## ClassifyMyWaste<sup>™</sup> for a quick scan of waste hazard properties

# ECN

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#### Introduction

ECN launched an easy to use tool for the hazard classification of waste materials according to EU legislation. The free tool uses the elemental content to assess possible hazards based on a worst case approach.

#### Hazard properties (HP) in waste hazard classification

#### Individual hazard properties

 Individual concentrations of relevant substances have to be compared to a corresponding concentration limit HP5: STOT/ aspiration toxicity HP7: carcinogenic HP10: toxic for reproduction HP11: mutagenic HP13: sensitizing



Free version online atwww.ecn.nl/classifymywasteContact emailclassifymywaste@ecn.nl

#### Additive hazard properties

- Substances in concentrations above cut-off value
- the same HP and H-symbol
- The sum of concentrations versus permitted limit

HP4: irritant HP6: acute toxicity HP8: corrosive HP14: eco-toxic

HP1: explosive, HP2: oxidizing, HP3: flammable, HP9: infectious, HP12: release of an acute toxic gas, HP15: yielding another substance

#### **Tiered approach**



#### Waste legislation



each HP is assessed element is in its most hazardous form and in its maximum concentration situations using more data from different sources

#### What can ClassifyMyWaste<sup>™</sup> do for you?

- ClassifyMyWaste<sup>™</sup> performs a quick pre-screening (Tier 2) of hazard properties HP4, HP5, HP6, HP7, HP8, HP10, HP11, HP13, HP14 and indicates which of them are of potential concern
- For a registered user, ClassifyMyWaste<sup>™</sup> generates a report with a summary of the assessment and a list of substances (if any) that in worst case scenario can render waste classification as hazardous
- Registered users can re-use and manage their own data
- Hazard properties HP1, HP2, HP3, HP9, HP12, HP15 are not assessed. However, ClassifyMyWaste<sup>™</sup> refers you to the proper test methods
- ClassifyMyWaste<sup>™</sup> provides a list of elements to be measured for a reliable assessment: Ag, Al, As, B, Ba, Be, Br, Ca, Cd, Cl, Co, Cr(VI),

		HAZARD INDICATION
		(worst case)
HP 1	Explosive	Not addressed
HP 2	Oxidizing	Not addressed
HP 3	Flammable	Not addressed
HP 4	Irritant	Cannot be completed
HP 5	STOT/Aspiration toxicity	No hazard
HP 6	Acute toxicity	Hazardous
HP 7	Carcinogenic	No hazard
HP 8	Corrosive	Cannot be completed
HP 9	Infectious	Not addressed
HP 10	Toxic for reproduction	No hazard
HP 11	Mutagenic	No hazard
HP 12	Release of an acute toxic gas	Not addressed
HP 13	Sensitizing	No hazard
HP 14	Eco-toxic	Hazardous

**ClassifvMvWaste™ example** 



## Cu, F, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Tl, V, Zn

## In 14Leo toxicInd2droodsHP 15Yielding another<br/>susbtanceNot addressed

#### **ClassifyMyWaste™ Outlook**

- Provide typical concentration ranges of elements in a given waste stream
- Replace worst case substances by more realistic substances chosen by a user

#### What more can we do for you?

- Tier 3 assessment
- Alternative eco-toxic assessment that uses leaching data (EN 14429 and EN 14997) instead of total content of elements
- Assistance with sampling, sample preparation and chemical analysis

Klymko, T.; Dijkstra, J. J.; Van Zomeren, A.; Guidance document on hazard classification of MSWI bottom ash; ECN-E--17--024; Petten, The Netherlands, May 2017 ( online https://www.ecn.nl/publications/ECN-E--17-024)

Van Zomeren, A.; Klymko, T., Dijkstra, J.J. Difficulties and opportunities in the assessment of ecotoxicity (HP14) for hazard classification of wastes; CISA, Italy, Proceedings Sardinia 2017, Sixteenth International Waste Management and Landfill Symposium, S. Margherita di Pula, Cagliari, Italy; ,2– 6 October 2017, 2017.

Van Zomeren, A.; Klymko, T.; Van der Sloot, H. A. Application of multiple analytical methods, leaching and geochemical modelling for waste classification; CISA, Italy: Proceedings Sardinia 2015, Fifteenth International Waste Management and Landfill Symposium S. Margherita di Pula, Cagliari, Italy; 5 – 9 October 2015, 2015.

Hennebert et al. Waste hazardousness assessment: proposition of methods (version 2), technical report, June 2015, DOI: 10.13140/RG.2.1.1344.1121. Version 1: Hennebert et al. in Waste Management 34 (2014) 1739-1751