Management of Hazardous Chemicals in Asia Pacific Regions

REACH24H

Chuck Zhang

Part 1

The Origin & Content of GHS

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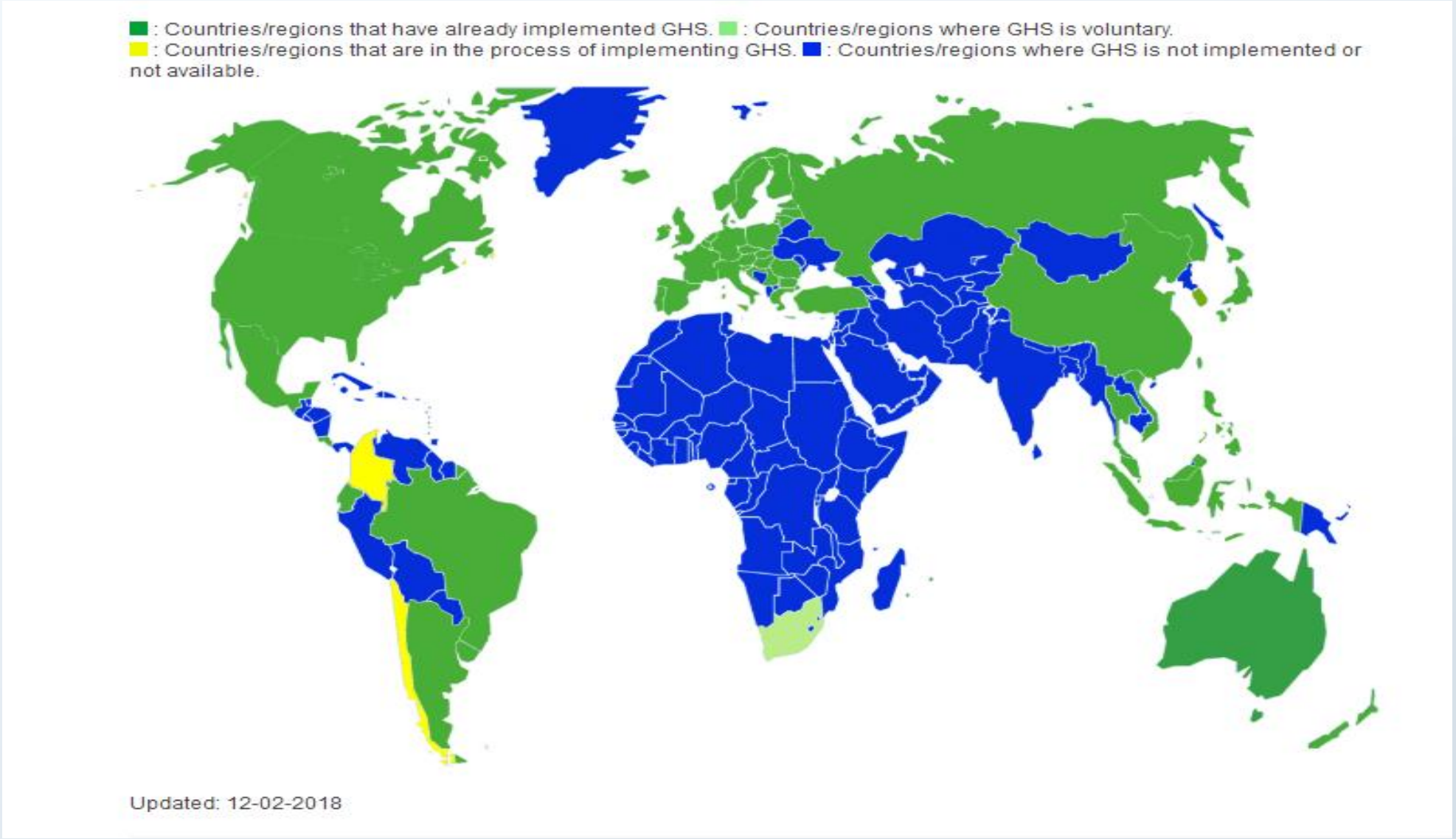
■ Background： GHS Formation

➢What is GHS?

