Definitions, Legislation, Regulations, and Volumes relating to Hazardous Materials

Definitions

There are several terms and definitions from various legislative agencies that include:

Agency	Definition
Canada Labour Code	Uses the term hazardous materials found in the Workplace Hazardous Materials Information System (WHMIS), which is "a comprehensive system for providing health and safety information on hazardous products intended for use, handling, or storage in Canadian workplaces" (source: Canadian Centre for Occupational Health and Safety website).
Ontario Ministry of the Environment	Use the term hazardous waste and defines it as "waste that, when present in quantities and concentrations that are high enough, pose a threat to human health or the environment if they are improperly stored, transported, treated or disposed." (source: Ministry of the Environment website)
Ministry of Transportation	Uses the term dangerous goods, which pertains to the transportation of hazardous materials, substances, or liquids.
Ministry of the Environment and Climate Change Canada	Uses the term acute hazards to refer to 249 substances that could impact the environment or human health if they are improperly stored, transported, treated or disposed.
Ontario Fire Code as overseen by the Ontario Fire Marshal	Does not use the term hazardous materials but has several related terms and definitions such as: **Combustible dust** means dust and particles ignitable and liable to explode when mixed with air. **Combustible fibres** mean finely divided combustible vegetable or animal fibres and thin sheets or flakes of such materials that in a loose, unbaled condition present a flash fire hazard, and includes cotton, wool, hemp, sisal, jute, kapok, paper, and cloth. **Combustible liquid** means any liquid having a flash point at or above 37.8°C and below 93.3°C. **Flammable liquid** means a liquid having a flash point below 37.8ºC and having a vapour pressure not more than 275.8 kPa (absolute) at 37.8ºC as determined by ASTM D 323, "Vapor Pressure of Petroleum Products (Reid Method)".

The Ontario Fire Code (oversee by the Ontario Fire Marshal), Ministry of the Environment, and Environment and Climate Change Canada are the agencies and definitions that most closely impact the work of the Hamilton Fire Department. As noted above, the Ontario Fire Code does not contain a specific definition of hazardous materials; however, there are 12 related definitions. These definitions include ones for combustible construction, combustible dust, combustible fibres, and combustible liquids; high, low, and medium hazard industrial occupancy; flammable liquid; dangerous goods (as regulated by Transportation of Dangerous Goods Act); minimal explosible liquid; unstable liquid; and storage tank. Flammable liquids and combustible liquids are the most used terms in the Code and present higher risks.

Regulations or Requirements from Relevant Agencies

The Ontario Fire Code goes into detail about property owners' responsibilities regarding the prevention, containment (storage), handling, accumulation etc. depending on location (indoors and outdoors or interior floors within a property) based on the class of substance and volume. The Code does not have a requirement for property owners to report to the Province on the storage of flammable or combustible liquids. And, it is the Ontario Fire Marshal that oversees the Fire Code and works with various agencies such as the Ministry of the Environment and the municipality to enforce and investigate code violations typically after an incident occurs or a complaint is made.

Ontario Ministry of the Environment (MOE) has a Hazardous Waste Program Registry that requires property owners to report to the MOE on storage or disposal of hazardous waste. MOE also focuses on the environmental protection act and 347 regulations that handles cradle to grave oversight. Staff were able to access the MOE's Waste Program Registry for 2021 and Hamilton had 84 businesses/locations that had generators, carriers and receivers of hazardous liquid industrial waste reported to MOE.

Environment and Climate Change Canada's has E2* Regulations that refer to 249 substances that pose an acute hazard to the environment or to human health should an accidental release occur. Property owners who have these substances are required to develop and submit specific safety plans should an accidental release occur. There are six (6) hazard categories covered under the final regulations: aquatically toxic, combustible, explosion hazard, pool fire hazard, inhalation hazard, and oxidizer that may explode. Hamilton, like most comparable cities, has a reasonably small number (> 15) of properties that meet the criteria for E2 Plans.

Volume References from the Ontario Fire Code

Maximum quantities as found in Section 4 of the Ontario Fire Code

4.2.4.2. (1) Subject to Sentence (4) and Articles 4.2.4.5. and 4.2.4.6., the maximum quantity of flammable liquids or combustible liquids stored in a building or in a single fire compartment having a fire-resistance rating not less than 1 h shall meet the requirements of Sentences (2) and (3).

(2) If a single class of liquid is stored in a building or in a single fire compartment having a fire-resistance rating not less than 1 h, the total quantity of liquid shall not exceed

(a) 30 L of Class I liquids,
(b) 150 L of Class II liquids, or
(c) 600 L of Class IIIA liquids.

(3) If two or more classes of liquid are stored in the same building or in a single fire compartment having a fire-resistance rating not less than 1 h, the total quantity of stored liquid shall meet the requirements of the following equation:
qI/30 + qII/150 + qIIIA/600 ≤ 1

Very specific quantities and locations of materials outlined in the Ontario Fire Code:
Indoor Container Storage (Palletized or Solid Piled Storage and Unprotected Rack Storage): Forming Part of Article 4.2.7.5.

Class of Liquid	**Storage Level**	**Protected Storage (1) - Maximum Quantity per Individual Storage Area, L**	**Protected Storage (1) - Maximum Storage Height, m**	**Protected Storage (1) - Maximum Quantity per Fire Compartment, L**	**Unprotected Storage - Maximum Quantity per Individual Storage Area, L**	**Unprotected Storage - Maximum Storage Height, m**	**Unprotected Storage - Maximum Quantity per Fire Compartment, L**
Class IA	**First Storey**	10000	1.5	50000	2500	1.5	2500
Class IA	**Storeys** above the **first storey**	7500	1.5	30000	2500	1.5	2500
Class IA	**Basement**	Not permitted	Not permitted	Not permitted	Not permitted	Not permitted	Not permitted
Class IB or IC	**First Storey**	20000	2.0	60000	10000	1.5	10000
Class IB or IC	**Storeys** above the **first storey**	10000	2.0	50000	10000	1.5	10000
Class IB or IC	**Basement**	Not permitted	Not permitted	Not permitted	Not permitted	Not permitted	Not permitted

Class II	**First Storey** and **storeys** above the **first storey**	40000	3.0	100000	15000	3.0	30000
Class II	**Basement**	25000	1.5	25000	Not permitted	Not permitted	Not permitted
Class IIIA	**First Storey** and **storeys** above the **first storey**	60000	6.0	200000	50000	4.5	100000
Class IIIA	**Basement**	40000	3.0	100000	Not permitted	Not permitted	Not permitted