

CHEM DIGEST

A quarterly publication by the Singapore Chemical Industry Council Limited

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- + Asia Petrochemical Industry Conference
- + Conference cum Workshop on the Globally Harmonised System (GHS)
- + Launch of SS 586 : 2014 Hazard communication for hazardous chemicals and dangerous goods

SCIC
SINGAPORE CHEMICAL
INDUSTRY COUNCIL

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Asia Petrochemical Industry Conference (APIC 2014, Pattaya, Thailand)



Hosted by the Petrochemical Industry Club, the Federation of Thai Industries (FTIPC), the Asia Petrochemical Industry Conference (APIC) 2014 was held from 15-16 May in Pattaya, Thailand.

APIC 2014 was a great success with nearly 1,300 participants from 40 countries, with 3 new countries from Togo, Spain and Vietnam. The event was attended by more than 150 participants from Singapore. The conference provided valuable and practical discussions as well as a platform to develop mutual friendships and professional network from all over the world.

Presentations given during the first day of the conference by Wood Mackenzie, Tecnon ObiChem, ICIS and Argus Dewitt provided an update on the future developments of the petrochemical industry in Asia, China and the Middle East.

The Chairmen of the seven steering committee associations gave their opening address on the second day of the conference. Thereafter, the following keynote speeches were delivered:

➤ **New dawn on the global petrochemical horizon**

Presented by Dr. Pailin Chuchottaworn
President and CEO
PTT Public Company Limited

➤ **Sharing of how the global energy landscape is changing**

Presented by Mr Peter Sykes
President of Asian Pacific,
The Dow Chemical Company



Seven breakout sessions were also conducted for interested participants for the various sub-sectors:

- General Matters and Raw Materials
- Polyolefins
- Styrenics
- PVC
- Synthetic Rubber
- Synthetic Fiber Raw Materials
- Chemicals

The conference came to a close with a farewell party. With the tradition of APIC, the next host was announced during the party. Korea would be the proud host for APIC 2015.



The **Asia Petrochemical Industry Conference (APIC)** is an annual regional conference organised with the objective of promoting mutual friendship and goodwill among the petrochemical industry players in the world. It also facilitates valuable information exchange that can help propel the industry to positively go forward in a changing environment.

This year conference's theme, "*Transformation, a Map Redrawn*", it attracted participation by senior corporate executives from the petrochemical and chemical-related industries in the Asia



Pacific region. This has provided an excellent business networking platform that could contribute greatly to the advancement of the industry.

The organiser had also incorporated a meaningful campaign – "*Tree Planting Programme*" which was organised at the PEACH as part of their initiatives to promote the environmental protection, preservation and sustainability. There will be a total of 123 flame trees to be planted at various municipalities and school in Thailand.



Leadership in technology.

The world is growing. Every day, more people, vehicles, homes and factories are driving an ever-increasing demand for energy. That's why ExxonMobil is investing more than US\$1 billion annually in research, development and technology application — part of our commitment to developing the breakthrough technologies required to meet the world's rapidly growing energy needs.

For example, in Singapore, ExxonMobil is deploying state-of-the-art, proprietary technology at the multi-billion-dollar Singapore petrochemical expansion.

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Updates on the Working Groups of the SCIC Regulatory Affairs Committee

1. Quantitative Risk Assessment Technical Working Group (QRA WG)

As industry representatives, this diversified work group of companies, working under the sponsorship of the Singapore Chemical Industry Council (SCIC), pools together the experiences and expertise, to review and provide feedback to support and meet the objectives of the draft revised QRA Guidelines. This working group also actively engages the government agencies, the local QRA consultants and industries during the reviewing process.

Brief background and progress of the QRA WG

Year 2011

The QRA WG which comprises SCIC member companies' representatives was formed in 2011. A QRA review study was carried out in 2011. The inter-agency HAZMAT workgroup which looks into the developing of the new QRA guidelines, comprises representative from National Environment Agency (NEA), Singapore Civil Defence Force (SCDF), JTC Corporation, Ministry of Manpower (MOM) and Economic Development Board (EDB). After sharing their recommendation to the QRA WG, the QRA WG has then reviewed and provided feedback, recommendation and improvement ideas to them. For example, the QRA WG has proposed a recommendation for the inter-agency workgroup to set up "a one-stop centre" for the QRA assessment.

