

Managing Chemical Wrappers and Chemical Containers by the Wholesale and Retail Traders Vis-à-vis the Occupational Safety and Health Act 1994 and the Environmental Quality Act 1974

Azuddin Bahari¹, Hanum Hassan² and Faridah Wahab³

ABSTRACT

In the services sector, one prospective area for the contribution and development of SMEs is “Distributive trade” which focus on retail, wholesale, restaurants, motor vehicle distribution, motor vehicle trade and repair services, and franchising. One business undertaken by wholesale and retail trading is distributing and supplying of chemicals to the consumers. Chemical products in particular are move to consumers and to other businesses through the distribution channels. Poorly chosen channels of distribution through which goods and services flow can cause a superior product or service to be out of the market. Workers who are employed in the wholesale or retail industry at the chemical workplaces are required to manage, handle and make delivery of chemicals to client’s base on their demand. The outcomes from the process of repacking are unwanted or throw away chemical wrappers and unwanted or throw away chemical containers. This throw away chemical wrappers and chemical containers fall under the category of Scheduled Waste (SW) that is “SW 409 - Disposed Containers, Bags or Equipment Contaminated with Chemicals, Pesticides, Mineral Oil or Scheduled Wastes.” Some of the health effects due of exposure of this throw away chemical wrappers and chemical containers include skin irritation, occupational asthma, systemic chemical poisoning, chemical burns from corrosives, cancer etcetera. Since these throw away chemical wrappers and chemical containers are classified as schedule waste, hence, these wastes have to be disposed of in accordance with the Environmental Quality Act 1974 with its subsidiary legislation “Environmental Quality (Scheduled Wastes) Regulations 2005.”

Keywords: Retail, wholesale, scheduled waste, chemical wrappers, chemical containers.

1. INTRODUCTION

A number of industries and selected services have been acknowledged by the government as the focus for the development of Small and Medium Enterprise’s (SME’s) in Malaysia. In the services sector, one prospective area for the

¹ Assoc. Prof. Lt Kol (B) AZUDDIN BAHARI, Universiti Malaysia Perlis, Malaysia, azuddin@unimap.edu.my

² HANUM HASSAN, Universiti Malaysia Perlis, Malaysia, hanum@unimap.edu.my

³ FARIDAH WAHAB, Universiti Malaysia Perlis, Malaysia, faridah@unimap.edu.my

contribution and development of SMEs is “Distributive trade” which focus on retail, wholesale, restaurants, motor vehicle distribution, motor vehicle trade and repair services, and franchising.⁴ On the same note, in Section 3 of the Occupational Safety and Health (OSH) Act 1994, Wholesale and Retail business is listed as industries that have to abide by the said law⁵.

Wholesale is described as the business of buying and selling goods in quantity at discounted prices, usually direct from manufacturers or distributors, in order to sell them on to the customer. Some illustration are food, drink and tobacco; household and personal goods; motor vehicles, motorcycles, petrol, etc. on the other hand Retail trade is described as the buying and selling of goods in small amounts directly to customers, such as in shops. Some examples of the aforementioned goods are food, drink and tobacco; household and personal goods; motor vehicles, motorcycles; petrol⁶, etc

Wholesale and retail businesses are among the business strategy that takes place in Perlis in particular and Malaysia in general among entrepreneur. One of the businesses undertaken by wholesale and retail trading is distributing and supplying of chemicals to the consumers.

2. OBJECTIVE

The objective of this paper is to:

- a. Highlight the laws with regards to disposal of chemical wrappers and chemical containers.
- b. Highlight on the hazards of improper handling and disposal of chemical wrappers and chemical containers at the workplace.
- c. Proposal for continuous improvement at the workplace.

3. CHANNEL OF DISTRIBUTION OF CHEMICAL IN WHOLESALE AND RETAIL TRADES

Products and services in general and chemical products in particular are move to consumers and to other businesses through the distribution channels. Channels of distribution consist of a set of interdependent organization such as wholesalers, retailers, and sales agents involved in making a product or service available for use or consumption. Poorly chosen channels of distribution through which *goods*

⁴ SMIDEC Hand Book, Policies, Incentives, Programmes and Financial Assistance, Jan 2009

⁵ Section 3 of the Occupational Safety and Health Act 1994

⁶ Guidelines On Occupational Safety And Health Act 1994 (Act 514), Department Of Occupational Safety And Health, Ministry Of Human Resources, JKKP : GP (BI) 1/2006, ISBN 13 : 978-983-2014-55-3, ISBN 10 : 983-2014-55-7, JD118024, 2006, Page 3

and services flow, could doom a superior product or service in the market. In short, distribution describes all the logistics involved in delivering a company's products or services to the right place, at the right time, for the lowest cost⁷.