Globally Harmonized System of Classification and Lablling of Chemicals (GHS)

The Origin & Content of GHS



The Origin & Content of GHS

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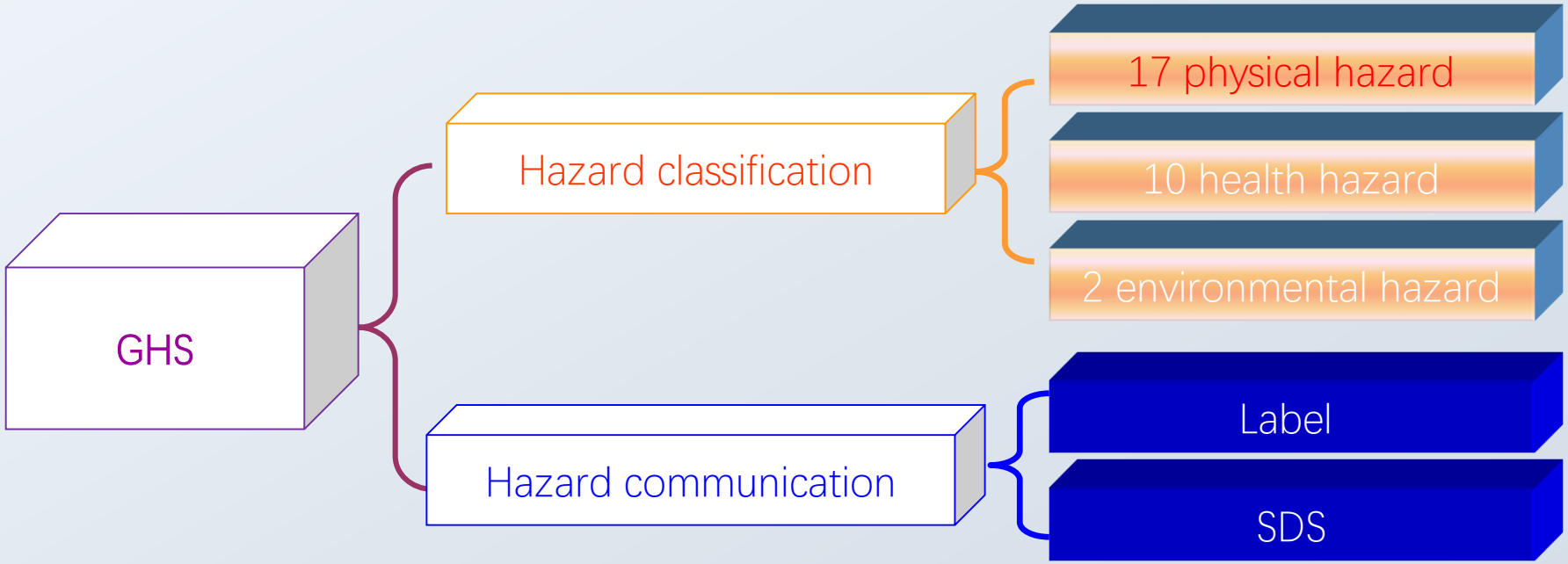
Globally Harmonized System of Classification and Labelling of Chemicals