Year 2012 - 2013

There have been on-going discussions and consultations with the inter-agency HAZMAT workgroup. The UK HSL was engaged by the inter-agency HAZMAT workgroup to develop a detailed draft revised QRA Guidelines. A few rounds of discussions between the QRA WG and the inter-agency HAZMAT workgroup were organised.

Year 2014

The Safety & Risk Management Centre, SRMC (previously known as the inter-agency HAZMAT workgroup) engaged the QRA WG to seek preliminary feedback on the draft revised QRA Guidelines. Several meetings were held by the QRA WG and the SRMC to discuss concerns on the draft revised QRA Guidelines. The QRA WG also participated in SRMC's industry briefing sessions held from 21 to 23 April 2014. Thereafter, the QRA WG had a meeting with SRMC, QRA Consultants and UK HSL on 24 April 2014 for alignment of interpretation and clarifications.

Way forward

The QRA WG will continue the engagement with SRMC to provide feedback to the draft revised QRA Guidelines.

Content

The draft revised QRA Guidelines will cover the QRA for pipelines, bulk transportation and fixed installation. It is essential to have a diversified representation from various companies in the WG. In June 2014, the QRA WG has endorsed two new members from SCIC Logistics and Distribution (L&D) Committee and Vopak Terminals Singapore Pte Ltd.

Composition of the QRA WG

Chairperson

Ms Cissie Yeung
Shell Eastern Petroleum (Pte) Ltd

Members (as of 9 June 2014)

1. Mr Bernard Leong
Petrochemical Corporation of Singapore (Private) Ltd
2. Mr Cliff Yeo
Singapore Oxygen Air Liquide Pte Ltd
3. Mr Chew Khien Kuan
ExxonMobil Chemical Operations Pte Ltd
4. Ms Law Man Hiong
Sembcorp Industries Ltd (SUT Div)
5. Mr Thilag Sivakumar
Chevron Oronite Pte Ltd
6. Mr Premkumar Rangaswamy
Eastman Chemical Singapore Pte Ltd
7. Mr Douglas Sellars
LANXESS Butyl Pte Ltd
8. Mr Jonathan Ng
Shell Seraya Chemicals Singapore (Pte) Ltd
9. Mr Amit Bhatnagar
Singapore Refining Company Private Limited
10. Mr BJ Chua
SCIC Logistics and Distribution (L&D) Committee/Newport Tank Containers Singapore Pte Ltd
11. Mr Michael Yan
Vopak Terminals Singapore Pte Ltd



2. Emerging Regulations Working Group (ER WG)

The Emerging Regulations Working Group serves as a platform for the chemical industry to discuss regulatory and technical matters that have technical barriers to trade (TBT) impacts. It creates a platform by which these emerging regulations can be shared among the members and build up the knowledge capacity in complying with these regulations. This will benefit both MNCs as well as Singapore-based companies.

The working group worked within the following scope:

- Obtain regulatory updates in Asia Pacific region, and disseminate such information to SCIC members;
- Provide technical inputs and develop a chemical industry's position relating to potential regulations or amendments of existing regulations;
- Build network with counterpart organizations in the Asia Pacific region;
- Participate in dialogues relating to potential regulations or amendments of existing regulations and driving industry's position in such dialogues.

Singapore has become a significant player in the chemicals market in terms of manufacturing as well as trade, as many MNCs hold their regional office in Singapore. As a result of that, MNCs and local/ASEAN chemical companies have to deal with the various chemical control regulations in the region.

Chemicals are typically produced cross region and due to the nature of the business chemicals travel. It is the growth of the chemical industry and with that the chemical regulations in the region which often have created complexity and barriers to trade as these regulations tend to become more complex and are often not harmonized between the countries.

As a result of that, MNCs and local/regional companies, involved in trade have to comply with a broad range of similar but still different regulations. Because of that, it is of importance that those companies voice their concerns when new draft regulations are published and stakeholders have opportunity to comment.

Where there traditionally have been mainly United States (such as American Chemical Council, ACC) and European Union (such as European Chemical Industry Council, CEFIC) chemical industry organizations voicing their views with respect to these emerging regulations in the Asia Pacific region, it has been considered of importance for the Singapore-based chemical industry to voice their contribution from a more Asian perspective as well.

Because of this, the Regulatory Affairs Committee of SCIC decided to form a working group to work on these emerging regulations and try to convene the voice and experience of the chemical industry present in this region.

