China

GHS Adherence Growing but Pollution Troubles Persist; Nation’s Economy Swiftly Expands

Watch List

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• The nation’s current 26 chemical classification benchmarks, contained in the Regulations on the Management of Hazardous Chemicals of 2008, were discussed at a government-sponsored meeting on July 17, 2009. But revision implementation was delayed due to the economic recession and resulting drop in public funding for the effort. When this revision does take place, China will come out with new GHS classifications for several thousand chemicals (CNCIC, 2010).

• As of May 1, 2010, China implemented new mandatory chemical labeling requirements, which comply with the GHS. These rules – some of which are mandatory while others are voluntary – define details such as labels’ sizes and include new explanations of “simplified labeling.” The transition period to execute the new regulation runs from May 1, 2010 to May 1, 2011 (CNCIC, 2010).

• In 2010, China outpaced Japan as it grew to become the second-largest economy worldwide after the US. China’s enormous domestic market is inspiring expanded investments by a number of chemical industry leaders (Ramesh, 2010).

Executive Summary

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focusing primarily on manufacturing waste to the agricultural sector (Watts, 2010).

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**Background**

Through its Department of Pollution Control and the State Environmental Protection Administration, China noted in 2007 that its priorities with regard to chemical regulation include applying a risk management framework, building capacity for chemical regulation, and increasing the disclosure of information about chemicals. Many laws, regulations, and standards are already in place in China, and the nation moves continually toward closer adherence with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

In addition, China has indicated its commitment to speeding up its development and enactment of environmental rules regarding chemicals, implementing a national census of pollution sources including a census of Persistent Organic Pollutants (POPs) sources, and improving the rules regarding the import and export of hazardous chemicals (Department of Pollution Control & State Environmental Protection Administration, 2007; UNECE, 2010).

Looking at the overall picture of chemicals management in China shows a nation working toward establishing a more coherent and unified system of regulations that embrace the GHS (Banerjee, 2010). For instance, China has implemented the GHS for the transport of hazardous chemicals, and is developing or updating many other regulations with an eye toward GHS and REACH. The nation’s primary chemical rules include (CNCIC, 2010; UNECE, 2010):

- Regulations on Safe Management of hazardous Chemicals (revised in 2002)
- Classification and code of dangerous goods (GB6944-2005)
- Classification and labeling of commonly used dangerous chemicals (GB13690-1992) (under revision)
- Guidelines for the hazard evaluation of new substances (HJ/T154-2004)
- General rules for preparation of precautionary labels for chemicals (GB15258-1999) (under revision)

**China’s Adoption of REACH & GHS**

The Registration, Evaluation and Authorization of Chemicals (REACH) lays out the chemical safety rules developed by the European Union (EU) to protect human and environmental health through enhanced identification of chemical characteristics. REACH, which is continually being updated with more chemicals, went into effect in June, 2007 (ECE, 2010).

The GHS, developed by the United Nations, classifies chemicals by the kinds of hazards they pose to humans and the environment. GHS offers universal hazard communication tools, such as labels and material safety data sheets (MSDS), so that clear information regarding dangers from chemicals can be communicated to protect human and environmental health while these substances are handled, transported, and used (UNECE, 2010).
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New GHS-Compliant Rules Under Development

The environmental ministers of China, Japan, and Korea agreed in 2007 to create a Tripartite Policy Dialogue on Chemicals Management. Their work includes meeting regularly with GHS experts. At the first meeting of the new Tripartite group in 2008, a draft national standard – the “General rule for classification and hazard communication of chemicals” was created. It is based on the GHS classification and labeling criteria (GHS Rev.2). This new rule supplants China’s GB13690 (1992).

The Tripartite also developed new GHS-compliant rules for MSDS at the 2008 meeting. Please see the MSDS section below for details.

