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Siah Huey Ling
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SCIC Guidebook on Transport & Handling of Dangerous Goods

Chapter 2

2.1 Introduction

- The movement of Dangerous Goods through Port Terminals – *Maritime Port Authority of Singapore or MPA* (previously Port of Singapore Authority or PSA)
- The transportation of Radioactive Materials – *Centre for Radioactive Protection and Nuclear Science, National Environment Agency* (previously Health Science Authority)
- *Inserted: Strategic Goods Control Act (STGA). The Strategic Goods Control list contains descriptions of items and technology that are subjected to control under the Strategic Goods (Control) Act. Goods and technology that fall into any of the descriptions in the control list are known as strategic goods and strategic goods technology respectively – Singapore Customs.*

2.3 The Movement Of Dangerous Goods Through Port Terminals – *PSA Corporation*

2.3.1 Scope

- Based on the grouping of the chemical, it regulates the movement of the chemical upon arrival at PSA Terminals where consignee needs to act accordingly:-
(revised groupings as follows):

Group I DG recommended for storage and unstuffing at DG warehouse F5. Direct Delivery at Cargo Terminals (PPW and SW).

Group I DG Not recommended for storage at DG yard.

Group II DG Not recommended for storage at DG yard.

Group II DG recommended for storage and unstuffing at DG warehouse F5. Direct Delivery at Cargo Terminals (PPW and SW).

Group II DG recommended for storage at DG yard only. Direct Delivery at Cargo Terminals (PPW and SW).

Group II DG recommended for storage at DG yard only. Direct Delivery at Cargo Terminals (PPW and SW).

Group II DG recommended for storage at DG yard only. Direct Delivery at Cargo Terminal (PPW and SW).

Group III DG recommended for storage.

2.3.2 Updates

- For more details, please visit the *(revised website)*:
<http://www.singaporepsa.com/business/chemcare.html>

2.4.2 Import/Sale/Use/Storage

- An importer needs to refer to the List of Controlled Hazardous Substances *(revised website)*:
<http://app2.nea.gov.sg/legislation.aspx>
- A Hazardous Substances Permit is required for the purchase, storage and use of Hazardous Substances listed in the: *Environmental Protection and Management (Hazardous Substances) Regulations, Reg 4. – revised*
- PCD authorises the storage or warehousing of Hazardous Substances listed in The Schedule of the *Environmental Protection and Management (Hazardous Substances) Regulations* by issuing the company with a Hazardous Substances Permit. *Revised website*:
http://www.nea.gov.sg/cms/ld/legislation/EPMA_Reg_4.pdf

2.4.3 Transport Approval

- *Inserted: For further details on application of (TERP) for controlled products, details can be obtained at website:*

2.4.4 Hazardous Materials Drivers Course

- Under the current Fire Safety Act (FSA), *Environmental Protection and Management Act (EPMA) and Arms and Explosives Act (inserted)*, drivers transporting hazardous materials are required to be competently trained in preventing and mitigating accidental releases.
- *(Inserted)*- Apart from (SCDF & PSA) the other body conducting this course is Avion Avionics .Listed below are websites for detail preview of information related to the Course:
http://www.scdf.gov.sg/Courses_Downloads/CDA/HazMat_Driver_Course_eng/
<http://www.singaporepsa.com/psati/local/HMTD.pdf>
<http://www.avionavionics.com/hazmatdrivercourse/>

2.4.7 Updates

- For further update on Control of Hazardous substance, please refer to *(revised website)*:
<http://app2.nea.gov.sg/legislation.aspx>

2.5.2 Licensable Products

- **Petroleum**
(Inserted):
CLASS III – Liquefied Petroleum with a Flash Point between 61 and 93 degree C

Class 0, I & II petroleum are regulated by SCDF. For Class III petroleum, diesel is the only licensable product
- *(Inserted): Mixture*
Any mixture that contained component of petroleum and / or flammable materials and has a flash point less than 61 deg C (141 degree F) is regulated by SCDF.