Some of the key emerging regulations that the working group is currently working on:

- 1) South Korea's Act on Registration and Evaluation of Chemical Substances (K-REACH)
- 2) The Philippines' Adoption and Implementation of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)
- 3) Taiwan's Second Supplementary Existing Chemicals Notification (SSECN)
- 4) Malaysia's Chemical classification, Labelling And Safety data Sheet use in the workplace (CLASS Regulations) and Industry Code of Practice (ICOP)

Composition of the ER WG:

Chairperson

Mr Leendert van Dijk
Eastman Chemical Asia Pacific Pte Ltd

Members

1. Ms Cissie Yeung
Shell Eastern Petroleum (Pte) Ltd
2. Ms Vivian Mak
Infineum Singapore Pte Ltd
3. Ms Francis Wong
Evonik Oil Additives Asia Pacific Pte Ltd
4. Ms Khaw Xinhui
BASF South East Asia Pte Ltd
5. Ms Phoebe Lim
Sabik Asia Pacific Pte Ltd

Contributed by:
SCIC Regulatory Affairs Committee

Trans-Pacific Partnership – another FTAs in making

(by Daniel Sudiono, Perstorp Singapore Pte Ltd, SCIC Trade Facilitation Committee)

Trans-Pacific Partnership (TPP) is the latest regional free trade agreements (FTAs) among Asia-Pacific countries that seek to manage trade barriers, promote growth, and economic integration. TPP is the extension to *Trans-Pacific Strategic Economic Partnership* (TPSEP or P4) between Brunei, Chile, New Zealand, and Singapore, which come into force in 2006.

The twelve TPP's negotiating countries (members of APEC forum) are: Australia, Brunei, Chile, Canada, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States, and Vietnam. Once established, its coverage could expand to other APEC members.

TPP potentially be the largest trade pact, covering 40% of

world GDP and 26 % world trade (US\$1.5 trillions of goods and USD\$260 billion of services in 2012).

During TPP Ministerial meeting 19-20 May 2014 in Singapore, though claimed significant headway, no clue has been given on when the deal would be signed. In their joint statements, they remain committed to the ambitious, comprehensive and high-standard agreement. Among the guiding principles are to create jobs, economic growth and opportunities for the countries.

Some issues on the table are Japanese tariff on agricultural imports, US access to other members' huge auto market, copyright restriction on generic drugs, etc.

Current regional and bilateral FTAs network among TPP members are already quite extensive as shown in the figure above. TPP's extension will integrate these economies into seamless flow of goods and services. It will boost trade, and economic growth of members nations.

Apart from TPP, Singapore is pursuing FTAs with EU. Also in discussion, the *Regional Comprehensive Economic Partnership* (RCEP) that would join ASEAN and its six FTA partners — Australia, China, India, Japan, New Zealand, and South Korea — in one collective FTA.

TPP's intention to broadly liberalize regional trade and investment would benefits chemical industries in Singapore and the region. Additional trade volume will pass through Singapore, encourage more investments, and reinforce Singapore as Regional Hub.

Singapore based chemical exporters and importers stand to gain from two additional markets currently not served by any bilateral or regional FTAs, namely Canada and Mexico. Trade between Singapore and Canada in 2012 amount to S\$3 billions, a small fraction compare to the US of S\$75.6 billions and total America of S\$115.7billions (source: Singapore's Department of Statistic). Mexico with 120millions populations and 10th world largest GDP (USD1.8trillions) would offer huge potential trades.

TPP agreement would serve positive impact to open economies such as Singapore. Foreign MNCs would be encouraged to sink in more investment. Local MNCs and SMEs could gain additional market access to huge North and South American market.