At its 2009 meeting, the Tripartite developed additional new mandatory standards related to packaging, classification and hazard communication, and warning labels (UNECE, 2010):

- GB 190-2009 (packaging): Implements the 15th revised edition of the UN recommendations on the Transport of Dangerous Goods
- GB 13690-2009 (classification and hazard communication): Implements GHS
- GB 12528-2009 (precautionary labelling): Implements GHS

Other rules that are being updated (not necessarily by the Tripartite group) include the List of Hazardous Goods (GB 12268) and the Procedure for Classifying Explosives. The nation’s current 26 chemical classification benchmarks, contained in the Regulations on the Management of Hazardous Chemicals of 2008, were discussed at a MIIT-sponsored meeting on July 17, 2009. Revision implementation was delayed due to the economic recession and resulting drop in funding for MIIT. When this revision does take place, China will come out with new GHS classifications for several thousand chemicals (CNCIC, 2010).

MSDS & Labeling Requirements

The following Chinese regulations address MSDS (Armstrong, 2010; UNECE, 2010):

- GB/T 16483-2008 “SDS for chemical products - content and order of sections.” Revised to conform to GHS requirements for Safety Data Sheets. Replaces GB/T 17519.1-1998 and GB 16483-2000 (Note: GB/T = recommended rule (versus mandatory))
- GB/T 22234-2008 “Labelling of chemicals according to the GHS”. Adopts the contents of the Japanese standard “JIS Z 7251:2006”
- GB/T 17159 Guidance for the preparation of SDS in accordance with the GHS
- GB 13690-2009 - General Rule for Classification and Hazard Communication of Chemicals
- GB 15258-2009 - General Rules for Preparation of Precautionary Label for Chemicals
- GB 20576-2006 to GB 20602-2006 - Safety Rules for Classification, Precautionary Labeling and Precautionary Statements of Chemicals
- GB 22225-2008 - General Provisions for Evaluating Hazards of Chemicals
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- GB 22234-2008 - Labeling of Chemicals Based on GHS
- State Economic and Trade Commission (SETC) Decree No. 35 - Dangerous Chemical Registration Management Method
- SETC Decree No. 36 - Dangerous Chemical Business License Management Method
- State Council Decree No. 344 - Dangerous Chemical Safety Management Regulation

Also, Article 14 of China’s Regulations on the Management of Hazardous Chemicals notes, “Producers of hazardous chemicals should put inside the package of the hazardous chemicals a chemical safety technology manual fully suitable for the hazardous chemicals in the package. They should also paste to or hang on the package (including outer package) the chemical safety labeling fully consistent with hazardous chemicals in the package.” Further, “Where a producer of hazardous chemicals discovers that the hazardous chemicals produced by it have new hazardous features, it should immediately make a public notice and promptly revise the chemical safety data sheet and safety label.” And Article 30 specifies that “Dealers of hazardous chemicals should not…[sell] hazardous chemicals without a chemical safety data sheet and safety label” (CNCIC, 2010).

MSDS must be written in simplified Chinese. MSDS and safety labels must also be kept current for all downstream customers and users. Chinese regulations further stipulate that “Safety technology manuals shall be updated once every five years. During this period, if new hazardous characteristics are found, the producing unit should, within six months of releasing the relevant information, revise the safety data sheet accordingly and offer the revised edition to the storage, transport, dealing and using units” (CNCIC, 2010).

Labeling Requirements Update 2010

As of May 1, 2010, China implemented new mandatory chemical labeling requirements. The updated rules – GB 15258-2009 – comply with the GHS and provide details such as labels’ sizes and new explanations of “simplified labeling.” Sections 4.1, 4.2 4.3, 5.1, 5.2, 5.4.1, and 5.4.2 are mandatory. The other sections are recommended. The transition period to execute the new regulation runs from May 1, 2010 to May 1, 2011.
Regarding the color of the pictogram inside the label: The GHS requires the use of a black graphic symbol on a white background within a red frame. But China's national standard GB 15258-2009 allows the frame to be black. Any text must be written in Chinese; language specifically geared to minority ethnic groups can also be used in addition to Chinese (CNCIC, 2010).

**MSDS Worker Protection Rules**

China's Regulations on Labor Protection in Workplaces Where Toxic Substances are Used (State Council Decree No.352) notes that in facilities where toxic chemicals are handled by workers, MSDS must explain essential information including the chemicals’ characteristics, possible effects of exposure, preventive practices for safe use, and emergency responses (CNCIC, 2010).

In China as in several other countries, pesticides’ toxicity assessments are based on lethal doses from inhaling the substances (Sidorov & Sanotskiy, 2010).