Channel structures range from two to five levels as shown in Diagram1. The simplest is a two-level structure in which goods and services move directly from the manufacturer or provider to the consumer. Two-level structures occur in some industries where consumers are able to order products directly from the manufacturer and the manufacturer fulfills those orders through its own physical distribution system. In a three-level channel structure retailers serve as intermediaries between consumers and manufacturers. Retailers order products directly from the manufacturer, and sell those products directly to the consumer. A fourth level is added when manufacturers sell to wholesalers rather than to retailers. In a four-level structure, retailers order goods from wholesalers rather than manufacturers. Finally, a manufacturer's agent can serve as an intermediary between the manufacturer and its wholesalers, creating a five-level channel structure consisting of the manufacturer, agent, wholesale, retail, and consumer levels. A five-level channel structure might also consists of the manufacturer, wholesale, jobber, retail, and consumer levels, whereby jobbers service smaller retailers not covered by the large wholesalers in the industry⁸.

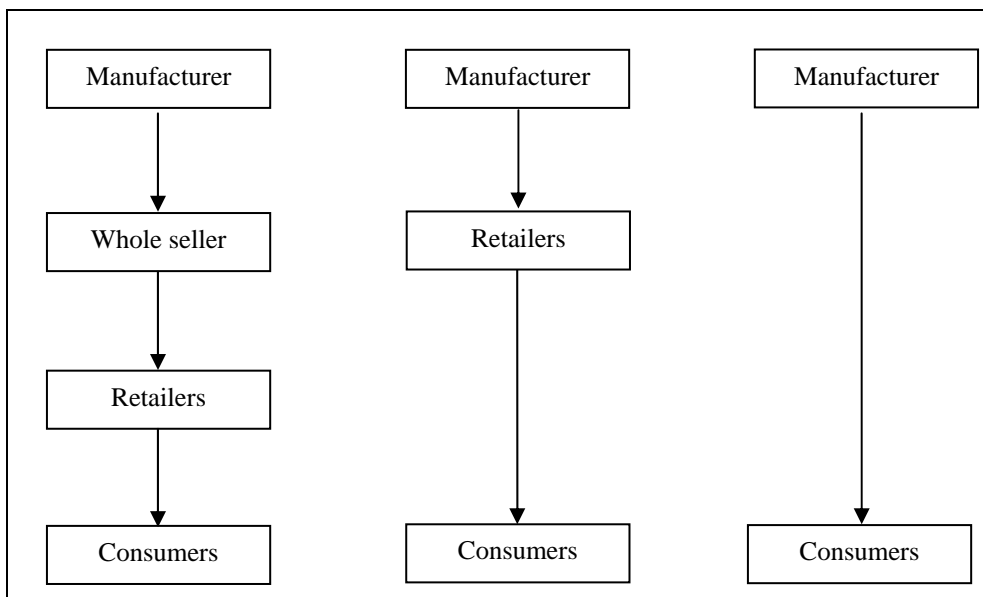


Diagram 1: Distribution/Marketing Channel.

⁷ <http://www.enotes.com/distribution-channels-reference/distribution-channels>

⁸ <http://www.enotes.com/distribution-channels-reference/distribution-channels>

4. SCENARIO AT THE WHOLESALE AND RETAIL TRADE WORKPLACE

Workers who are employed in the wholesale or retail industry at the chemical workplace are required to manage, handle and make delivery of chemicals to client's, based on their demand. One of the ability that are desirable of these workers in the aforementioned industry is repacking of chemicals from bulk consignment to small packages for delivery. Chemicals consignment received from the manufacturer are repacked or brokedown from large quantity to small quantity based on demand.

Some examples of the chemicals handled by these workers are hydrochloric, hydrofluoric, sulfuric, nitric, sodium hydroxide, hydrogen peroxide and many more. These chemicals are hazardous to health if not handled correctly. A list of hazardous chemicals to health can be obtained at Schedule 1, Occupational Safety and Health (Classification, Packaging and Labeling of Hazardous Chemicals) Regulation 1997⁹. The outcomes from the process of repacking are unwanted or throw away chemical wrappers and containers. The workers are unaware of the methods of disposal of wrappers and chemicals containers. The aforementioned items have end up as refuse waste thrown into rubbish bin. This throw away chemical wrappers and chemical containers fall under the category of Scheduled Waste "**SW 409 - Disposed Containers, Bags or Equipment Contaminated with Chemicals, Pesticides, Mineral Oil or Scheduled Wastes.**"¹⁰

These aforementioned chemicals have the characteristic namely corrosives, flammables, oxidizers/reactive and toxin hazards. It is here that workers are exposed to hazardous conditions; the negligence will result in occupational diseases and industrial accidents. Workers undertaking chemical handling at the workplace faced the hazards which are categorized based on physicochemical properties and health effect as at Table 1.¹¹ Thus, it's important that the workers understand how to deal with the risks associated with chemicals.