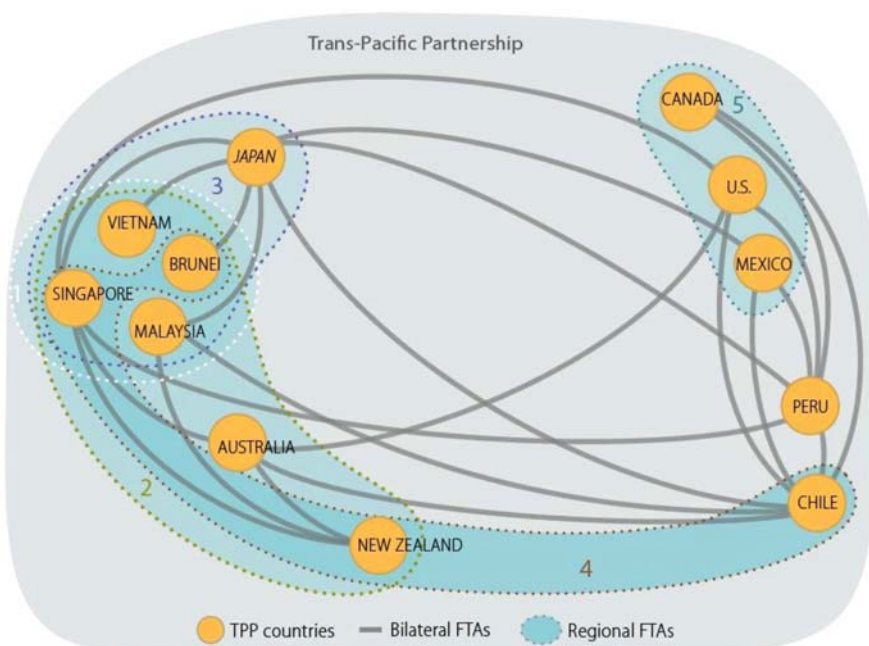


Figure 1: Existing FTAs among TPP countries
(source: Congressional Research Service, 2013)

Contributed by:
SCIC Trade & Facilitation Committee

Minimising Human Error in Process Safety

One of the greatest threats to process plant safety is Human Error. Human error is any human action (or inaction) that exceeds some limit of acceptability. Human error includes lapses and intentional violations that may contribute to accidents.

We say human error plays a part in the majority of accidents. We investigate accidents and learn. But have we? What we say we do, we often don't. That's the root cause why accidents still happen!

Processes need humans. Safety is maximised by optimising human involvement, not by minimising it. Automation and safety training are designed to anticipate identified hazards, and manage them, but not everything can be automated. Human error remains a significant cause of many catastrophic events.

We all make errors irrespective of how much training and experience we possess or how motivated we are to do it right. Failures are more serious for jobs where the consequences of errors are not protected.

More often than not, human errors at the operational level are a primary contributor. However, it is often not recognised that these errors frequently arise from failures in design or management of the company.

Among the serious concerns are:

- (i) Hardware versus Human issues and the focus on Engineering
 - more often than not, focus is almost exclusively on engineering and hardware aspects
 - when operator moves from direct involvement to a supervisory or monitoring role, they will be less prepared to take timely and correct action in a process abnormality
- (ii) focus on Personal Safety
 - the majority still tend to focus on occupational (personal) safety rather than process safety
 - management of Human Factors in major accidents is different from traditional safety management



- (iii) focus on Front-line Operator
 - often, operators are "set-up" to fail by management and organisational failures; operators tend to be inheritors of system defects created by poor design, incorrect installation, faulty maintenance and bad management decisions

Another area of concern is fatigue and shift work, which have been shown to influence people's performance and health and safety-related behaviour at work.

Human error can be classified according to the following:

- Learning gap – due to lack of knowledge or not aware of the consequences (don't know)

Human error led to ...

- (i) Piper Alpha (1988)
 - Three critical events identified were:
 - failure to fit the blank correctly
 - changeover between day and night supervisor
 - contractor failed to report status of work

Among the root causes identified were:

- supervision was less than adequate
- procedures for shift changeover were

inconvenient for use – vital information relating to plant status was not communicated across shifts

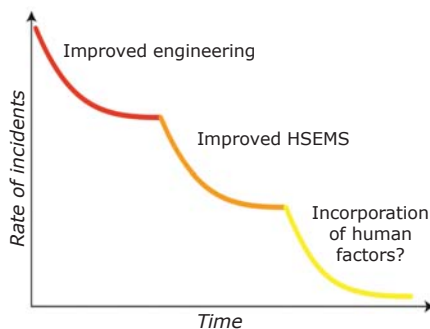
- (ii) BP Texas City (2005)
 - Three critical events identified were:
 - overfilling of the distillation tower
 - use of a blowdown drum and stack that open to atmosphere
 - placement of contractor work trailers adjacent to high hazard process units

Human Error was a symptom of underlying problems:

- historical deviations of startup
- lack of a shift communication policy or emphasis on communication
- malfunctioning equipment/instruments
- fatigued operators and lack of a policy for maximum allowable hours
- budget cuts to staffing and training

- **Memory gap** – not able to use the skill or knowledge at the time (know but don't remember)
- **Inconsistency** – inconsistent performance (having knowledge but variability in methods)
- **Application** – wrong outcomes (know but applied incorrect action)
- **Omission** – missing information or steps, using wrong tools (know but missing step or action)
- **Decision** – inappropriate decision or behaviour (wrong decision in a given situation)

The traditional approaches to safety are no longer sufficient to address human factors. The best way to ensure sustainable safety over the long-term is by committing to a comprehensive safety programme.