**Emergency Response Hotline Requirements**

Companies selling toxic chemicals in China should provide an emergency hotline that meets the following requirements (CNCIC, 2010):

- The hotline telephone number should not be used for other purposes.
- Dedicated, well-trained personnel should answer calls. These workers must be trained not only in the chemicals made by the company but also on China's national safety laws and rules regarding the management of toxic chemicals.
- The emergency hotline should operate 24 hours a day.

**Import & Export of Hazardous Chemicals**

Regulations concerning the import and export of hazardous chemicals were issued in 1994. These voluntary rules followed the Prior Informed Consent policies (PIC) from the London Guidelines for the Exchange of Information on Chemicals in International Trade.

Also concerning imports and exports of dangerous chemicals, China has developed a List of Toxic Chemicals Banned or Severely Restricted in the People's Republic of China (the First Group) (27 types of chemicals listed). To further tighten controls on mercury, Chinese authorities issued the Announcement on Mercury Sulfide Being Listed in the List of Toxic Chemicals Banned or Severely Restricted in China (State Environmental Protection Agency (SEPA) Document No. 166); this rule was implemented in 2003.

To adhere to the PIC Convention, SEPA and Chinese customs authorities issued in 2005 the Second Group of the List of Toxic Chemicals Banned or Severely Restricted in the People's Republic of China (7 types of chemicals listed).

Also in 2005, SEPA and Chinese Customs officials updated the restricted chemicals list through a new version of the Catalogue for Severe Restriction of Imported and Exported Toxic Chemicals of China. This list came into force in 2006.

SEPA and China's Ministry of Commerce and the General Administration of Customs also changed the list of chemicals banned from import and export through the Catalogue of Commodities Forbidden to Import (the Sixth Batch) and the Catalogue of Commodities Forbidden to Export (the Third Batch). These lists were enacted in 2006.

In 2007, the Catalogue for Severe Restriction of Imported and Exported Toxic Chemicals of China was enacted. This revision primarily incorporates the chemicals listed in the World Customs Organization's (WCO's) Harmonized Commodity Description and Coding System (HS) (2007 Edition). It also incorporates three new chemical compounds listed in the Rotterdam Convention (Department of Pollution Control & State Environmental Protection Administration, 2007).
Disposal of Hazardous Chemicals

Among China’s regulations concerning hazardous chemical waste are the following:

- Measures for the Prevention and Control of Environment Pollution Caused by Discarded Hazardous Chemicals (2005)

The country’s environmental protection bureaus put out advisements regarding safe handling of hazardous chemical wastes, as well as monitoring soil and groundwater on the property of manufacturing facilities. Companies are expected to clean up any environmental damage when pollution is found, and to cooperate with the proper Chinese authorities in ongoing monitoring of the property after the cleanup has been completed (Department of Pollution Control & State Environmental Protection Administration, 2007).

Business Intelligence & Application to Business Strategy

China: A Major Source of Revenues for the World’s Leading Chemical Companies

The world’s leading chemical companies are turning to China to help boost their revenues and recover from the global economic crisis. In 2010, China outpaced Japan as it grew to become the second-largest economy worldwide after the US. China’s enormous domestic market is inspiring expanded investments by a number of chemical industry leaders.

China’s government initiated a two-year economic stimulus strategy in 2008, which strengthened the country’s chemicals consumption. The stimulus plan continued to help the chemical industry’s growth beyond the two-year period. The China Petroleum and Chemical Industry Association estimated that the nation’s petrochemical sector would more than double in 2010.

Chemical companies view China as a crucial export marketplace and an investment opportunity. Dow Chemical, for example, has seen 20 percent yearly growth in revenues from China since 2000. The chemicals giant predicts strong growth for the company in China. Other major chemical companies – from Japan and Europe as well as North America – have placed China at the forefront of their marketing and production plans. BASF, the global chemical industry leader in terms of revenues, has long maintained a presence in China and, like Dow, has seen 20 percent annual growth since 1999. The Asia/Pacific region brings BASF approximately 10 percent of its global chemical revenues, and BASF expects to double revenues from China by 2020. The company anticipates that China will continue to be a major force in the global economy and the chemical industry.