The Origin & Content of GHS

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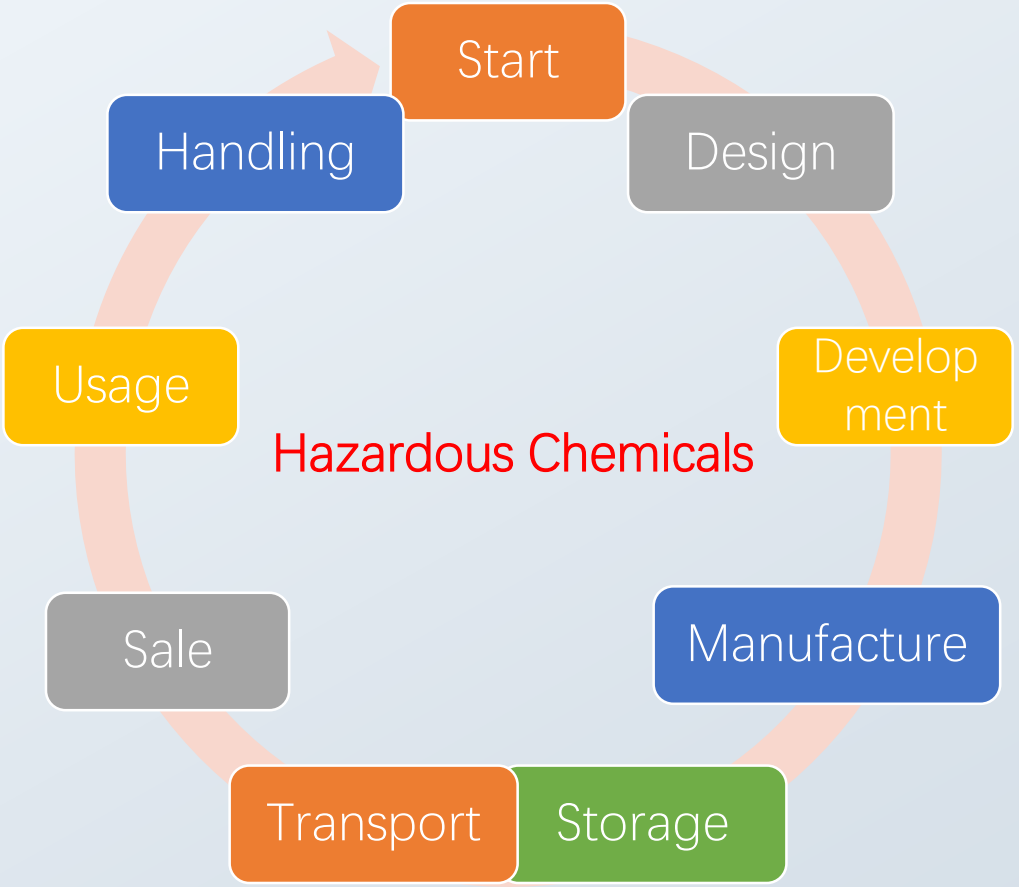
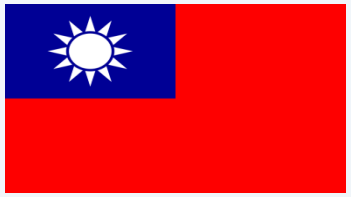
The Scope of GHS



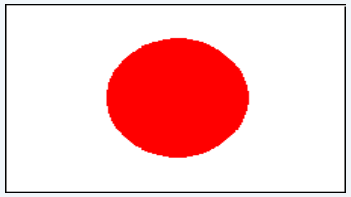
Part 2

Latest Progress of GHS in Asia Pacific Regions



Taiwan GHS

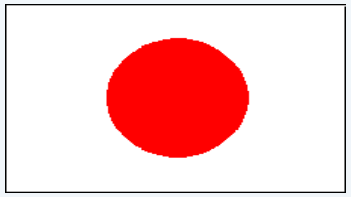
Laws	• **Toxic Chemical Substance Control Act(TCSCA)** • **Authority: Environment Protection Administration(EPA)** • **Occupational Safety and Health Act(OSHA)** • **Authority: The Ministry of Labor(MOL)**
Regulations and Standards	• Regulation of Labelling and Hazard Communication of Hazardous Chemicals by MOL （01/01/2016） • CNS 15030 Classification and Labelling of Chemicals • Labelling and Safety Data Sheets for Toxic Chemicals by EPA



