A GUIDEBOOK ON

THE IDENTIFICATION AND CLASSIFICATION OF SCHEDULED WASTES

ENVIRONMENT INSTITUTE OF MALAYSIA
(EiMAS)
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LIST OF ABBREVIATIONS

Ag	Silver
Al	Aluminium
As	Arsenic
Ba	Barium
Be	Beryllium
Cd	Cadmium
CFR	Code of Federal Regulations
Cr	Chromium
Cu	Copper
F	Fluorine
Hg	Mercury
Li	Lithium
Mn	Manganese
MSDS	Material Safety Data Sheet
Ni	Nickel
Pb	Plumbum
Pb	Lead
PCB	polychlorinated biphenyls
PCT	polychlorinated triphenyls
Sb	Antimony
Se	Selenium
Se	Selenium
Sn	Tin
SW	Scheduled wastes
TCLP	Toxicity Characteristic Leaching Procedure
Te	Tellurium
Th	Thorium
USEPA	United States Protection Agency
V	Vanadium

GLOSSARY

Aluminium smelting	The process of extracting aluminium from its oxide, alumina, generally by the Hall-Héroult electrolysis process. Alumina is extracted from the ore bauxite by means of the Bayer process at an alumina refinery
Boiling point	Temperature at which a liquid starts to boil and become a gas.
Corrosivity characteristic	Corrosivity characteristic identifies wastes that are acidic or alkaline (basic) which can readily corrode or dissolve flesh, metals or other materials.
Density	A measurement of mass contained in a given unit volume; mass/volume
Fire point	Temperature at which the vapour concentration of combustible liquid is sufficient to sustain combustion
Flash point	Temperature at which a substance give off sufficient amount of vapour to form ignitable mixture with air.
Galvanizing process	The process of applying a protective zinc coating to steel or iron, to prevent rusting. The most common method is hot-dip galvanization, in which parts are submerged in a bath of molten zinc. Galvanizing protects in two ways:

- it forms a coating of corrosion-resistant zinc which prevents corrosive substances from reaching the more delicate part of the metal vi

- the zinc serves as a sacrificial anode so that even if the coating is scratched, the exposed steel will still be protected by the remaining zinc.

Ignitability characteristic

Ignitability characteristic identifies waste materials that can readily catch fire, combustible, flammable and sustain combustion.

Infectious or Pathogenic

A waste is also classified as hazardous if it contains infectious or pathogenic characteristics and has the ability to spread diseases or illnesses through bacteria, virus, fungus or other microorganisms.

Organometallic compounds

Organometallic chemistry is the study of chemical compounds containing at least one bond between a carbon atom of an organic compound and a metal. Organometallic chemistry combines aspects of inorganic chemistry and organic chemistry.

Organotin compounds

Organotin compounds or stannanes are chemical compounds based on tin with hydrocarbon substituents. Organotin chemistry is part of the wider field of organometallic chemistry

Pensky-Martens closed cup tester or a Seta flash closed cup tester (flash point test	Determines the lowest temperature at which the fumes or vapours above a waste will ignite when exposed to flame
Reactivity characteristic	Reactivity characteristic identifies wastes that readily explode or undergo violent reactions or react to release toxic gases or fumes.
Recovery of acid pickling liquor	Spent pickle liquor contains a mixture of the residual unreacted free hydrofluoric and nitric acid as well as metal salts of those acids. By removing the metal fluoride and nitrate salts and replenishing the free acid concentrations with fresh acid, it is possible to extend the bath life indefinitely. This is the basis of operation of a so-called purification system.
Smelting	Smelting is a form of extractive metallurgy; its main use is to produce a base metal from its ore. This includes production of silver, iron, copper and other base metals from their ores.
Soldering process	Soldering is a process in which two or more metal items are joined together by melting and flowing a filler metal (solder) into the joint, the filler metal having a lower melting point than the adjoining metal.

Solubility	Quantity of solute dissolves into a given amount of solvent at specified temperature and pressure
Toxicity	Harmful effect by a poisonous substance on the human body by physical contact, inhalation or ingestion.
Toxicity characteristic	Waste is hazardous by virtue of the toxicity characteristic if it exceeds specified concentrations of certain metals and organic compounds as listed by reference in the regulations. USEPA designed a laboratory procedure known as Toxicity Characteristic Leaching Procedure (TCLP) to estimate the leaching potential of waste when disposed of in a landfill. The TCLP test is to identify waste likely to leach dangerous concentrations of certain known toxic chemicals into groundwater.
Toxicity Characteristic Leaching Procedure (TCLP)	A laboratory procedure designed by USEPA to estimate the leaching potential of waste when disposed of in a landfill.
Vapour	A gas phase of a component of a substance, state of matter.

FOREWORD

Generation of scheduled wastes must be controlled to protect public health and the environment. Safe handling of scheduled wastes during their generation requires special knowledge of the characteristics and properties of the wastes. Hence, proper identification and classification of scheduled wastes are crucial to eliminate or minimize their potential hazards to human and pollution risks to the environment.

The current Scheduled Wastes Regulations in Malaysia have served a purpose in providing the essential regulatory framework on scheduled wastes management in Malaysia. These set of regulations encompasses the obligation and responsibility of waste generators as well as contractors in proper and safe handling of scheduled wastes. Key provision of the regulations are focused on the control of the generation of wastes by notification system, minimization of wastes generation, safe storage, licensing of scheduled wastes facilities, treatment and disposal of wastes at prescribed premises and implementation of manifest system for tracking and controlling movement of wastes.

This guidebook aims to be used as quick reference for industries in the identification and classification of scheduled wastes. It is hoped that this guidebook will further increase the level of self-compliance by the industry and thus ensure the quality of environmental sustainability and protection of public health and environment. This guide book shall be in addition to and not in derogation of any written law.

"Protecting the Environment is Our Shared Responsibility"

(DATO' HALIMAH HASSAN)
Director General
Department of Environment, Malaysia
October 2015

IMPORTANT NOTICE

This document is intended only as a **quick reference/guide** for the identification and classification of scheduled wastes by the industries. The Department of Environment assumes no responsibility for the accuracy, adequacy, or completeness of the concepts, methodologies, or protocols described in **this quick reference/guide book.** Compliance with the regulatory requirements and standards is solely the responsibility of the industries