Japanese company Mitsubishi is constructing manufacturing facilities to make bisphenol A and polycarbonate with Sinopec in Beijing. Construction is expected to be completed in May 2011. Also, Mitsubishi planned to double production at a Suzhou-based polyvinyl chloride compound by the end of 2010.

Although it is a very attractive investment location, China has been criticized by high-level executives from a number of industries, including chemicals, who complain that Chinese markets are not open to them even though they produce goods there (Ramesh, 2010).

Consumer Sector: Public Campaign Seeks to Steer Consumers Away from Polluters

Organizers of an expanding “green” or environmental movement in China have begun a public education campaign to convince Chinese consumers to penalize polluters by refusing to purchase their products. Twenty companies were held up as examples of polluters to avoid in the first “green consumer choice
report.” The list included three of China’s top consumer goods manufacturers, including detergent maker Wipp Seagull Hallier. Foreign companies were also named, including Carlsberg Beer, for dumping untreated hazardous waste into Yunnan waters. Several of the companies responded to the public education campaign, including Dali Beer (owned by Carlsberg), by promising to clean up their practices (Watts, 2010).

**Agriculture: China’s Biggest Polluter**

A two-year government-run pollution census revealed in 2010 that China’s farms contribute more to pollution than manufacturing effluent. High-level officials noted that the census results show that the country must adjust its environmental policies from focusing primarily on manufacturing waste to the agricultural sector.

Prior to this study, China’s agriculture ministry had asserted that farming added negligible amounts of pollution in the country. The census debunked that stance, showing that agriculture contributes 43.7 percent of the country’s chemical oxygen demand (the central measure of harmful organic chemicals in water), as well as 67 percent of phosphorus and 57 percent of nitrogen pollution. The main culprits are fertilizers and pesticides, as well as the quickly expanding livestock and aquaculture sectors (Watts, 2010).

**Do China’s Regulators Have Real Power?**

SEPA issued a “green securities” plan in early 2008. Under the new rules, companies that are considered highly polluting would, for example, have to pass environmental muster before being allowed their initial public offering. Some industry watchers wonder, however, whether SEPA (recently elevated to a Ministry of Environment) will have the power to enforce such rules. These experts cite close relationships between the government and corporate polluters as possibly undercutting regulators’ authority (Goldman, 2008).

**Acronyms**

CNCIC: China National Chemical Information Center
ECE: European Commission on the Environment
EU: European Union
GB: National Standard/Guobiao
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
HS: Harmonized Commodity Description and Coding System
MEP: Ministry of Environmental Protection
MIIT: Ministry of Industry and Information Technology
MSDS: Material Safety Data Sheets
PIC: Prior Informed Consent policies
POPs: Persistent Organic Pollutants
REACH: Registration, Evaluation and Authorization of Chemicals
SEPA: State Environmental Protection Administration
SETC: State Economic and Trade Commission
UNECE: United Nations Economic Commission for Europe
WCO: World Customs Organization

**Links to Laws & Other Resources**

2007 Update on the Management of Chemicals in China by the Department of Pollution Control & the State Environmental Protection Administration http://www.chemical-net.info/pdf/CurrentSituationManagementChemicals.pdf

CNCIC, Development of Regulations on Chemical Management in China (NCN – GHS) (includes details regarding registration requirements) http://www.socma.com/assets/File/socma1/PDFfiles/gcrc/2010/Developments%20of%20Regulations%20on%20Chemical%20Management%20in%20China.pdf
Resources available to businesses through the CNCIC http://www.cnacic.gov.cn/en/default.aspx

- Emergency response and decision-making support (24-hour emergency hotline) (ERC)
- Sinochem Chemical Industry Standardization Research Institute
- CNCIC chemical risk evaluation and experiment base
- Database management system for help managing and updating MSDS and safety labels
- Data and literature resources (National Engineering Technology Library Chemical Industry Branch)

2007 Update: Management of chemicals in china: Department of Pollution Control [and] State Environmental Protection Administration http://www.chemical-net.info/pdf/CurrentSituationManagementChemicals.pdf


UN information and chart: Instruments through which the GHS regulations related to the transport of dangerous goods are implemented http://www.unece.org/transport/danger/publi/ghs/implementation_e.html#transport

References


Watts, J. (2010, February 23). China’s green groups start year of the tiger with consumer campaign. The