

**Committee of Experts on the Transport of Dangerous Goods  
and on the Globally Harmonized System of Classification  
and Labelling of Chemicals**

**Sub-Committee of Experts on the Globally Harmonized  
System of Classification and Labelling of Chemicals**

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**Programme of work for the biennium 2019-2020**

**The application of electronic label in Chemicals management**

**Submitted by the expert from People's Republic of China**

**Introduction**

1. The application of electronic technology in modern society is more and more extensive, and it is increasingly penetrating into people's lives, including personal payment, software download, information transmission and so on. Similarly, the application of electronic labels has gradually extended to many fields, such as transportation, logistics, daily management and supervision of chemicals, etc. With the development of science and technology, it will also be an indispensable means of social production and life in the future.

2. Convenient, timely and efficient: In the chemical management process, the application of electronic labels has many benefits, such as unified information collection, dynamic management, real-time monitoring, safety traceability, high efficiency and convenience. By linking chemical characteristics information and hazard communication with electronic labels, it is very convenient to display the corresponding precautions about handling, fire extinguishing, personal protection, storage and other issues needing attention, and to help operators keep abreast of chemical hazard characteristics, handling suggestions and emergency response measures etc. So as to reduce the probability of accidents and improve the safety level.

3. Large capacity of information: the maximum storage capacity of electronic labels can reach MB level (such as RFID "Radio Frequency Identification"), which can store relative large amount of information and in different language. The language used in local area can be automatically judged by the orientation system or the reading device (which can be a smartphone), and hazard communication information with corresponding language can be displayed, which reduces the loss of information caused by translation or transmission, and also reduces the printing cost.

4. Improving the level of safety management in complex scenarios: During production, transportation, storage and distribution, chemicals often be stored, transported or used at different scales with many other different types of chemicals. Each combination forms a new security system. In some complex or high-risk application scenarios, such as in the vessels carrying chemicals with multi-hazard or warehouses, the complexity of chemicals and the domino effect of chemical accidents need to be fully considered. The situation of all chemicals in the scenario needs to be integrated to form scientific plans for storage, use and emergency response. The using of electronic labels will promote the real-time identification of chemicals in different scenarios. Combined with digital risk assessment technology, the

plans for chemical storage, use and emergency response can be easily and promptly adjusted, so that to improve the level of safety management effectively.

5. The application of electronic labels in China: China is actively promoting the application of electronic labels for chemicals. There are cases in the following fields: producing process, cylinder's management, sample's management in laboratory, warehouse's management, supervision of the competent authority. The types of electronic labels include QR codes, RFID and so on. Specific application cases include: Monitoring by using Electronic Label in Shanghai Chemical Industry Zone, Supervision of Dangerous Chemicals Transportation in Shantou, Electronic Sample Management in Shandong Port. Through these cases, we summarized the experience and obtained some initial outcomes. China is standardizing such common technologies with a view to promoting them throughout the country.

6. Future development: China is researching and building an information sharing platform for the hazardous chemicals. As a major chemical producing country, the management and monitoring of the whole life cycle of hazardous chemicals is very important for China's social security. Electronic labels are used as carriers of recording chemical information. They offer the technical support for the traceability of the whole life cycle of hazardous chemicals. It is one of the important means to strengthen the chemical management.

7. Standardization: Standards is one of the most important measure for strengthening management. At present, China has issued the standards on electronic labels in some fields, such as the national standard GB/T 26934-2011 (Freight containers - radio frequency identification - license plate tag) and the local standard DB21/T 2030.1-2012 (Specification for the Application of Electronic Labels for the Identification of Hazardous Chemicals Cylinders Part 1: Electronic Label Codes for Cylinders). In the field of chemical management, China is drafting the national standards: Guidance on information management of Chemicals, which include 5 parts, and the third part is the application standard of electronic labels. This standard determines the technical requirements of permitted electronic labels and related equipment based on GHS classification of chemicals, including information items, the data format and coding rules by using the technologies such as RFID or magnetic card. It specifies the requirements on performance, encapsulation and fixing of the labels used for chemical identification. With the standardization of electronic labels, in one respect it can normalize the label used in chemical industry; On the other hand, it can link the segments of transportation, storage, use, emergency response, etc. so as to further improve the managing efficiency and effectiveness.

8. The above standardization work aims to establish a complete integrated information managing standard system based on chemical electronic labels and safety data, which can further ensure the effectiveness of chemical safety supervision, promote the implementation of the Globally Harmonized System of Classification and Labelling of Chemicals, and facilitate the trade.

9. As stated in the informal document UN/SCEGHS/36/INF.14 submitted by AISE and RPMASA, the application of electronic labels has become an urgent need of industry and consumers. We believe that promoting the application of electronic labels will contribute to the further implementation and promotion of GHS.

## **Proposal**

10. The sub-committee is invited to consider the inclusion of the work related to the application of electronic label in GHS into the program of work for the next biennium.