HAZARDOUS WASTE IDENTIFICATION GUIDE

ANNEX 7-1

HAZARDOUS PROPERTIES HP1 TO HP15: CUT-OFF VALUES AND OTHER INFORMATION

1. PROPERTIES OF WASTE WHICH RENDER IT HAZARDOUS

This Annex contains 15 properties listed in the Annex to Regulation (EU) No 1357/2014, which may render the waste hazardous. Most of these properties are taken more or less directly from the relevant classification of hazardous substances in the CLP Regulation, but two of them are distinguished by the fact that they relate exclusively to waste, i.e. HP 9: Infectious, and HP 15: Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste. HP 12: Release of an acute toxic gas is also outside the traditional classification scope; however, for the HP 12 and HP 15, the so-called supplementary hazard statements are attached to the CLP Regulation[1].

Hazardous Properties	Description
HP 1: 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 organic peroxide waste and explosive self-reactive waste is included.
HP 2: Oxidising	Waste which may, generally by providing oxygen, cause or contribute to the combustion of other materials.
HP 3: 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 after coming into contact with air; • flammable solid waste: solid waste which is readily combustible or may cause or contribute to fire through friction; • flammable gaseous waste: gaseous waste which is flammable in air at 20 °C and a standard pressure of 101.3 kPa; • water reactive waste: waste which, in contact with water, emits flammable gases in dangerous quantities; • other flammable waste: flammable aerosols, flammable self-heating waste, flammable organic peroxides and flammable self-reactive waste.
HP 4: Irritant — skin irritation and eye damage	Waste that on the application can cause skin irritation or damage to the eye.
HP 5: Specific Target Organ Toxicity (STOT) / 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.
HP 6: Acute Toxicity	Waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure.
HP 7: Carcinogenic	Waste that induces cancer or increases its incidence.

[1] https://mst.dk/media/93596/vejledning-i-klassificering-af-farligt-affald_april-2017.pdf

Hazardous Properties	Description
HP 8: Corrosive	Waste which on application can cause skin corrosion.
HP 9: Infectious	Waste containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.
HP 10: Toxic for reproduction	Waste that has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring.
HP 11: Mutagenic	Wastes that may cause a mutation, which is a permanent change in the amount or structure of the genetic material in a cell.
HP 12: 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.
HP 13: Sensitising	Waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs.
HP 14: Ecotoxic	Waste which presents or may present immediate or delayed risks for one or more sectors of the environment.
HP 15: Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste	Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste.

Source: Regulation (EU) No 1357/2014

2. HP (HAZARDOUS PROPERTIES), INCLUDING HAZARD STATEMENT CODES, ETC.

The table below shows the hazard class and category codes for each HP, as well as the hazard statement codes covered by each HP, and the HP concentration limit that can be set when substances become hazardous waste due to these properties, including summation rules and related cut-off values that may be applied (see Regulation (EU) No 1357/2014).

The H-codes in red contain several combinations of hazard class and category codes, sometimes with several (two) concentration limits[2].

HP code	Hazard class and category code	Hazard statement code	Concentration, %	Sum	Cut-off value, %	GHS pictogram
HP 1	Unst. Expl.	H200		No		GHS01
	Expl. 1.1	H201		No		GHS01
	Expl. 1.2	H202		No		GHS01
	Expl. 1.3	H203		No		GHS01
	Expl. 1.4	H204		No		GHS01
	Self-react. A	H240		No		GHS01
	Org. Perox. A	H240		No		GHS01
	Self-react. B	H241		No		GHS01
	Org. Perox. B	H241		No		GHS01
	Ox. Gas 1	H270		No		GHS03
	Ox. Liq. 1	H271		No		GHS03
	Ox. Sol. 1	H271		No		GHS03

[2] https://mst.dk/media/93596/vejledning-i-klassificering-af-farligt-affald_april-2017.pdf.

