

# 2009 Report of SAHTECH

February 2010

SAHTECH continues to grow with many supports from the government, industry, and international customers in 2009. SAHTECH has been designated as the Taiwan National Chemical Substance Register (NCSR) Office by the Council of Labor Affairs (CLA) for establishing the national chemical inventory. It was also awarded the accolade of the International Office of the Year by the World Safety Organization; in addition, the chairman of SAHTECH received the ESH regional leadership award from SEMI. It is notable that 1,300 factories received on-site technical services, and more than 11,000 industrial safety and health professionals attended 140 workshops and training courses conducted by SAHTECH. Technology activities in 2009 were focused on risk management and energy saving of semiconductor, photovoltaic, LED, TFT-LCD, chemical and steel industries. Some of these activities are summarized below.

## **High-tech Safety Services**

Modeling and control measures for the release of silane Y-cylinder and hydrogen trailer were provided to LCD and photovoltaic industries. Quantitative process risk analysis and business continuity management system were provided to strengthen the environmental, safety, and health (ESH) capacity of hi-tech industries and their suppliers. All members of the Taiwan Optoelectronic Semiconductor Industry Association (TOSIA) received energy saving services from SAHTECH. SEMI S2 certification of process tools and abatement efficiency verification of scrubbers were also delivered.

## **Chemical Safety Services**

SAHTECH is the national helpdesk for occupational chemical safety and EU REACH compliance questions. In 2009, more than 400,000 services were provided. SAHTECH serves as the GHS implementation focal point of Taiwan to host the APEC GHS gateway website for sharing labelling and SDS (the G.R.E.A.T. Project). It also plays an important role in technical supports to facilitate the launch of the national existing chemical nomination

program by the government, designated as the National Chemical Substance Register (NCSR) Office. A large number of international officials or industrial groups visited SAHTECH to exchange views and advance application approaches of the national chemical inventory. SAHTECH and its partners also helped other competent authorities such as the Department of Transportation and Communication, Environmental Protection Administration, Council of Agriculture Affairs, and Ministry of Economic Affairs to deal with chemical safety management affairs. Moreover, SAHTECH provided technical services to numerous multinational chemical companies to comply with Taiwan's GHS regulatory requirements in 2009.

### **Mechanical and Electrical Safety Services**

Entrusted by the CLA, SAHTECH operates a pilot safety certification program for machinery/installation and explosion-proof electrical equipments. Equipped with ISO guide 65 certification which qualifies it to manage related testing laboratories, SAHTECH had close interaction with the EU, Japan, and Korea certification schemes in 2009. Meanwhile, the inspection quality of the CLA's authorized inspection agencies in the field of dangerous machinery and equipment is also monitored by SAHTECH.

### **SH Management and Services**

Entrusted by the CLA, SAHTECH plays an important role in promoting the Taiwan Occupational Safety and Health Management System (TOSHMS). Numerous auditors were trained and certified, and the service quality of certifying bodies was monitored. Under the instruction of the CLA, a basic occupational SH service for 15,000 small business units was delivered by SAHTECH with the help of 470 SH professionals; furthermore, a 50% reduction in severe injury rate was achieved as compared to 2008. Some natural gas, industrial gas, furniture, steel, chemical, and construction companies were also assisted by SAHTECH in the implementation of risk assessment and management program.

### **Professional Commonweal**

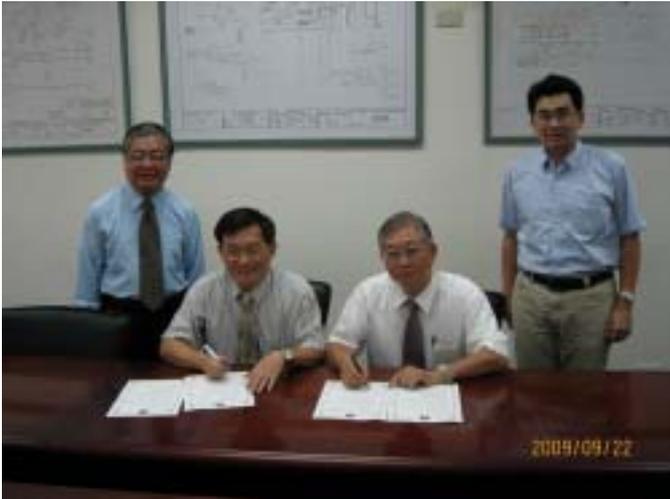
SAHTECH supports numerous conferences and activities of ESH and green technology, such as those of the Taiwan Occupational Hygiene

Association, Taiwan Occupational Safety Association, Taiwan Safety Education Association, Taiwan Industrial Gas Association, SEMI Taiwan, Taiwan Responsible Care Association, Taiwan Aerosol Research Association, Taiwan Super Critical Fluid Association, and Taiwan Photo-catalyst Industrial Association. Twelve college students also received a SAHTECH internship/scholarship in 2009 to help them advance their SH knowledge.