Japan GHS

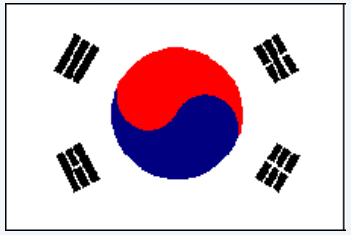
2001，A series of activities related to GHS started（The first translated version of Japanese GHS in 2004）

Laws	Substances	SDS	label
ISHL	644 substances (Critical value)	compulsory （risk evaluation ）	compulsory
PRTR	First phase:Specific chemical substances （462） Second phase: Specific chemical substances （100）	compulsory	Reasonable effort: substances，from 01/6/2012；mixtures, from 01/4/2015.
PDSCL	Poisonous substances （110） Deleterious substances （373）	compulsory	compulsory



Japan GHS

JIS 7252(Latest version JIS7252-2014)	• **Standard Name: JIS7252 Classification of Chemicals Based on GHS;** • **Chemical classification criteria;** • **Based on GHS Rev.4**
JIS 7253 (Latest version JIS7253-2012)	• Standard Name: JIS7253 Hazard Communication of Chemicals Based on GHS-Labelling and SDS • Based on GHS Rev.4; • Standard 16-section SDSs and label elements; • Entry into force: 1 Jan 2017;



South Korea GHS

Laws & Regulations	TCCA revoked and divided into K-REACH and CCA(01/01/2015)	ISHA
Administrative department	Ministry of Environment（MOE）	Ministry of Labour（MOL）
Classification	compulsory http://ncis.nier.go.kr/ghs/hcs/en/search/search_en_01.jsp	Voluntary http://msds.kosha.or.kr/kcic/english/msdssearch.do
Transitional period	Substance：2011.7.1 Mixture：2013.7.1 New Substance：2008.7.1	Substance：2010.7.1 Mixture：2013.7.1
	Fully implemented GHS for substances and mixtures on 1/07/2013	

✓ **Classification、Label、SDS guideline：MoL Notice no. 2016-69** （Based on UN GHS Rev.4 ）

Philippines GHS

☐ Department of Labor and Employment

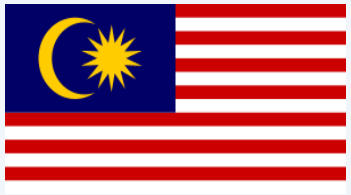
- ✓ DOLE order No.136-14：Guidelines for the Implementation of Global Harmonized System (GHS) in Chemical Safety Program in the Workplace
- ✓ Applied to all chemical substances manufactured、used、stored in workplaces
- ✓ Based on 4th revised version of UN GHS
- ✓ Effectiveness on 27/06/2014, transitional period until 27/06/2015

Philippines GHS

☐ Department of Environment and Natural Resources

- ✓ DENR Administrative order No. 2015-09：Rules and the Procedures for the Implementation of the Globally Harmonized System (GHS)
- ✓ Applied to toxic chemicals
- ✓ Transitional period：

2016	Substances and Compounds involved in CCO and PCL
2017	High volume toxic chemicals
2018	Toxic chemicals involved in IATA and of IMDG list of dangerous goods
2019	Mixture



Malaysia GHS

☐ Department：DOSH (Department of Occupational Safety and Health)

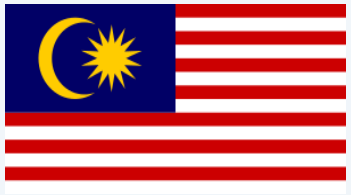
☐ 《Class regulations 2013》

- ✓ 《Occupational safety and health（Classification, label and SDS of hazardous chemicals）regulations 2013》（《Class Regulations 2013》） officially released on 11/10/2013.
- ✓ Based on 3rd revised version of UN GHS

☐ Transitional period

- ✓ ICOP(Industry Code of Practice) published on 16/04/2014

☐ Responsibility/Obligation：Classification、Packaging、Label and SDS (both in English and Malay)、Notification, etc.