HP 2	Ox. Liq. 2	H272		No		GHS03
	Ox. Liq. 3	H272		No		GHS03
	Ox. Sol. 2	H272		No		GHS03
	Ox. Sol. 3	H272		No		GHS03
HP 3	Flam. Gas 1	H220		No		GHS02
	Flam. Gas 2	H221		No		-
	Aerosol 1	H222		No		GHS02
	Aerosol 2	H223		No		GHS02
	Flam. Liq. 1	H224		No		GHS02
	Flam. Liq. 2	H225		No		GHS02
	Flam. Liq. 3	H226		No		GHS02
	Flam. Sol. 1	H228		No		GHS02
	Flam. Sol. 2	H228		No		GHS02
	Self-react. CD	H242		No		GHS02
	Self-react. EF	H242		No		GHS02
	Org. Perox. CD	H242		No		GHS02
	Org. Perox. EF	H242		No		GHS02
	Pyr. Liq. 1	H250		No		GHS02
	Pyr. Sol. 1	H250		No		GHS02
	Self-heat. 1	H251		No		GHS02
	Self-heat. 2	H252		No		GHS02
	Water-react. 1	H260		No		GHS02
	Water-react. 2	H261		No		GHS02
	Water-react. 3	H261		No		GHS02
HP 4	Skin Corr. 1A	H314	1	Yes	1	GHS05
	Skin Irrit. 2	H315	20	Yes, Eye Irrit. 2	1	GHS07
	Eyedam. 1	H318	10	Yes	1	GHS05
	Eye Irrit. 2	H319	20	Yes, Skin Irrit. 2	1	GHS07
HP 5	Asp. Tox. 1	H304	10	Yes	-	GHS08
	STOT SE 3	H335	20	No		GHS07
	STOT SE 1	H370	1	No		GHS08
	STOT SE 2	H371	10	No		GHS08
	STOT RE 1	H372	1	No		GHS08
	STOT RE 2	H373	10	No		GHS08
HP 6	Acute Tox. 1 (Oral)	H300	0.1	Yes	0.1	GHS06
	Acute Tox. 2 (Oral)	H300	0.25	Yes	0.1	GHS06
	Acute Tox. 3 (Oral)	H301	5	Yes	0.1	GHS06
	Acute Tox. 4 (Oral)	H302	25	Yes	1	GHS07
	Acute Tox. 1 (Dermal)	H310	0.25	Yes	0.1	GHS06
	Acute Tox. 2 (Dermal)	H310	2.5	Yes	0.1	GHS06
	Acute Tox. 3 (Dermal)	H311	15	Yes	0.1	GHS06
	Acute Tox. 4 (Dermal)	H312	55	Yes	1	GHS07
	Acute Tox. 1 (Inhal.)	H330	0.1	Yes	0.1	GHS06
	Acute Tox. 2 (Inhal.)	H330	0.5	Yes	0.1	GHS06
	Acute Tox. 3 (Inhal.)	H331	3.5	Yes	0.1	GHS06
	Acute Tox. 4 (Inhal.)	H332	22.5	Yes	1	GHS07
HP 7	(Individual substance) Carc. 1A	H350	0.1	No		GHS08
	(Individual substance) Carc. 1B	H350	0.1	No		GHS08
	(Individual substance) Carc. 2	H351	1	No		GHS08

HP 8	Skin corr. 1A + 1B + 1C	H314	5	Yes	1	GHS05
HP 9	-	-		No		-
HP 10	Repr. 1A	H360	0.3	No		GHS08
	Repr. 1B	H360	0.3	No		GHS08
	Repr. 2	H361	3	No		GHS08
HP 11	Muta. 1A	H340	0.1	No		GHS08
	Muta. 1B	H340	0.1	No		GHS08
	Muta. 2	H341	1	No		GHS08
HP 12	Contact with water liberates toxic gas	EUH029		No		-
	Contact with acids liberates toxic gas	EUH031		No		-
	Contact with acids liberates very toxic gas	EUH032		No		-
HP 13	Skin Sens. 1	H317	10	No		GHS07
	Resp. Sens. 1	H334	10	No		GHS08
HP 14	*Aquatic Acute 1*	*H400*			-	GHS09
	Aquatic Chronic 1	*H410*			-	GHS09
	Aquatic Chronic 2	*H411*			-	GHS09
	Aquatic Chronic 3	*H412*			-	-
	Aquatic Chronic 4	*H413*			-	-
	Ozone 1	*H420*				GHS07
HP 15	May mass explode in fire	H205		No		-
	Explosive when dry	EUH001		No		-
	May form explosive peroxides	EUH019		No		-
	Risk of explosion if heated under confinement	EUH044		No		-