As a responsible organization, SAHTECH will continue contributing expertise to promote ESH technologies, assist customers in line with international standards, be involved with and look after ESH societies, and serve as technical supports of public agencies.

*SAHTECH was founded in the year 2007 with help from the Industrial Safety and Health Association of the R.O.C. (Taiwan), CY LEE & Partners Architects, Hermes-Epitek Corp, Fubon Insurance Co., Tokyo Electron Ltd., ULVAC, and Mr. Tony Lai. SAHTECH aims to be a major player in the field of ESH technology and services in the Far East. It is noteworthy that 15% of the SAHTECH staff holds a Ph.D. degree, and 55% have a master's degree. Their experience in ESH spans over 14 years on an average, and many of them are certified professional engineers, certified ESH personnel, or certified OHSAS 18001 auditors in Taiwan.*

## Photo Gallery



**2009.09 President Yu signing a cooperation agreement with General Director Chang of the Sustainable Environment Research Center of National Cheng Kung University**



**2009.08 National Chemical Substance Register Office (SAHTECH South Branch)**



**2009.10 EU Process Safety Seminar cosponsored by Swiss Safety Institute**



**2009.02 APEC Singapore 2009 - Chemical Dialogue meeting; Dr. Li (L) and Director Fu (Council of Labor Affairs)**



**2009.07 APEC Singapore 2009 - 2<sup>nd</sup> Chemical Dialogue meeting; from left: Section Chief Chang (Council of Labor Affairs), Ms. Norton (US), Chairman Yu (SAHTECH), Senior Specialist Lan (Industrial Development Bureau), and Chairman Chen (Taiwan Chemical Industrial Association)**



**2009.03 CHEMCON ASIA 2009 Kuala Lumpur (Dr. Li, L 2)**



**2009.09 Workshop on Existing Chemical Substance Nomination**



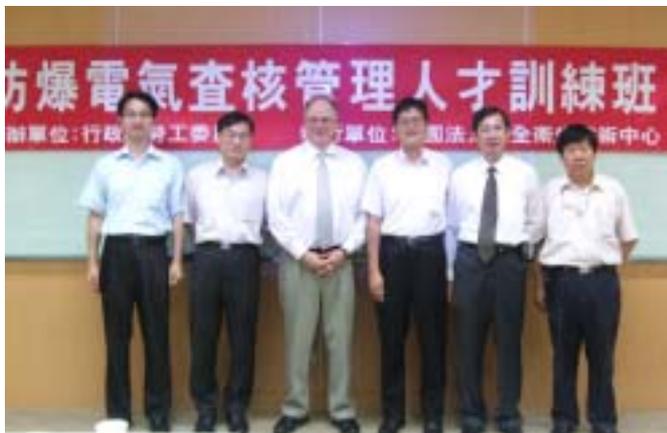
**2009.09 Mechanical safety training course, conducted by experts from the Japan Technology Institute of Industrial Safety**



2009.07 WSO 2008 International Office of The Year (SAHTECH is the Taiwan Office of the World Safety Organization)



2009.12 ISO/IEC Guide 65 for Product Certification Work of Explosion-proof Electrical Equipments



2009.09 Training course on explosion-proof electrical equipments; from left: Director Su, Vice President Huang, Pollock (VP of UL), Mr. Yang (Specialist of Council of Labor Affairs), Mr. Song (AVP of UL Taiwan), Dr. Lai (ITRI)



2009.07 President Yu presented a gratitude certificate to the director of China Steel Corporation, Taiwan, in a field training course for Dandelion SH professionals



**2009.06 SAHTECH team conducted the Taiwan Occupational Safety and Health Management System (TOSHMS) assessment on the Exploration and Production Business Division of China Petroleum Corporation, Taiwan**



**2009.07 TOSHMS Award Presentation Ceremony- Headquarter of China Petroleum Corporation (CPC), Taiwan (SAHTECH Client). SAHTECH Chairman Yu (R 3), CLA Director Fu (R 4), CPC President (M), General Director of Bureau of Standards, Metrology and Inspection of Ministry of Economic Affairs (MOEA) (L 4), Minister of MOEA (L 3)**



**2009.05 Director Lin teaching in a training course for Dandelion Project, a safety and health capacity-building project for small business enterprises**



**2009.07 SAHTECH family day - Alishan tour**

## **Summary of 2009 Hazard Communication and Chemical Management Enhancement Plan in Factories and Workplaces**

This project aims to improve safe chemical use in workplace, raising awareness about the same, and worker's safety and health.

