H 200			None			
	Expl. 1.1	H 201						
	Expl. 1.2	H 202						
	Expl. 1.3	H 203						
	Expl. 1.4	H 204						
	Self-react. A Org. Perox. A	H 240						
	Self-react. B Org. Perox. B	H 241						
HP2 Oxidising See WM3: C2	Ox. Gas 1	H 270			None			
	Ox. Liq. 1	H 271						
	Ox. Sol. 1							
	Ox. Liq. 2 Ox. Liq. 3	H 272						
HP3 Flammable See WM3: C3	Flam. Gas 1	H220			None			
	Flam. Gas 2	H221						
	Aerosol 1	H222						
	Aerosol 2	H223						
	Flam. Liq. 1	H224						
	Flam. Liq.2	H225						
HP4 Irritant	Skin corr. 1A	H314			1		≥1%<5 %	
	Eye dam. 1	H318			1	Y - ignore	≥10%	N
	Skin irrit. 2 +	H315 +			1		≥20%	
	Eye irrit. 2	H319			0			
HP5 STOT / Aspiration Toxicity	STOT SE 1	H370	0.1	0.64	0	15.5	≥1%	N
		H370	0.16	0.97		15.5	≥1%	N
	STOT SE 2	H371					≥10%	
	STOT SE 3	H335					≥20%	
	STOT RE 1	H372					≥1%	
	STOT RE 2	H373					≥10%	
	Asp. Tox. 1	H304						
HP6 Toxic	Acute Tox.1 (Oral)	H300			0.1		≥0.1%	
	Acute Tox. 2 (Oral)	H300			0.1		≥0.25 %	

	Acute Tox. 3 (Oral)	H301			0.1		≥5%	
	Acute Tox 4 (Oral)	H302			1.0		≥25%	
	Acute Tox.1 (Dermal)	H310	0.05	0.32	0.1	15.5	≥0.25 %	Y*
	Acute Tox.2 (Dermal)	H310			0.1		≥2.5%	
	Acute Tox. 3 (Dermal)	H311			0.1		≥15%	
	Acute Tox 4 (Dermal)	H312			1.0		≥55%	
	Acute Tox 1 (Inhal.)	H330			0.1		≥0.1%	
	Acute Tox.2 (Inhal.)	H330			0.1		≥0.5%	
	Acute Tox. 3 (Inhal.)	H331			0.1		≥3.5%	
	Acute Tox. 4 (Inhal.)	H332			1.0		≥22.5 %	
HP7 Carcinogenic	Carc. 1a, Carc. 1b	H350			0		≥0.1%	
	Carc. 2				0		≥1.0%	
HP8 Corrosive	Skin corr.1A, 1B or 1C	H314			1.0		≥5%	
HP9 Infectious								
HP10 Toxic for reproduction	Repr. 1A	H360			0		≥0.3%	
	Repr. 1B				0			
	Repr. 2	H361			0		≥3.0%	
HP11 Mutagenic	Muta. 1A,	H340			0		≥0.1%	
	Muta. 1B				0			
	Muta. 2	H341			0		≥1.0%	
HP12 Release of an acute toxic gas		EUH029 EUH031 EUH032			0			
HP13 Sensitizing		H317 H334			0			
HP14 Ecotoxic	Aquatic Acute 1	H400			0.1		See WM3 Appendix C14	
	Aquatic Chronic 1	H410			0.1			
	Aquatic Chronic 2	H411			1.0			
	Aquatic Chronic 3	H412			1.0			
	Aquatic Chronic 4	H413			1.0			

	Ozone	H420			0		
HP15 Capable of yielding another substance See WM3 C15	May mass explode in fire	H205			0		Present?

* In this example the packaging waste is 15 01 10 packaging containing residues of or contaminated by hazardous substances