Malaysia GHS

☐ Confidential Business Info

- Substance name
- Concentration of the ingredients
- Classification of the hazardous chemicals

Concentration range

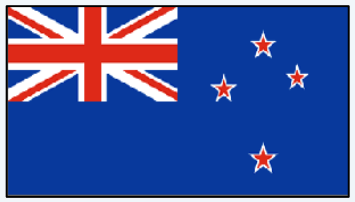
＜1%
1 to ＜3%
3 to ＜5%
5 to ＜10%
10 to ＜30%
30 to ＜60%
＞60%

Australia GHS

《Model Work Health and Safety Regulations》, took effect in 1/01/2012；signifies the gradual implementation of GHS in Australia；

- Based on Rev. 3rd UN GHS；transitional period of 5 years（till 01/Jan/2017 compulsory）
- Adopted additional non GHS hazard information(AUH statements)

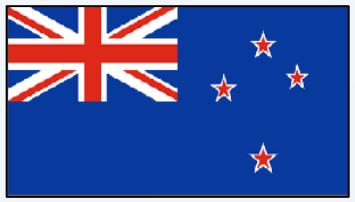
	After 2017.1.1	Before 2017.1.1
National Standard-classification	New classification– Rev. 3rd UN GHS	Old classification standard-NOHSC:1008(2004)，or new classification standard
SDS	Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals	NOHSC:2011(2003)，or new compilation standard
Label	Model Code of Practice - Labelling of Workplace Hazardous Chemicals	NOHSC: 2012 (1994)，or new compilation standard



New Zealand GHS

Laws & Regulations

- 《Hazardous Substances and New Organisms Act》, known as HSNO Act 1996
- （Hazardous Substances (Classification) Regulations 2001）
- （Codes of Practice）
  - ✓ **HSNO CoP 8-1**：Guideline on preparation of SDS，implemented on 30/06/2008
  - ✓ **HSNO CoP 10-1**：Guideline on preparation of Label，implemented on 31/12/2010



New Zealand GHS

☐ Changes on SDS

✓ Section 2 must provide the HSNO or GHS classification

✓ The notice requires you to list components in mixtures that have toxic (class 6), corrosive (class 8) or ecotoxic (class 9) hazards when above certain concentration levels. These changes more closely align our rules with the GHS.

✓ The Notice will allow GHS-compliant SDSs from Australia, EU, Canada, and USA as long as some New Zealand specific information is also included.

✓ The notice also requires more details in section 15 of the SDS. For example, applicable tolerable exposure limits and environmental exposure limits must be given.

Other Asian GHS

	GHS related regulations and standards	Notices
Indonesia	23/M-IND/PER/4/2013 (4th version of UNGHS)	Exemption
Singapore	WHSR, SS 586:2014 (4th version of UNGHS)	--
Vietnam	Circular No. 32/2017/TT-BCT, Decree No.113/2017/ND-CP	Top law: law on chemical
Thailand	B.E.2555(2012) (3rd version of UNGHS)	B.E.2558(2015)

GHS standards in Asia

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Country	Classification	label	SDS	UNGHS
China-Mainland	GB 30000.2~29-2013	GB 15258-2009	GB/T16483-2008 GB/T17519-2013	Rev. 4th
China-Taiwan	CNS 15030 series	《Labelling and general principles of hazardous chemicals》		Rev.4
South Korea	MOEL Public Notice 2016-69			Rev. 4th
Japan	JIS 7252-2014	JIS 7253-2012 (replaced JIS 7250 & 7251)		Rev. 4th
Thailand	B.E. 2555 (2012)			Rev. 3th
Vietnam	Circular 32/2017/TT-BCT			Rev. 2nd onwards
Phillipines	DOLE DO No. 136-14 (applicable to workplace industrial chemicals)			Rev. 3th
Singapore	SS 586: 2014			Rev. 4th
Malaysia	CLASS ICOP 2014			Rev. 3th
Indonesia	Order No.04/BIM/PER/1/2014		Appendix II, MOI No.23/M-IND/PER/4/2013	Rev. 4th
Australia	WHS 2012 (UN Rev. 3)	Code of Practice-2011		Rev. 3th
New Zealand	HSNO Act			Rev. 3th