This project consists of 10 tasks in the following two core mandates:

1. To plan chemical management schemes for improvement in workplaces;
2. To facilitate chemical management and hazard communication.

This project has delivered the following tasks:

- (1). Participated in two APEC Chemical Dialogue meetings in Singapore and two international conferences, the 2009 ChemCon Conference in Malaysia and ICCM 2 in Geneva.
- (2). Collected and analyzed latest chemical management advocacy programs at international organizations including ILO, OECD, UN SAICM, and APEC. Gap analysis will be conducted against Taiwan's chemical management system.
- (3). Developed the existing chemical substance nomination guidance and nomination tools. Two seminars were held this June to communicate with industry stakeholders.
- (4). Compiled 300 GHS classifications of chemical substances and 300 MSDSs compliant to GHS.
- (5). Established a "Chemical Purchasing Guideline" for industries' application.
- (6). Conducted 20 GHS seminars in cooperation with trade associations and units with more than 1,800 participants in attendance.
- (7). Published four issues of the e-newsletter in order to

update the latest regulatory information and international implementation status. Each issue was dispatched to 20,000 dedicated recipients. There are more than 26,000 membership registrations on the official GHS Introduction Website, which has risen from 20,000 members in 2008.

- (8). APEC Secretariat approved the GHS Clearinghouse Project coordinated by Chinese Taipei to compile GHS labelling elements in different languages. The progress update was presented during the July SOM II Chemical Dialogue meeting in Singapore. This website will be open to public by the end of this year (2009).
- (9). A website and tool for national chemical substance nomination was developed in this project and transferred to another interagency cooperation project “National Existing Chemical Substance Nomination Program” in operation.
- (10). The deadline for Stage One of GHS implementation was December 31<sup>st</sup>, 2009. This project assisted industries in complying with the new hazard communication regulation, particularly the GHS classification, MSDS, and labeling.

It is recommended that the awareness raising and advanced training program be continued in order to enhance hazard communication in the workplace. A significant increase in compliance was found in several surveys; however, individual supplies need to be encouraged to assist downstream chemical users with safe chemical information, i.e., labelling, MSDS, and on-site education program.

## **Summary of 2009 Pesticide/Insecticide Classification and Labelling Management Plan**

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is becoming a world-wide basis of chemical hazard classifications and labelling, including pesticide/insecticide domains. GHS implementation is beneficial to sound chemical management and safety information distribution throughout the lifecycle of pesticide/insecticide including transport, manufacturing, retailing, storage, use, and disposal.

The “2008 Pesticide/Insecticide Classification and Labelling Management Plan based on the GHS” (this Project) aimed to deliver the following works:

1. To collect international information of classification and labelling of pesticide/insecticide align with GHS;
2. To hold two GHS training seminars;
3. To provide phone, fax, and web-based consultation to industries;
4. To prepare at least 150 items of pesticide safety information;
5. To update the pesticide GHS official website.

This Project accomplished the gathering of information on the FAO, the EU, and the USA, regarding the latest development on pesticide management; held two GHS training seminars with 117 participants from 90 companies/industries; completed the GHS website upgrade; and collected 320 kinds of pesticide safety information.

In addition, this Project also delivered a GHS training software as a tool for assisting companies/industries in the implementation of GHS in the near future. Additionally, latest news and technical assistance are provided to the targeted audiences through the GHS website. The objectives of this Project are achieved with all these efforts allocated to future GHS implementation.

## **Summary of the National Chemical Substance Registration and Management Project**

Based on the Interagency Action Plan arranged by the Executive Yuan, “National Chemical Substance Register and Information Application” (referred to as the Action Plan), this project delivered the national chemical substance registry and safety assessment programs. The goals served to reduce costs, avoid repeated efforts, and ensure that our chemical substance management complies with international standard.

This project aimed to fulfill the following objectives:

1. To establish the “National Existing Chemical Substance Inventory”;
2. To establish a chemical hazard identification/assessment database;
3. To map out a platform of hazardous substance registry and capacity building.