2.5.3 Licence & Approval to Import/Sell, Store and Transport

An importer needs to refer to the list of licensable products - http://www.scdf.gov.sg/Building_Professionals/Fire_Safety_Licensing_and_Enforcement/Petroleum_Storage_and_Transportation *(revised website)* and apply for the relevant licence - http://www.scdf.gov.sg/Building_Professionals/E-services *(inserted website)*

2.5.6 Vehicle

The Vehicle used for the transportation of the scheduled products requires appropriate hazard warning panels or labels *(inserted): The vehicle shall require to be fitted with tracking devices, immobilizers and orange-coloured licence plates if carrying:*

- (a) Schedule petroleum and flammable materials of total net quantity exceeding 3 metric tonnes;*
- (b) Flammable gases e.g. Hydrogen, CNG, etc. in long tubes (tube trailers).*

2.6 The Transportation of Radioactive Materials

– *Centre For Radioactive Protection and Nuclear Science, National Environment Agency* (previously Health Science Authority)

2.6.6 Updates

- For more details refer to <http://app2.nea.gov.sg/legislation.aspx> *(revised website)*

2.10 Singapore Standards And Codes Of Practice

- *Singapore Standard 586 (SS 586) - Hazard Communication for Hazardous Chemicals and Dangerous Goods (Revision of SS 286 and CP 98).*
SS 586 comprises three parts:

Part 1: Transport and storage of dangerous goods provides information on labeling requirements applicable to storage and road transportation of dangerous goods in Singapore.

Part 2: Globally Harmonised System of classification and labelling of chemicals –Singapore’s adaptations.

Part 3: Preparation of Safety Data Sheets (SDS).

- *Singapore Standard 532 (SS 532) – Storage of Flammable Liquids (Revision of CP40)*
- *CP61 and CP78 – withdrawn in September 2008*

Chapter 3

3.2.5.2.2 Use of ISO Tank Containers for transportation

- Periodical testing certificates *for Hydrostatic test (every 5 years) & Pneumatic test (every 2.5 years) - Inserted*

3.7.4.1 Shipper’s Declaration for air shipment of dangerous goods

- *As required , the declaration form has to be signed by competent personnel who has attended and passed the training course from the accredited training centre - Inserted*

Chapter 4

4.1 What is Hazard Communication?

- Hazard communication involves communicating the dangers of the Dangerous Good to those involved through labels, *Safety Data Sheets (SDS)* – formerly known as Material Safety Data Sheets (MSDS).

Note: The word “MSDS” which appeared in this chapter would be referred as SDS.

4.2 Classification

- Figure 4.1- *revised as follows:*

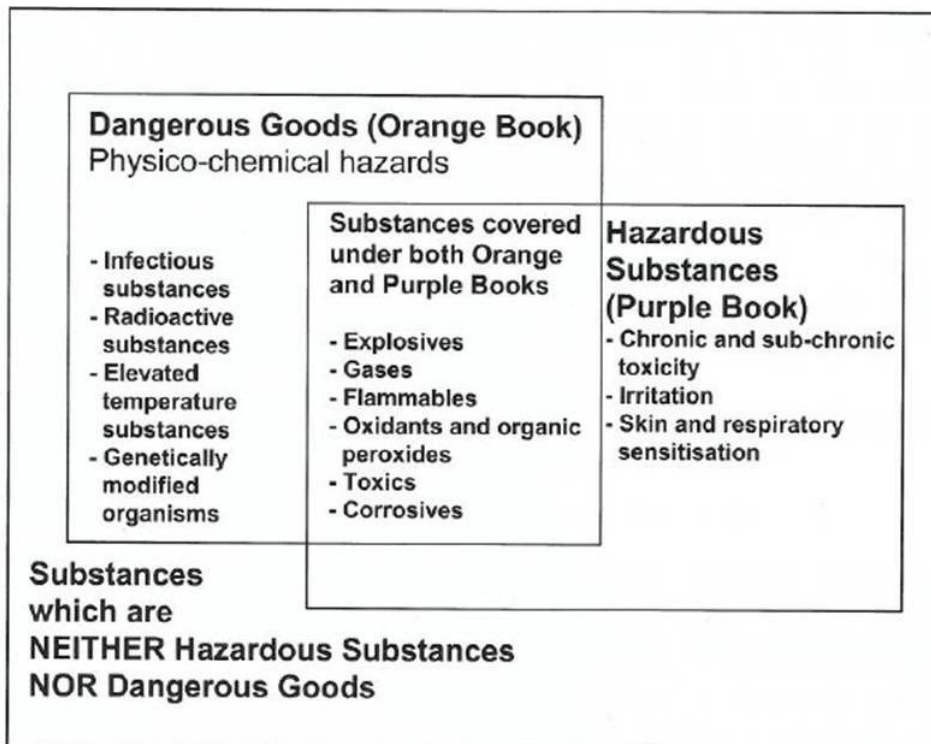


Figure 4.1: Relationship between Hazardous substances (for workplace purposes), dangerous goods (for transport purposes) and other substances. The UN has ensured where hazards are common to both systems, the criteria for that particular hazard will be the same.