GHS updates

- UNECE：
  http://www.unece.org/trans/danger/publi/ghs/implementation_e.html

- Chemlinked
  https://chemlinked.com/

Part 3

Compliance Strategies of GHS in Asia Pacific Regions

Comparison of classification

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GHS Class/Category		UN GHS Rev.5 , 2013	China GB 30000-2013 (UN Rev. 4)	Japan JIS Z 7252-2014 (UN Rev. 4)	Korea MoL Notice no. 2012-14 (UN Rev. 3)	Taiwan 危害标示及通识规则-民国103.6.27	Singapore SS 586-2014 (UN Rev. 4)	Thailand MOI BE 2555-2012 (UN Rev.3)	Malaysia Class 2013 (UN Rev. 3)	Australia WHS 2012 (UN Rev. 3)
Flammable gases	Flam. Gas 1	√	√	√	√	√	√	√	√	√
	Flam. Gas 2	√	√	√	√	√	√	√	√	√
	Chem. Unst. gas A	√	√	√	X	X	X	X	X	X
	Chem. Unst. gas B	√	√	√	X	X	X	X	X	X
Flammable aerosols	Flam. Aerosol 1	√	√	√	√	√	√	√	√	√
	Flam. Aerosol 2	√	√	√	√	√	√	√	√	√
	Flam. Aerosol 3	√	√	√	X	X	X	X	X	X
Oxidising gases	Ox. Gas 1	√	√	√	√	√	√	√	√	√
Gases under pressure	Compressed gas	√	√	√	√	√	√	√	√	√
	Liquefied gas	√	√	√	√	√	√	√	√	√
	Refrigerated	√	√	√	√	√	√	√	√	√
	Dissolved gas	√	√	√	√	√	√	√	√	√
Flammable liquids	Flam. Liq.1	√	√	√	√	√	√	√	√	√
	Flam. Liq.2	√	√	√	√	√	√	√	√	√
	Flam. Liq.3	√	√	√	√	√	√	√	√	√
	Flam. Liq.4	√	√	√	X	√	X	√	X	X

Comparison of classification

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GHS Class/Category			UN GHS Rev.5 , 2013	China GB 30000-2013 (UN Rev. 4)	Japan JIS Z 7252-2014 (UN Rev. 4)	Korea MoL Notice no. 2012-14 (UN Rev. 3)	Taiwan 危害标示及通识规则-民国103.6.27	Singapore SS 586-2014 (UN Rev. 4)	Thailand MOI BE 2555-2012 (UN Rev.3)	Malaysia Class 2013 (UN Rev. 3)	Australia WHS 2012 (UN Rev. 3)
Acute toxicity	Acute Tox. 3	Dermal	√	√	√	√	√	√	√	√	√
		Inhalation	√	√	√	√	√	√	√	√	√
	Acute Tox. 4	Oral	√	√	√	√	√	√	√	√	√
		Dermal	√	√	√	√	√	√	√	√	√
		Inhalation	√	√	√	√	√	√	√	√	√
	Acute Tox. 5	Oral	√	√	X	X	√	X	√	X	X
		Dermal	√	√	X	X	√	X	√	X	X
		Inhalation	√	√	X	X	√	X	√	X	X
Skin corrosion/ irritation	Skin Corr. 1	1	√	√	√	√	√	√	√	√	√
		1A	√	√	√	X	√	X	X	√	√
		1B	√	√	√	X	√	X	X	√	√
		1C	√	√	√	X	√	X	X	√	√
	Skin Irrit. 2		√	√	√	√	√	√	√	√	√
	Skin Irrit. 3		√	√	X	X	√	X	√	X	X
Serious eye damage/ irritation	Eye Dam.1		√	√	√	√	√	√	√	√	√
	Eye Irrit.2	2	√	√	√	√	√	√	√	√	√
		2A	√	√	√	X	√	X	√	X	X
		2B	√	√	√	X	√	X	√	X	X
Respiratory or skin sensitisation	Resp.Sens.1	1	√	√	√	√	√	√	√	√	√
		1A	√	√	√	X	X	X	√	X	√
		1B	√	√	√	X	X	X	√	X	√
	Skin Sens.1	1	√	√	√	√	√	√	√	√	√
		1A	√	√	√	X	X	X	√	X	√
		1B	√	√	√	X	X	X	√	X	√