This project set up the National Chemical Substance Register Office responsible for handling the nomination of existing chemical substances. Related archive rooms and server system have been up and running. Furthermore, the revision of the chemical substance nomination tool and a dedicated website “Existing Chemical Substance Inventory” information platform were furnished. In conjunction with the release of “Direction of Existing Chemical Substance Nomination” from the Council of Labor Affairs (CLA) as entering a full-scale operation, three workshops were held in September focusing on the introduction of nomination procedure, related matters, and Q&A. There were more than 800 participants attending these workshops who provided positive feedback.

In terms of chemical substance and hazard identification/assessment database establishment, the project has delivered the labelling and MSDS of 100 chemical substances in accordance with the GHS standards. In the plan of platform set-up of hazardous substance registry and technical capacity, a format was proposed based on the inputs of interagency cooperation. This format was designed by taking into account the systems of many leading countries (e.g., Japan, USA, and EU), and combined with the Taiwan EPA

and the Council of Agriculture's current chemical register schemes.

Base on the goals of the UN SAICM, a policy framework to promote chemical safety around the world is essential to complete the national infrastructure of new chemical substance notification schemes, national existing chemical substance inventory, testing agendas/capacities, and assessment tools. It is suggested that the establishment of existing chemical substance inventory and the guidance documents for the development of new chemical substance notification scheme shall take place in the following years.

For the purposes of improving Taiwan's chemical management system, connecting with developed leading countries and international treaties, participating in international activities on safe chemical use, and improving workplace safety and international image, it is equally essential to cooperate with other leading countries/international organizations and to integrate information for developing new chemical substance notification schemes and testing methods/capacities.

## **Summary of the Strategy Counseling and Promotion for Responding to EU New Chemical Management Regulation REACH**

In order to respond to the implementation of the EU REACH regulation, and to ensure domestic competitiveness in the EU while maintaining environment sustainability and human health, this project had the following aims:

1. Provide the latest news and technology information of ECHA to Taiwan industries to be in line with REACH regulation.
2. Supply counseling services regarding registration and SVHC notification pursuant to REACH regulation to Taiwan industries to ease the impact.

This project delivered the following:

- (1). Held 2 seminars addressing REACH regulations and 2 round-table meetings in cooperation with TCIA.
- (2). Completed surveys of testing capacity and services for only representatives under REACH in Taiwan and supplied available information to industries.
- (3). Completed four issues of quarterly newsletters and seven presentations of REACH's latest news briefings.
- (4). Completed the technical tool for REACH information and technical guidelines.
- (5). Completed three services of factory counseling regarding obligations for registration, notification, and SVHC screening according to the REACH system.
- (6). Completed a preliminary impact investigation caused by EU REACH on Taiwan's chemical export business.

## **Summary of Technical Aids for the SBE Safety and Health Capacity-building Project**

Small business enterprises (SBEs), which have less than 50 workers, are usually less cared for by the government, despite the fact that they constitute 84% of Taiwan's total enterprises in terms of number. SBEs in Taiwan are very dynamic and locally rooted, as they employ a large part of labor workforce and make a considerable contribution to social stability. However, due to lack of safety and health (SH) capacity, the SBEs also have higher SH injury rate (IR) as compared to medium size and large enterprises. Recent statistics indicate that the IR of SBEs has decreased insignificantly, whereas the IR of the others has improved dramatically.

This SH capacity-building project, a.k.a. Dandelion Project, aims at improving SH awareness and capacity of SBEs. One part of this project is to arrange supports from the CLA for county governments to hire official SH professionals and to organize basic SH service teams to disseminate SH information and provide necessary consultation. The other part (this supporting sub-project) provides service tools, training, and technical assistance to facilitate the service of the county SH professionals and their teams. This sub-project has multi-discipline professionals to provide comprehensive technical supports, and it also serves as a quality control office as well as a basic SH service team for those counties without official SH professionals.

In 2009, 470 service team members visited 15,000 SBEs, where 95% of SBEs had less than 50 workers and 87% had less than 30 workers. Among these, manufacturing-related sectors and construction sector constitute 84% and 16%, respectively. Moreover, 4,800 SBEs received technical assistance in two more instances, and 130 SBEs received additional engineering-control assistance. Partial financial support was received by 224 SBEs for SH improvement of machinery, equipments, and installations, and the government funding amounted to around NTD 4 million, which is approximately 45% of the total improvement budget. Hundred factories in the sectors of resin, form, and synthetic leather also received basic

occupational SH service. Further, 200,000 copies of SH placards and guides were delivered. Around 20,800 pieces of further recommendations were provided to those 4,800 SBEs who received additional technical assistance. The implementation rate of recommendations was about 84% or 3.7 items per factory. However, the completion rate of industrial hygiene, health promotion, and management system was less than 70% or 3.2 items per factory.