Taking human factors into account requires the design of:

- equipment
- products,
- operations,
- procedures, and
- work environments,

such that they are compatible with the capabilities, limitations and needs of humans.

Human factors should also be considered in risk assessments and when analysing incidents, accidents and near misses. Other issues that need to be considered include, shift work,

communications, influencing safe behaviour and health and safety culture.

Minimising human error is an ongoing challenge. The need for safe installations and safe working conditions cannot be neglected at any cost but human errors need to be minimised.

We can further improve safety performance by taking better and more explicit account of the way people interact with every aspect of the workplace.

Further reading

Center for Chemical Process Safety, *Guidelines for Preventing Human Error in Process Safety*

Center for Chemical Process Safety, *Conduct of Operations and Operational Discipline*

Health and Safety Executive, U.K., *Reducing error and influencing behaviour*

Contributed by:
SCIC Process & Engineering
Committee

Watermark AWARD

Recognising outstanding water contributions

Nominations for Watermark Award is now open.

The Watermark Award recognises water stewards for their outstanding contributions and commitment towards protecting and raising awareness of Singapore's precious water resources.

If you know of any exemplary individuals or organisations with extraordinary contributions towards Singapore's water sustainability, nominate them for the prestigious Watermark Award.

Nominations open from **1 July to 31 August 2014.**

For more information, visit
www.pub.gov.sg/watermarkaward.

Conference cum Workshop on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals 2014

The GHS Conference cum Workshop, themed “*Think Globally and Act Locally – Crossing the Midpoint, Moving Forward and Making Changes*”, was held on 5 and 6 May 2014 at Suntec Singapore, in conjunction with the Singapore WSH Conference 2014. Organised by the Singapore Chemical Industry Council with support from the relevant regulatory authorities and institutions, the event was attended by regulators, policy makers, EHS professionals, GHS service providers, chemical manufacturers, chemical users and individuals who have interest in the chemical hazard communication and management.



The first-day workshop was attended by more than 60 participants. The trainer for the workshop, Ms Henriette Christiansen from DHI Water and Environment (s) Pte Ltd covered the following topics:

- Background of GHS
- Roles and obligations
- GHS Implementation – deadlines
- Understanding GHS – Building blocks, Methods (bridging, calculation and testing), Classification, Label Elements and Safety Data Sheet
- Global marketing of products
- Handling raw materials in production
- Workplace and GHS

The workshop also provided participants a fruitful hands-on experience on the classification and labelling of chemicals.

The second-day conference, which attracted over 100 participants, opened with Mr Akira Yonemura the SCIC Board of Director, sponsor of the SCIC Regulatory Affairs Committee, Managing Director of Petrochemical Corporation of Singapore, giving a key note address. Following were the presentations by the speakers from the GHS taskforce, the GHS virtual expert

group, the GHS capacity building trainer and industry practitioners.

Highlights of the topics presented included:

Overview of GHS and Global Practices – Highlights on the status of the GHS implementation globally.

Presented by Ms Henriette Christiansen
Business Area Manager, Human Health & Toxicology
DHI Water and Environment (S) Pte Ltd

Updates on Globally Harmonised System of Classification and Labelling of Chemicals and United Nations Recommendation on the Transport of Dangerous Goods – Sharing on changes in the new version for UN GHS and UNRTDG

Presented by Mr Ken Price
Riskom International Pty Ltd
Member of the National GHS Taskforce Virtual Expert Resource Group

Singapore’s Implementation of GHS through Singapore Standards SS 586 – Sharing the implementation journey of Singapore and the challenges met along the way.

Presented by Ms Veronica Chow
Senior Assistant Director (Occupational Hygiene)
Ministry of Manpower, Singapore
Member of the National GHS Taskforce

Sharing of Good Practices from a MNC Company – Industry sharing on the implementation journey, challenges faced in implementation and worker’s Hazard Communication Programme.