3.1 Comparison of classification

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◆ Official inventory and classification list in Asia

Mainland	《Catalogue of hazardous chemicals》2015 version
Taiwan	GHS Classification Reference Table published by OSHA(Recommended)
South Korea	MOE Classification list (Compulsory)； MOL Classification list (recommended)
Japan	CHRIP database(recommended)
Philippine	N/A
Thailand	Officially classified database (Advisory)
Vietnam	Adopt Japanese CHRIP
Malaysia	ICOP Part I List of Classified Chemicals(Mandatory)
Australia	HCIS (Hazardous chemical information system) (Advisory)
Singapore	N/A
Indonesia	N/A
New Zealand	HSNO／CCID(Chemical Classification and Information Database)

3.1 Comparison of classification

	Formaldehyde (CAS:50-00-0)	DEHP (CAS:117-81-7)	LEAD (CAS:7439-92-1)
Mainland	Acute toxi-oral, 3 Acute toxi-dermal, 3 Acute toxi-inhalation, 3 Skin corrosion, 1B Serious eye damage, 1 Skin sensitization, 1 Mutagenicity, 2 Carcinogenicity, 1A STOT-SE, 3 Acute Aquatic , 2  Danger	No official classification in China	No official classification in China
South Korea	Acute toxi-oral, 3 Acute toxi-dermal, 3 Acute toxi-inhalation, 2 Skin corrosion, 1 Serious eye damage, 1 Skin sensitization, 1 Carcinogenicity, 1 Acute Aquatic , 1  Danger	Acute Toxi-inhalation, 4 Carcinogenicity, 2 Repro. Toxi-1B Acute Aquatic, 1 Chronic Aquatic, 2  Danger	Mutagenicity, 2 Carcinogenicity, 2 Repro.Toxi-1A STOT RE, 1 Acute Aquatic, 1 Chronic Aquatic, 1  Danger
Australia	Acute toxi-oral, 3 Acute toxi-dermal, 3 Acute toxi-inhalation, 2 Skin corrosion, 1 Skin sensitization, 1 Carcinogenicity, 1B Acute Aquatic , 2  Danger	Carcinogenicity, 1B Repro.Toxi-1B  Warning	Mutagenicity, 2 Carcinogenicity, 2 Repro.Toxi-1A STOT RE, 2  Danger

3.2 Comparison of SDS

Countries	Request of SDS, label	Language	Format
China-Mainland	Yes	Simplified Chinese	16-GHS
China-Taiwan	Yes	Traditional Chinese	16-GHS
Japan	Yes	Japanese	16-GHS
South Korea	Yes	Korean	16-GHS
Thailand	Yes	Thai	16-GHS
Vietnam	Yes	Vietnamese	16-GHS
Philippines	Yes	English	16-GHS
Singapore	Yes	English	16 -GHS
Malaysia	Yes	Malaysian+English	16-GHS
Indonesia	Yes	Indonesian（other United Nation language）	16-GHS
Australia	Yes	English	16-GHS
New Zealand	Yes	English	16-GHS

