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Transporting Hazardous Wastes



risks can be minimized by safe ways of manufacturing, handling and using them. Although significant progress has been made to reduce and even recycle hazardous wastes, including on-site treatment by industries producing them, substantial quantities must still be transported to off-site disposal facilities.

As accidental spills of hazardous substances during transportation are making the news, we are also becoming increasingly concerned about our ability to keep track of hazardous wastes. Moving hazardous wastes — from the point of their origin to their ultimate safe disposal — requires an effective tracking system as well as safe transportation by all modes: air, marine, road and rail.

What are hazardous wastes?

Hazardous wastes are those wastes which, due to their nature or quantity, are potentially hazardous to human health or the environment and which require special disposal techniques to eliminate or reduce the hazard. They have characteristics such as toxicity, flammability, corrosivity, and thus can have a wide range of potential impacts due to these hazards, and at times, to their tendency to persist in the natural environment.

Some of the more common hazardous wastes are spent acids and caustic, "still bottoms", the leftovers from oil refining and the manufacture of chemicals. Hazardous wastes often contain phenols, arsenic, mercury, lead and a large number of other toxic chemicals.

Why must we transport hazardous wastes?

While many industries treat their own wastes, they still need a special site to safely dispose of the residues from

Science and technology have greatly improved our standard of living. At the heart of our present life style is a vast array of chemical-based consumer products we consider essential. But somewhere in the manufacturing process of these thousands of everyday products,

hazardous waste is created. The three million or so tonnes of hazardous wastes produced in Canada each year carry a formidable legacy — how to safely dispose of these dangerous substances with minimal risk to health and the environment.

The risks of living with chemicals can be great. While there are no safe chemicals,

treatment processes. Smaller industries, can lack both the facilities and capabilities to treat the wastes they generate and are forced to transport them to adequate treatment centers. In addition, the type of waste determines the appropriate treatment. For example, PCB waste can only be destroyed at very high temperatures (1100°C), while other chemicals can be only treated by the solidification process, a process which permits the conversion of industrial residues into a synthetic material similar to rock. The cost for on-site treatment compared to off-site treatment often determines the option chosen.

How can wastes be transported safely?

Canadian jurisdiction over transportation is shared by federal, provincial and territorial governments. Until recently, transportation of hazardous wastes was partially regulated by more than twenty different statutes. But in November 1980, the federal **Transportation of Dangerous Goods Act (TDGA)** was proclaimed. The Regulations pursuant to the Act became effective July 1st, 1985. The Act and its Regulations are a blueprint of cooperation by all levels of government responding to growing public concerns about the need for the safe transportation of dangerous goods and hazardous wastes, as well as the tracking of hazardous waste to its ultimate safe disposal.

The ultimate safe disposal of hazardous wastes is the final phase in the life-cycle approach to the management of toxic chemicals. The life-cycle concept is a convenient way of expressing the stages of transformation a chemical may go through during its life — from research and development, introduction to the market place, manufacture, transportation, distribution use and disposal. A new **Environmental Protection Act** introduced by the Government of Canada in the Fall of 1986 addresses the management of toxic chemicals throughout their life-cycle.

A national tracking system

Perhaps the most important aspect of the Transportation of Dangerous Goods (TDG) Regulations, other than the safety aspect, is a national "manifest system" for tracking the movement of hazardous wastes. This manifest is essentially a shipping document which must accompany any hazardous waste in transit. This document must contain detailed information on the following:

- types and volume of waste being shipped;
- a record of the various firms or individuals involved in the transaction; and
- information on the treatment, storage and disposal of the wastes when they reach their final destination.

Each of the parties involved in the handling and transport of the hazardous waste is responsible for completing part of the manifest and for distributing the individual copies to the appropriate regulatory agencies for tracking










purposes. All parties involved must retain a copy of the manifest for two years, long after the waste has reached its destination. The uniform application of this system across Canada provides all parties, including provincial governments, with a record of hazardous waste shipments as well as vital information in case of accidental spills.