Table 1: Hazards Based on Physicochemical Properties and Health Effect

PART A : Classification based on physicochemical properties		
1.	Explosive	chemicals and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene
2.	Oxidizing	chemicals and preparations which raise highly exothermic reaction

⁹ Occupational Safety and Health (Classification, Packaging and Labeling of Hazardous Chemicals) Regulation 1997

¹⁰ First Schedule, Environmental Quality (Scheduled Wastes) (Amendment) Regulations 2007

¹¹ Regulation 2, Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulation 1997

		when in contact with other chemicals, particularly flammable chemicals
3.	Extremely flammable	liquid chemicals and preparations having a flash point lower than 0 degree Celsius and a boiling point lower than or equal to 35 degree Celsius
4.	Highly flammable	<p>(i) Chemicals and preparations which may become hot and finally catch fire when in contact with air at ambient temperature without any application of energy;</p> <p>(ii) solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or be consumed after removal of the source of ignition;</p> <p>(iii) liquid substances and preparations having a flash point below 21 degrees Celsius;</p> <p>(iv) gaseous substances and preparations which are flammable in air at normal pressure; or</p> <p>(v) substances and preparations which when in contact with water or damp air, evolve highly flammable gases in dangerous quantities</p>
5.	Flammable	Liquid substances and preparations having a flash point equal to or greater than 21 degrees Celsius and less than or equal to 55 degrees Celsius.
Part B: Classification base on health effect		
1.	Very toxic	<p>(i) substances and preparation which if inhaled or ingested or penetrated into the skin may involve extremely serious, acute or chronic health risks or even death; or</p> <p>(ii) substances and preparations for which the LD-50 absorbed orally in rat is less than 25 mg/kg or the LD-50 percutaneous absorption in rat or rabbit is less than 50 mg/kg or the LC-50 absorbed by inhalation in rat is less than 0.5 mg/litre (administered for a minimum period of four hours)</p>
2.	Toxic	<p>(i) substances and preparations which if inhaled or ingested or penetrated into the skin may involve serious, acute or chronic health risks or even death;</p> <p>(ii) substances and preparations for which the LD-50 absorbed orally in rat is between 25 to 200 mg/kg or the LD-50 percutaneous absorption in rat or rabbit is between 50 to 400 mg/kg or the LC-50 absorbed by inhalation in rat is between 0.5 to 2 mg/litre (administered for a minimum</p>

		period of four hours); or (iii) substances and preparations which are defined as carcinogenic, teratogenic or mutagenic
3.	Harmful	(i) substances and preparations which if inhaled or ingested or penetrated into the skin may involve limited health risks; or (ii) substances and preparations for which the LD-50 absorbed orally in rat is between 200 to 500 mg/kg or the LD-50 percutaneous absorption in rat or rabbits is between 400 to 2000 mg/kg or the LC-50 absorbed by inhalation in rat is between 2 to 20 mg/litre (administered for a minimum period of four hours)
4.	Corrosive	substances and preparations which may, on contact with living tissues, destroy them
5.	Irritant	non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation
Source: Regulation 2, Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulation 1997		

Disposal of Throw Away Chemical Wrappers and Chemical Containers

According to First Schedule Environmental Quality (Schedule Waste) Regulation 2005, there are 77 categories of toxic and hazardous wastes. Since these throw away chemical wrappers and containers are classified as schedule waste, hence, these wastes have to be disposed of in accordance with the Environmental Quality Act 1974 with its subsidiary legislation “Environmental Quality (Scheduled Wastes) Regulations 2005”.

The law also requires the treating and disposing of schedule waste at facilities approved by the authorities.

Effects of Throw Away Chemical Wrappers and Containers on Health

The throw away chemical wrappers and containers will pollute the environment if not properly handled by the waste generator. On the same note, since the waste generator administer the disposal of the chemical wrappers and containers as general waste or domestic waste, done so as to reduce cost of treatment, the air, water and soil especially in the landfill areas, will be contaminated by the residue of hazardous chemicals. In addition, the residue hazardous chemical could enter human body through inhalation of contaminated air, ingestion of contaminated water, and absorption through skin once exposed to polluted environment.