Preliminary statistics indicated that the IR of the visited SBEs in 2008 was reduced by 10% and 17% in 2008 and 2009, respectively, as compared to 2007. The IR of the SBEs, which received additional assistance in 2008, was reduced by 11% and 27% in 2008 and 2009, respectively, as compared to 2007. For those SBEs visited in 2009, 11% reduction in IR was found as compared to 2008. Moreover, the IR of the SBEs, which received additional assistance in 2009, was reduced by 19% as compared to 2008. According to a survey, the SBE expressed a degree 4.66 satisfaction (on a 1–5 scale survey) regarding the implementation of this Dandelion service. Most SBEs wish to continue receiving assistance, including training, subsidization on SH hardware improvement, and experience-sharing seminars.

Approximately 800,000 SBE workers were covered by this Dandelion project from 2007 to 2009. Workers of 36,000 SBEs, which account for about 45% of the SBE workforce consisting of less than 50 workers, abide by the SH Act. In addition, sufficient training to upgrade the capacity of local service teams is a key factor driving this project to success. Data also indicates that focusing on the prevention of mechanical cutting and rolling, electrical shock, falling could be the major tasks in the following year. Assistance in engineering control for industrial hygiene risk factors, establishment of simple SH management system, and further cooperation with the service team of occupational health promotion are the present requirements.

## **Summary of Quality Control for the Authorized Inspection Agencies of Dangerous Machinery and Equipment**

The project assisted the Council of Labor Affairs (CLA) in effectively controlling the quality of three authorized inspection agencies (AIA) inspecting dangerous machinery and equipment (DME). The major tasks were as follows:

1. Managed and upgraded the inspection information management system (IIMS) of DME.
2. Monitored the inspection practice and quality of AIA.
3. Amended inspection technical documents for DME.
4. Held DME-related seminars and on-job trainings for AIA inspectors.
5. Reviewed inspection fees, accounting, and general affairs of AIA.

The quality of AIA was improved by 36%, as compared to the deviations of inspection in 2008. The average satisfaction rate of seminars and trainings was around 90%. Results of this project are as follows:

- (1). Managed and upgraded DME Inspection Information Management System (IIMS).
  - a. Managed and upgraded the web-based version of IIMS, inspection statistical analysis system, inspection result system, and inspection data backup system.
  - b. Provided six training courses to the authorized DME inspectors and system administrators.
  - c. Handled other emerging DME-related information system issues for three AIAs and three regional labor inspection offices (RLIO).
- (2). Monitored the inspection practice and quality of AIA.
  - a. Monitored the on-site inspection quality of AIA at 132 sites.
  - b. Handled AIA internal control audit 12 times.
  - c. Monitored on-site the production quality of dangerous equipments in 24 manufacture factories. Results indicated that the quality has improved as compared to 2007. However, the

implementation of quality system and the accuracy and precision of X-ray non-destructive detection can be further improved.

- (3). Amended inspection technical documents for DME.
  - a. Completed eight handbooks of amended DME inspection for cranes, mobile cranes, elevators, gondolas, high pressure vessels, specific high pressure vessels, Type-1 pressure vessels, and boilers.
  - b. Completed the new and revised inspection operation procedures, standards, and record documents of 82 DME.
- (4). Held DME-related seminars and on-job trainings for AIA inspectors.
  - a. Provided 18 on-job trainings for AIA inspectors attended by 582 participants.
  - b. Accomplished three seminars on “Dangerous Machinery Authorized Inspectors Pre-Job Training” with 102 participants.
  - c. Held nine DME related seminars attended by 278 participants.
- (5). Reviewed inspection fees, accounting, and general affairs of AIA.
  - a. Reviewed AIA accounting practices, human resources, and general affairs.
  - b. Other emerging tasks are as follows:
    - i. Proposed the management system of crane and lifting equipment.
    - ii. Held three DME related seminars attended by 87 participants.
    - iii. Provided equipment identification sheets, welding details, strength calculation sheets, and construction blueprints of 43 DME inspection files to AIA.
    - iv. Facilitated the 2009 Operation Conference for Authorized Inspectors, with an attendance of 130 participants.
    - v. Conducted the quarterly AIA performance review.