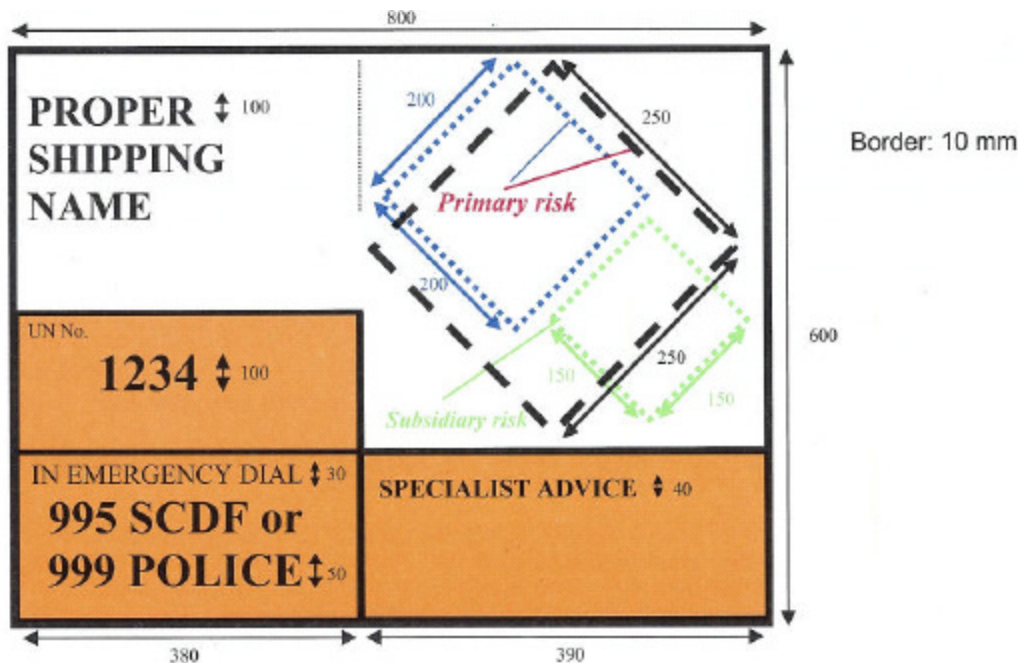
4.3 Labels

- Figure 4.2 (*Inserted*):

Color Code :
 Red (Pantone 192)
 Orange (Pantone 151)
 - (Pantone® is a registered trademark of Pantone, Inc)

4.3.1 Transport Label

- This can be achieved by labeling with placards or displaying *Transport Emergency Information Panels (TEIP)* (previously Emergency Information Panels (EIP))
- SS286: Specification for Caution Labelling of Hazardous Substances, as revised to:
SS586: Hazard Communication for Hazardous Chemicals and Dangerous Goods, Part 1: Transportation and storage of dangerous goods, either through administrative control or being specified in the regulations. (Refer to chapter 2.10)
- Figure 4.3-revised as follows:



4.4 Safety Data Sheet (formerly known as MSDS)

- The information in the SDS should be presented using the following 16-headings in the order given below:
Inserted - Section 2 and 3 are being shuffled from the previous MSDS format.
- Under heading # 16 Other information, *inserted - including information on preparation and revision of the SDS*
- Section 14 of the SDS contains the Dangerous Goods transportation information about the chemical, if it is applicable.* (previously was under section 15)
- Inserted – Manufacturers and suppliers shall keep the SDS up-to-date and provide the employer or factory occupier with the latest edition. In any event, SDS should be reviewed not longer than 5 years from the last date of issuing.*