Another important requirement under the TDG Regulations is the need for prior notification of imports or exports of hazardous wastes. This must be submitted to Transport Canada and


DANGEROUS GOODS


LABELS

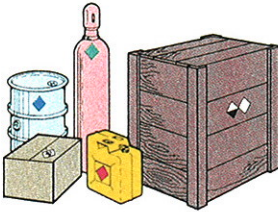
THE MARKS OF SAFETY


	CLASS 1 EXPLOSIVES
	CLASS 2 COMPRESSED GASES
	CLASS 3 FLAMMABLE LIQUIDS
	CLASS 4 FLAMMABLE SOLIDS, SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET
	CLASS 5 OXIDIZERS & ORGANIC PEROXIDES
	CLASS 6 POISONOUS & INFECTIOUS SUBSTANCES
	CLASS 7 RADIOACTIVES
	CLASS 8 CORROSIVES
	CLASS 9 MISCELLANEOUS DANGEROUS GOODS


SPECIAL LABELS











Environment Canada, in writing, at least 60 days before exporting or importing hazardous wastes, giving detailed information about the consignment(s) and the parties involved.

Handling hazardous wastes safely

Shippers and carriers of hazardous wastes are also responsible for applying safety marks, such as labels, placards and signs on all containers, packages, tanks and cylinders, and on all vehicles containing hazardous wastes. These special marks immediately identify the type of substance and nature of the hazard, while providing invaluable assistance to emergency response teams in case of an accident.

The TDG Regulations also include a requirement to train employees in the handling of hazardous wastes. In addition, the Regulations underline the need for emergency response plans for particular hazardous wastes and procedures for reporting mishaps during the transport of hazardous wastes.

Administration of the Transportation of Dangerous Goods Act

The federal Department of Transport is responsible for the administration of the Act and Regulations. Provincial and territorial governments have contributed to the development of the TDG legislation and have complimentary legislation of their own that apply mainly to road transportation. Transport Canada is responsible for ensuring compliance in rail, marine and air transport, and generally for the activities of shippers of dangerous goods, which include hazardous wastes.

Environment Canada through a Memorandum of Understanding with Transport Canada has the following responsibilities:

- implement the hazardous waste manifest system;
- operate the notification system for international and Canada/US consignments of hazardous wastes;
- recommend inclusion and deletion of specific environmentally hazardous substances or hazardous wastes;
- provide technical advice and information concerning the preservation and enhancement of the environment in the transportation of dangerous goods and hazardous wastes;

- maintain liaison with territorial, provincial, national and international environmental agencies to advise and inform Transport Canada on matters relating to the transportation of dangerous goods and hazardous wastes; and
- ensure compliance with respect to the hazardous waste aspects of the regulations through inspection duties at ports of entry and exit for international shipments of hazardous wastes.

International shipments of hazardous wastes

In addition to concern for wastes moved within our borders, Canada is an active participant in international forums on transporting wastes. Canada supports the February 1984 decision of the Organization for Economic Cooperation and Development (OECD) on transfrontier movements of hazardous waste. The decision requires that the country of origin has the responsibility to ensure that the country of destination receives adequate and timely information of any shipment involving hazardous wastes while having the option of accepting or refusing the shipment.

Relevant publications

Publications
Conservation and Protection
Environment Canada
Ottawa, Ontario
K1A 0E7

- Users' Guide for the Hazardous Waste Manifest (Transportation of Dangerous Goods Regulations)
- Users' Guide to Hazardous Waste Classification (Transportation of Dangerous Goods Regulations).

Canadian Government
Publishing Centre
Ottawa, Ontario
K1A 0S9 (819) 997-2560

- The Transportation of Dangerous Goods Regulations as amended.
- (Catalogue number for the Regulations only is SOR-85-77. Catalogue number for amendments are SOR-85-585, SOR-85-609, SOR-86-526).

For more information, please write:

Conservation and Protection
Environment Canada
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