Presented by Mr Bernard Leong
HSE Manager
Petrochemical Corporation of Singapore (Private) Ltd

Sharing of Good Practices from a SME Company – Industry sharing on the implementation journey, challenges faced in implementation and worker’s Hazard Communication Programme.

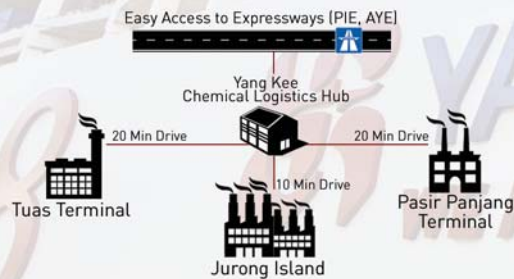
Presented by Mr Michael Ang
Pride-Chem Industries Pte Ltd



Your Partner of Choice in Highly Efficient Total Logistics Solution



- 9 Storey "Ramp Up" warehouse of more than 800,000 sqft for Hazardous Chemicals and Dangerous goods storage.
- Ideal for local and regional distribution.
- Automated drumming line and blending facility.
- Competent and experienced Operation Team.
- Designated area for storage of ISO tanks.
- More than 50 prime movers and trucks to transport Hazardous Materials.
- 24 hours surveillance.
- Provision of Temperature Controlled Storage.
- All personnel undergone comprehensive training in safe handling of Hazardous Chemicals and Dangerous goods.
- Highly competent Company Emergency Response Team (CERT) and comprehensive plans (ERP) to handle emergency situations.



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Leveraging Technology for GHS compliance – Providing examples on how companies can leverage on cloud-based Learning Management Systems to ensure training of worker's on the requirements of the GHS.

Presented by Mr JC Sekar
 Managing Director, Asia Pacific and Middle East,
 UL Workplace Health and Safety

GHS's Role in Global Product Strategy – Introducing GPS, Product Stewardship and GHS's role in GPS.

Presented by Ms Khaw Xin Hui,
 Manager - Asia Pacific Chemical Regulations
 Competence Center, Environment Health & Safety
 BASF South East Asia Pte Ltd

Q&A sessions were also arranged after each presentation which provided the participants an opportunity to clarify their doubts.

Mr Terence Koh, Executive Director of the Singapore Chemical Industry Council and Co-chairman of the National GHS Taskforce, closed the conference and expressed his appreciation to the speakers for volunteering their time and support to share at the conference.



Training Course on “Regulatory, Technical & Safety Requirement of ISO Tank Containers”

Over the years, ISO Tank Containers have become a more preferred way for bulk transportation for liquid products distribution process. With over 30 years of experience and exposure as a consultant and specialist in the field, the one and a half day course was conducted by Mr Paul Sireci and organised by SCIC on 28-29 May 2014.

As most of the products transported in the Chemical Industry are hazardous by nature, it is important to have proper training and knowledge of this technical equipment before taking charge of operational activities. Participants who attended this course gained better understanding on the foundation for the use and application of the ISO Tank container where introduction of regulatory framework and various technical aspects of operating a tank container were taught.

Some of the topics that were covered during the course included:

- Regulatory Developments on Training
- Tank specification, tanks for specialized cargoes and their basic designs
- Design and manufacturing aspects including its construction, codes & procedures, remanufacturing and the defects
- Functions and the maintenance consideration for the different fittings



- Operation safety with highlights on the common hazards, identifying of hazards, classes, labels and the hazards & rules of confined space entry
- Type of surveys & survey guidelines
- Regulatory framework impacting ISO Tanks and the statutory requirements imposed for tank certification etc
- Cargo worthiness, compatibility of tank and its cargo, tank cleanliness and its tightness etc

To further enhance the participants' understanding of the topics taught in class, an opportunity was given to participants for an on-site visit to OCWS Logistics Pte Ltd on the second day of the training course to inspect an actual ISO Tank container. On top of the inspection, the half day practical session also includes a short sharing session on the different valves and component of an ISO Tank.

SCIC would also like to express our gratitude towards OCWS Logistics Pte Ltd for their continuous support in allowing SCIC to conduct the practical session at its depot, NewPort Tank Containers Singapore Pte Ltd in providing an ISO tank on-site and Pelican Worldwide Asia Pte Ltd for their support during the practical session.