3. HAZARD STATEMENT CODES (H350, H360 AND H361)

In some hazard statements (H350, H360 and H361), letters are added to the three-digit code. The following supplementary letters do not affect the classification of waste as hazardous, as the concentration limits remain unchanged[3]:

H350i	May cause cancer by inhalation.
H360F	May damage fertility.
H360D	May damage the unborn child.
H361f	Suspected of damaging fertility.
H361d	Suspected of damaging the unborn child.
H360FD	May damage fertility. May damage the unborn child.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn

[3] Source: Annex VI to the CLP Regulation, Part 1, point 1.1.2.1.2.

	child.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.

4. HAZARD STATEMENT CODES BROKEN DOWN BY CONCENTRATION LIMITS

When classifying waste, it is first necessary to consider which hazardous properties that are harmful to health and the environment are subject to the lowest concentration limits. These properties are the immediate focus areas. The table below provides a list of hazard classes and category codes, as well as hazard statement codes, in ascending order of the concentration limits. If the same lowest concentration limit is set by HP code as well, there is a high probability that the waste will be classified as hazardous for these properties.

The H-codes in red contain several combinations of hazard class and category codes, sometimes with several (two) concentration limits.

Hazard class and category code	Hazard statement code	Concentration limit, %	HP code	Sum	Cut-off value, %	GHS pictogram
Acute Tox. 1 (Oral)	H300	0.1	HP 6	Yes	0.1	GHS06
Acute Tox. 1 (Inhal.)	H330	0.1	HP 6	Yes	0.1	GHS06
Muta. 1A	H340	0.1	HP 11	No		GHS08
Muta. 1B	H340	0.1	HP 11	No		GHS08
(Individual substance) Carc. 1A	H350	0.1	HP 7	No		GHS08
(Individual substance) Carc. 1B	H350	0.1	HP 7	No		GHS08
Acute Tox. 2 (Oral)	H300	0.25	HP 6	Yes	0.1	GHS06
Acute Tox. 1 (Dermal)	H310	0.25	HP 6	Yes	0.1	GHS06
Repr. 1A	H360	0.3	HP 10	No		GHS08
Repr. 1B	H360	0.3	HP 10	No		GHS08
Acute Tox. 2 (Inhal.)	H330	0.5	HP 6	Yes	0.1	GHS06
Skin Corr. 1A	H314	1	HP 4	Yes	1	GHS05
Muta. 2	H341	1	HP 11	No		GHS08
(Individual substance) Carc. 2	H351	1	HP 7	No		GHS08
STOT SE 1	H370	1	HP 5	No		GHS08
STAT RE1	H372	1	HP 5	No		GHS08
Acute Tox. 2 (Dermal)	H310	2.5	HP 6	Yes	0.1	GHS06
Repr. 2	H361	3	HP 10	No		GHS08
Acute Tox. 3 (Inhal.)	H331	3.5	HP 6	Yes	0.1	GHS06
Acute Tox. 3 (Oral)	H301	5	HP 6	Yes	0.1	GHS06
Skin Corr. 1A + 1B + 1C	H314	5	HP 8	Yes	1	GHS05
Asp. Tox. 1	H304	10	HP 5	Yes	-	GHS08
Skin Sens. 1	H317	10	HP 13	No		GHS07
Eyedam. 1	H318	10	HP 4	Yes	1	GHS05
Resp. Sens. 1	H334	10	HP 13	No		GHS08
STOT SE 2	H371	10	HP 5	No		GHS08
STAT RE2	H373	10	HP 5	No		GHS08
Acute Tox. 3 (Dermal)	H311	15	HP 6	Yes	0.1	GHS06
Skin Irrit. 2	H315	20	HP 4	Yes, Eye Irrit. 2	1	GHS07