Some of the health effects due to exposure to hazardous chemicals include skin irritation, occupational asthma, systemic chemical poisoning, chemical burns from corrosives, cancer etcetera. Factors that determine whether illness or disease occurs include amount (dose) absorbed and route of exposure, cumulative length of time of exposure, age at which exposure began simultaneous exposure to other hazardous chemicals, and sensitivity to the chemical's effects¹². There is a large body of evidence linking chemical exposure to thyroid immune reproductive and neurological problems in animals, and many of the same or similar diseases and disorders have been observed to be rising in human populations¹³. The study has been published in a report entitled "The Impacts of endocrine disrupters on wildlife, people and their environments.

5. SAFETY MEASURES AT THE WORKPLACE

Risk Assessment.

The employer must conduct the risk assessment before any activity of chemical transferring and handling done in their premise to avoid any potential of hazard and reduce risk to accident, health and environmental effect.

Schedule Waste Storage.

The throw away chemical wrapping and bottles must be properly stored and label in accordance to the Environmental Quality (Schedule Waste) Regulation 2005. The compatibility of the waste chemical should be identified by referring to Fourth Schedule, Environmental Quality (Schedule Waste) Regulation 2005 so as to avoid reaction that will occur in the storage area.

Training.

The workers must be specially trained in handling of hazardous waste to ensure that they are safe at the workplace and aware of the hazard arising from their activity.

Material Safety Data Sheet (MSDS) or Chemical Safety Data Sheet (CSDS).

MSDS or CSDS must be made available to workers involve in chemicals handling and specific warning sign must be shown for potentially dangerous chemicals.

Personal Protective Equipment (PPE).

The employer should provide proper PPE such as appropriate gloves and goggles to their worker at work while handling chemical.

¹² <http://www.deir.qld.gov.au/workplace/subjects/hazardousmaterials/definition/effects/index.htm>

¹³ New Sunday Times, Chemicals in everyday items causing cancer, 13 Mei 2012, Page 25.

Work Area.

As a minimum requirement, two persons should be present during chemical handling at the workplace.

Neutralization of Waste.

Waste products and disposals must be discharged with proper neutralization. If the material to be disposed is extremely toxic or poisonous, the material should be kept in closed container and sent to appropriate agency for proper disposal.

CONCLUSION

The business strategy undertaken by wholesale and retail trading is distributing and supplying of chemicals to the consumers. The process of repacking outcomes from unwanted or throw away chemical wrappers and chemical containers. This throw away chemical wrappers and chemical containers fall under the category of Scheduled Waste that is “**SW 409 - Disposed Containers, Bags or Equipment Contaminated with Chemicals, Pesticides, Mineral Oil or Scheduled Wastes.**” Some of the health effects due of exposure of this throw away chemical wrappers and chemical containers include skin irritation, occupational asthma, systemic chemical poisoning, chemical burns from corrosives, cancer etcetera.

RECOMMENDATIONS

For continuous improvement at the wholesale and retailer’s workplace in relation to chemical management, the following recommendations are suggested:

- a. The employers must be aware of the requirement of the safety and health law at the workplace especially with reference to chemical handling.
- b. The employer is to conduct Hazard Identification, Risk Analysis, and Risk Control (HIRARC) at the chemical handling workplace.
- c. The employees must be made aware of chemical safety handling in relation by to the MSDS or CSDS.

REFERENCES:

Environmental Quality Act 1974, Environmental Quality (Schedule Waste) Regulation 2005, Incorporating latest amendments. P.U (A) 158/2007.

Guidelines On Occupational Safety And Health Act 1994 (Act 514), Department Of Occupational Safety And Health, Ministry Of Human Resources,

JKKP: GP (BI) 1/2006, ISBN 13: 978-983-2014-55-3, ISBN 10: 983-2014-55-7, JD118024, 2006, Page 3.

<http://www.deir.qld.gov.au/workplace/subjects/hazardousmaterials/definition/effects/index>

<http://www.enotes.com/distribution-channels-reference/distribution-channels>

<http://www.enotes.com/distribution-channels-reference/distribution-channels>

New Sunday Times, Chemicals in everyday items causing cancer, 13 Mei 2012, Page 25.

Occupational Safety and Health (Classification, Packaging and Labeling of Hazardous Chemicals) Regulation 1997.

SMIDEC Hand Book, Policies, Incentives, Programmes and Financial Assistance, Jan 2009.

The Occupational Safety and Health Act 1994.