SCIC Workshop on Management of Hazardous Chemicals Programme (MHCP)

Chemicals are widely used in the factories and other workplaces. However, chemicals can endanger our health, threaten our life and damage our environment if they are not properly handled or used. Thereafter, it is important to manage the usage of chemicals with extra cautions to safeguard persons against hazardous chemicals at workplaces.

In view of the above, the Ministry of Manpower (MOM) and the Workplace Safety and Health Council (WSHC) have launched the guidelines on the Management of Hazardous Chemicals Programme (MHCP) in July 2011 to provide guidance on the proper management of chemicals. The guidelines also highlight the importance of top management support and commitment in the implementation of the MHCP in their companies.

As part of our continued capacity building efforts in training and implementation of an effective MHCP especially among small, medium enterprises, the workshop aims to provide the participants with a clearer understanding on the requirements of the 13 elements of MHCP which will help them in the process of establishing and implementing an effective programme in their companies.



Tasked to undertake the MHCP cross-industries training, SCIC has organised a total of 3 sessions of the workshop on MHCP on 23 April, 19 May and 30 June respectively in the second quarter of 2014.

Sharing Session with SMEs – Challenges in implementing Process Safety Management (PSM) and incident sharing

The SCIC's Process and Engineering (P&E) Committee organised the Sharing Session with SMEs - Challenges in implementing Process Safety Management (PSM) and incident sharing on 29 April 2014. More than 40 participants attended this sharing session which aims to elevate the awareness of the need and importance of PSM as well as build process safety capacity in the industry.



The participants were informed of the latest update of the revised Singapore Standard, SS 506:2013 *Occupational safety and health (OSH) management systems – Part 3 Requirements for the chemical industry*, which was presented by Mdm Jaime Lim, Principal Specialist (Major Hazard Installation) of Ministry of Manpower. The Process Safety Performance Indicators (PSPI) was introduced in the revised SS 506 Part 3. Organisations will have to establish, implement and maintain a set of safety indicators for personnel safety and process safety as an essential part of the organisations' management arrangement. Collection and analysis of indicators' data as well as communication of indicators in a timely manner with annual management review will also be required.



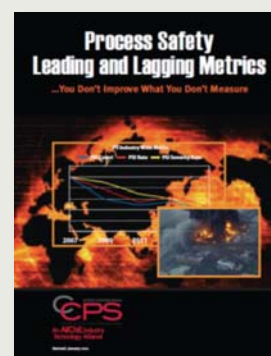
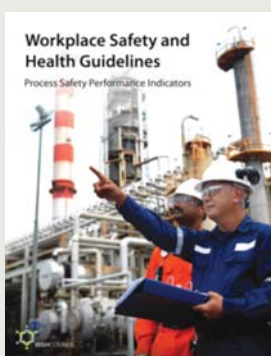
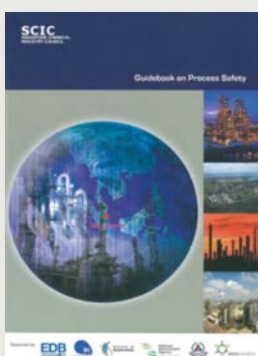
to emphasise the top few PSM elements to monitor to ensure process safety.

The importance of process safety was highlighted through the sharing of key learnings from process safety incident, Nippon Shokubai Himeji Plant. The OSHA PSM (14-element approach) was also presented

SCIC supports the PSM initiative and aims to increase process safety competency through organising the upcoming PSM Engagement Seminars (Aug/Sep 2014) and PSPI Workshops (Oct 2014).

Selected references:

- ✓ SCIC Guidebook on Process Safety
www.scic.sg/index.php/resources/publications
- ✓ WSH Guidelines – Process Safety Performance Indicators
www.wshc.sg/wps/portal/resources
- ✓ CCPS Process Safety Leading and Lagging Metrics
www.aiche.org/ccps/resources/tools/process-safety-metrics



Launch of SS 586 : 2014 Hazard communication for hazardous chemicals and dangerous goods

In December 2011, a Working Group was formed to review the Singapore Standard, SS 586 : 2008, Hazard communication for hazardous chemicals and dangerous goods. This review exercise updated the SS 586 series of standards and has adopted GHS version 4.