Hazard class and category code	Hazard statement code	Concentration limit, %	HP code	Sum	Cut-off value, %	GHS pictogram
Eye Irrit. 2	H319	20	HP 4	Yes, Skin Irrit .2	1	GHS07
STOT SE 3	H335	20	HP 5	No	2	GHS07
Acute Tox. 4 (Inhal.)	H332	22.5	HP 6	Yes	1	GHS07
Acute Tox. 4 (Oral)	H302	25	HP 6	Yes	1	GHS07
Acute Tox. 4 (Dermal)	H312	55	HP 6	Yes	1	GHS07

Source: https://mst.dk/media/93596/vejledning-i-klassificering-af-farligt-affald_april-2017.pdf.

5. COMBINATIONS OF HAZARD CLASSES AND CATEGORY CODES THAT DO NOT APPLY TO THE CLASSIFICATION OF HAZARDOUS WASTE[4]

Table 1.1 of Part 1 of Annex VI to the CLP Regulation lists all hazard classes with the related combinations of hazard classes and category codes for the classification of hazardous substances, mixtures and articles.

The limited choice of these combinations of hazard class and category codes does not apply to the classification of hazardous waste; if the waste contains only substances and mixtures with these hazard class and category codes, the waste is not classified as hazardous (even though the original substance, the original mixture or the original article from which the waste is composed may have been classified as hazardous).

The following combinations of hazard class and category codes do not apply to the determination of the hazardous properties of waste (indicating the hazard statement code and the GHS code if assigned):

Hazard class and category code	Hazard statement code	Manifestation of hazard	GHS pictogram
Expl. 1.5			
Expl. 1.6			
STOT SE 3	H336	May cause drowsiness or dizziness	GHS07
Lact.	H362	May cause harm to breastfed babies	
Met. Corr. 1	H290	May be corrosive to metals	GHS05
Org. Perox. G			
Press. Gas			GHS04
Self-react. G			

[4] https://mst.dk/media/93596/vejledning-i-klassificering-af-farligt-affald_april-2017.pdf.

6. COMBINATIONS OF HAZARD PICTOGRAMS AND HAZARD CLASS AND CATEGORY CODES

Hazard pictogram	Hazard class and category code(s)	Hazard statement code(s)	Hazardous property HP	Concentration limit, %	Cut-off value
GHS01	Unst. Expl.	H200	HP1	-	-
	Expl. 1.1	H201	HP1	-	-
	Expl. 1.2	H202	HP1	-	-
	Expl. 1.3	H203	HP1	-	-
	Expl. 1.4	H204	HP1	-	-
	Self-react. A	H240	HP1	-	-
	Org. Perox. A		HP1	-	-
	Self-react. B	H241	HP1	-	-
	Org. Perox. B		HP1	-	-
No pictogram	May mass explode in fire	H205	HP 15	-	-
	Explosive when dry	EUH001	HP 15	-	-
	May form explosive peroxides	EUH019	HP 15	-	-
	Risk of explosion if heated under confinement	EUH044	HP 15	-	-
GHS03	Ox. Gas 1	H270	HP 2	-	-

Hazard pictogram	Hazard class and category code(s)	Hazard statement code(s)	Hazardous property HP	Concentration limit, %	Cut-off value
	Ox. Liq. 1	H271	HP 2	-	-
	Ox. Sol. 1	H271	HP 2	-	-
	Ox. Liq. 2	H272	HP 2	-	-
	Ox. Liq. 3	H272	HP 2	-	-
	Ox. Sol. 2	H272	HP 2	-	-
	Ox. Sol. 3	H272	HP 2	-	-
				-	-
GHS02	Flam. Gas 1	H220	HP 3	-	-
	Aerosol 1	H222	HP 3	-	-
	Aerosol 2	H223	HP 3	-	-
	Flam. Liq. 1	H224	HP 3	-	-
	Flam. Liq. 2	H225	HP 3	-	-
	Flam. Liq. 3	H226	HP 3	-	-
	Flam. Sol. 1	H228	HP 3	-	-
	Flam. Sol. 2	H228	HP 3	-	-
	Self-react. CD	H242	HP 3	-	-