4.5 Hazchem Code and Figure 4.4 – removed - as hazchem code is no longer in use

4.6 Tremcard and Figure 4.5 – removed - *as tremcard is no longer in use.*

Chapter 5

5.2 Classes Of Dangerous Goods

- DG Class 1 Explosives – **Inserted:** *Class 1 is a restricted class. Only those listed in the Dangerous Goods List (Orange Book) are accepted for transport.*
- DG Class 2 Gases – **Inserted:** There are 3 sub-classes of gases, which may be compressed, liquefied (*high or low pressure*), *refrigerated liquefied* or dissolved under pressure, they are:
- Class 2.3 – **Toxic** gases (*revised from Poisonous*) “Poisonous/Poison gases” which appeared in this chapter would be referred as Toxic gases.
- Class 2.1 Flammable gases, 2. Fuel - **Inserted:** *Normally, this group of gases has a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.*
- Class 2.3 **Toxic** Gases – **Inserted:** Generally, they have an LC₅₀ value equal or less than 5000 ml/m³ (ppm).
- DG Class 3 Flammable liquids; 2. Fuel - This class includes all liquids with a flash point of ≤60°C (previously stated as 61°C)
- DG Class 3 Flammable liquids; Associated hazards - Exposure to flammable vapours below the lower explosive level may cause adverse health effects in employees if the exposures are above occupational exposure standard levels as defined in the *Workplace Safety and Health Act*.(previously Factories Act)
- Class 7 Radioactive substances - This class of Dangerous Goods are not usually handled by the chemical industry. They are regulated by the Radiation Protection Act and Regulations, including the Radiation Protection (Transport of Radioactive Materials) Regulations that are administered by the *National Environment Agency*.(Previously MOH)

Chapter 6

6.3 Emergency Response Contacts

Revised contacts:

- Centre for Radiation Protection and Nuclear Science, National Environment Agency - www.nea.gov.sg
- Water Supply, Public Utilities Board - 1800 284 6600
- Drug & Poison Information Centre - 6423 9119

Removed contacts:

- Singapore Civil Defence Emergency Information hotline 18002865555

6.4 Transportation Emergency Response Plan Format

Inserted: *The format for the Package/Bulk Transportation Emergency Response Plan is as follows:*

(i) For package transportation

[TERP\Package](#)

(ii) For bulk transportation

[TERP\Bulk\Bulk TERP Plan.doc](#)

[TERP\Bulk\Bulk TERP Annex A Singapore Map.ppt](#)

[TERP\Bulk\Bulk TERP Annex B Summary Table of Chemicals.doc](#)

[TERP\Bulk\Bulk TERP Annex D Grouping and Tasks.doc](#)

[TERP\Bulk\Bulk TERP Annex F Table of Approved Vehicles.doc](#)

[TERP\Bulk\Bulk TERP Annex H Photo of Approved Vehicle.doc](#)

For more details on the guidelines and format on the Transportation Emergency Response Plan for transportation of petroleum & flammable materials within Singapore and transportation of hazardous chemicals within Singapore, please visit:

http://www.scdf.gov.sg/Building_Professionals/Fire_Safety_Licensing_and_Enforcement/Petroleum_Storage_Tp.html

Appendix 7 – Dangerous Goods Signs

- Class 1 Explosives: *DG sign revised as follows:*



- Class 2.2 Non-flammable – Non-toxic gas: *DG sign revised as follows:*



- Class 2.3 **Toxic** (previously poison) Gases: *DG sign revised as follows:*



- Class 3 Flammable Liquids:
 - Liquids having a flash point not higher than **60 °C**. (Previously 61 °C)
 - Substances which have a flash point above **60 °C** are not considered to be dangerous by virtue of their low fire hazard. (Previously 61 °C)
- Class 4.2 Substances liable to spontaneous combustion: *DG sign revised as follows:*



- Class 5.1 Oxidising Substances: *DG sign revised as follows:*



- Class 5.2 Organic Peroxides: *DG sign revised as follows:*



- Class 6.1 Toxic Substances: *DG sign revised as follows:*



- Class 6.2 Infectious Substances: *DG sign revised as follows:*



- Class 7 Radioactive Substances: *DG sign revised as follows:*



- Class 8 Corrosives: *DG sign revised as follows:*



- Class 9 Miscellaneous Dangerous Substances: *DG sign revised as follows:*



- Marine Pollutant Mark: *inserted as follows:*