3.2 Comparison of SDS

1st part	limitation of emergency phone（Domestic？ Working time？） Address of suppliers（Domestic？ Abroad？）
2nd part	Special requirement of format（Place？ highlight？）
3rd part	Information of ingredients related to hazards: Confidential ingredients Range of concentration values
8th part	Provide national control parameters，professional exposure limits、biological limits and other applied international control parameters for preparation of SDS
15th part	Provide national regulatory information and other applied international regulatory information for preparation of SDS

3.2 Comparison of SDS-1 part

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◆ Emergency Phone

Mainland	**24h telephone number in China;**
Taiwan	√
South Korea	√
Japan	√
Thailand	√ (Note limited time)
Vietnam	√
Philippines	√ (Note limited time)
Singapore	**Emergency phone (Mobile or fixed) 24/7。**If not 24h service，note working hours
Malaysia	**Emergency phone in Malaysia (24h)**，if imported product，24h contact phone of overseas manufacturer is available in case of emergency
Indonesia	√ (Note working hours，special information，such as medical first aid、emergency transport)
Australia	**Emergency phone in Australia** (Note limited time)
New Zealand	√ (Note limited time)

3.2 Comparison of SDS-2 part

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◆ Special item

China：Special item in part 2

Emergency overview：must appear on top of part 2

Physical & Chemical hazard、health and environmental hazard

3.2 Comparison of SDS-3 part

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◆ Confidential ingredients

- China-Mainland/South Korea, trade-name, or concealed CAS number used for expression of hazards；
- China-Taiwan, submit declaration to OSHA, impossible to keep confidential for ingredients with relatively severe health hazards;
- Japan, common names for confidential ingredients；
- Australia, only ingredients with relatively minor hazards with no occupational exposure limits can use common name to replace its chemical name；

3.3 Comparison of label

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Contents of a label

Chemical identification	chemical？ trade name？ composition？
Pictogram	color？ size?
Hazard statement	Selection rule？
Precautionary statement	number？ Classification or not？
Supplier identification	domestic？
Emergency Phone	Business hour？
Reference tips	Fixed sentences？
Minimum size of label	Simplified label？

3.3 Comparison of label

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◆ Number of precautionary statements

General principle complies with selection of classification；

➢**China**：No limitation of number

➢**Malaysia**：not exceeding 6，unless necessary

➢**Australia**：no more than 6-10

➢**South Korea**：when number exceeds 7，at least one statement for Prevention、Emergency handling、storage and waste disposal, respectively; Unless there is no statement for them.

3.3 Comparison of label

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- **Supplier identification：Title、Address、contact number**

Australia：Must be Australian；not necessary for offshore information
South Korea：Supplier information and SDS maker.

- **Emergency Phone（Note working hours）：**

China：Telephone number for 24hours
Japan：better record emergency phone number

- **File reference tips：**

Mainland：Note： “Please reference SDS for more detailed information”
Taiwan：Note： “Please reference SDS for more detailed information”

3.3 Comparison of label

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Label—China：

Size of container or packaging/L	Size/mm × mm
≤0.1	Simplified label
>0.1 ~ ≤3	≥ 50×75
>3 ~ ≤50	≥ 75×100
>50 ~ ≤500	≥ 100×150
>500 ~ ≤1000	≥ 150×200
>1000	≥ 200×300

Label—Singapore & Malaysia：

Volume of packaging	Size/mm × mm
>125ml ~≤3L	Possibly，at least≥ 52×74
>3L ~ ≤50L	≥ 74×105
>50L~ ≤500L	≥ 105×148
>500 L	≥ 148×210

3.3 Comparison of label

Simplified label in China

3.4 Compliance Strategies of GHS

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Regulatory scripts	Technical details	Data management
• Regulation collection • Regulation update • Chemical tracking	• Inventory of classification • Classification and label tools • Templates of SDS and Label • Multilingual statements	• Classification • SDS • Label • SDS/Label collection

Thank You!

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