Hazard pictogram	**Hazard class and category code(s)**	**Hazard statement code(s)**	**Hazardous property HP**	**Concentration limit, %**	**Cut-off value**
	Self-react. EF	H242	HP 3	-	-
	Org. Perox. CD	H242	HP 3	-	-
	Org. Perox. EF	H242	HP 3	-	-
	Pyr. Liq. 1	H250	HP 3	-	-
	Pyr. Sol. 1	H250	HP 3	-	-
	Self-heat. 1	H251	HP 3	-	-
	Self-heat. 2	H252	HP 3	-	-
	Water-react. 1	H260	HP 3	-	-
	Water-react. 2	H261	HP 3	-	-
	Water-react. 3	H261	HP 3	-	-
No pictogram	Flam. Gas 2	H221	HP 3	-	-
GHS06	Acute Tox. 1 (Oral)	H300	HP 6	0.1	0.1
	Acute Tox. 2 (Oral)	H300	HP 6	0.25	0.1
	Acute Tox. 3 (Oral)	H301	HP 6	5	0.1

Hazard pictogram	**Hazard class and category code(s)**	**Hazard statement code(s)**	**Hazardous property HP**	**Concentration limit, %**	**Cut-off value**
	Acute Tox. 1 (Dermal)	H310	HP 6	0.25	0.1
	Acute Tox. 2 (Dermal)	H310	HP 6	2.5	0.1
	Acute Tox. 3 (Dermal)	H311	HP 6	15	0.1
	Acute Tox. 1 (Inhal.)	H330	HP 6	0.1	0.1
	Acute Tox. 2 (Inhal.)	H330	HP 6	0.5	0.1
	Acute Tox. 3 (Inhal.)	H331	HP 6	3.5	0.1
GHS08	Asp. Tox. 1	H304	HP 5	10	–
	Resp. Sens. 1	H334	HP 13	10	–
	Muta. 1A	H340	HP 11	0.1	–
	Muta. 1B	H340	HP 11	0.1	–
	Muta. 2	H341	HP 11	1	–
	(Individual substance) Carc. 1A	H350	HP 7	0.1	–
	(Individual substance) Carc. 1B	H350	HP 7	0.1	–
	(Individual substance) Carc. 2	H351	HP 7	1	–

Hazard pictogram	**Hazard class and category code(s)**	**Hazard statement code(s)**	**Hazardous property HP**	**Concentration limit, %**	**Cut-off value**
	Repr. 1A	H360	HP 10	0.3	–
	Repr. 1B	H360	HP 10	0.3	–
	Repr. 2	H361	HP 10	3	–
	STOT SE 1	H370	HP 5	1	–
	STOT SE 2	H371	HP 5	10	–
	STAT RE1	H372	HP 5	1	–
	STAT RE2	H373	HP 5	10	–
GHS05	Skin Corr. 1A	H314	HP 4	1	1
	Skin Corr. 1A + 1B + 1C	H314	HP 8	5	1
	Eyedam. 1	H318	HP 4	10	1
GHS07	Acute Tox. 4 (Oral)	H302	HP 6	25	1
	Acute Tox. 4 (Dermal)	H312	HP 6	55	1

Hazard pictogram	**Hazard class and category code(s)**	**Hazard statement code(s)**	**Hazardous property HP**	**Concentration limit, %**	**Cut-off value**
	Skin Irrit. 2	H315	HP 4	20	1
	Skin Sens. 1	H317	HP 13	10	–
	Eye Irrit. 2	H319	HP 4	22.5	1
	Acute Tox. 4 (Inhal.)	H332	HP 6	20	1
	STOT SE 3	H335	HP 5	-	-
	Ozon 1	*H420*	*HP 14*	-	-
GHS09	*Aquatic Acute 1*	*H400*	HP 14	-	-
	*Aquatic Chronic 1*	*H410*	HP 14	-	-
	Aquatic Chronic 2	*H411*	HP 14	-	-