The new edition, SS 586 : 2014, Hazard communication for hazardous chemicals and dangerous goods was launched on 7 March 2014. This event attracted more than 150 participants consisting of the chemical manufacturers, importers and exporters, suppliers and users, emergency responders, logistics and distribution service providers, testing laboratories, relevant government agencies, academia and research institutions. The final number of participants exceeded the targeted number by more than 50%.

The launch commenced with a welcome address by Mr Steven Tan, Group Director, Quality and Standards of SPRING Singapore. Dr Tay Kin Bee, Chairman of the Singapore Chemical Industry Council (SCIC) and Deputy Chairman of the Chemical Standards Committee (CSC), provided an overview of the '*Chemical Industry in Singapore*'. Dr Keith Carpenter, Chairman of CSC subsequently made a presentation on '*Chemical Standards and Industry*'. This was followed by an overview of the standards under the purview of the Technical Committee for Chemistry by its Chairman, Mr Leong Kwai Yin.

The Convenor and members of the Working Group on SS 586 spoke on the highlights of SS 586 : 2014. Ms Soo Sze Mun, Member of the WG on SCIC's GHS guidebook review gave a presentation on the '*GHS Implementation for Singapore and Brief Update on SCIC's GHS Guidebook*'. Mr Vincent Teo, Chief Operation Officer from Pride-Chem Industries Pte Ltd, was invited to present on '*Success Story from an SME Implementation of SS 586 : 2008*'. A detailed follow-up session on SS 586



standards was requested by more than 30 participants. This will be followed up through the SCIC GHS Chemical users course which has updated its training materials to align with the new SS 586 : 2014.

Presentation materials for this event are available at the following weblink: <http://www.scic.sg/index.php/events-a-activities/sdoscic-past-events>

Acknowledgement of the following Working Group on SS 586 who contributed in their individual capacity:

Name of member	Organisation
WG Convenor	
Ms Veronica Chow	Ministry of Manpower
WG Members	
Mr Cheah Sin Moh	Singapore Polytechnic
Ms Dahliyah Hamid	Bayer (South East Asia) Pte Ltd
Ms Linda Lai	ExxonMobil Chemical Asia Pacific
Ms Vivian Mak	Infineum Singapore Pte Ltd
Ms Ong Li Lian	National Environment Agency
Ms Alice Seto	Singapore Civil Defence Force
Mr Henry Tan	Petrochemical Corporation of Singapore
Ms Francis Wong	Evonik Oil Additives Asia Pacific Pte Ltd
Mr Philip Yeo	Maritime and Port Authority of Singapore
Ms Cissie Yeung	Shell Eastern Petroleum (Pte) Ltd

Note: Acknowledgement of the contribution by the following former WG member: Mr Wang Hui Hua



Highlights of International Standards Meeting in 2014 ISO/TC 229/JWG 2 Nanotechnologies – Measurement and characterisation Interim Meeting

The ISO/TC 229/JWG 2 Interim Meeting with approximately 30 experts from 12 countries was held at AFNOR in St Denis, France from 12 to 14 May 2014. A number of members from the National Working Group (NWG) for Nanotechnologies as well as the SDO@SCIC secretariat participated in this three-day meeting. Singapore presented a proposal for an ISO Technical Report (TR) on Measurement of metal-based nanoparticles in water matrix. The scope of the proposed TR describes and compiles approaches for the measurement of the number concentration, size, shape and composition of metal-based nanoparticles existing in different water matrices. In addition, Singapore also actively participated in the development of ISO standards related to measurement and characterisation being discussed at this meeting. The US, UK, Germany, Netherlands and Korea expressed interest to work with Singapore in the development of this proposal for the final presentation at the ISO TC 229 Plenary Session in November 2014 in India.



More about the NWG for Nanotechnologies

The NWG for Nanotechnologies is under the Chemical Standards Committee (CSC) which is managed by the Standards Development Organisation at the Singapore Chemical Industry Council (SDO@SCIC). The CSC is one of the 12 Standards Committees under the Standards Council which is administered by SPRING Singapore, the national standards body. The NWG for Nanotechnology Standards is the mirror committee in Singapore of the International Organisation for Standardisation (ISO) Technical Committee (TC) 229 meetings on nanotechnologies that has already published 42 ISO standards. Members of the NWG form the Singapore delegation at the ISO TC 229 meetings.



Appreciation Lunch for Chemical Standards Partners



An appreciation lunch was organised by SDO@SCIC to thank the standards partners from the Chemical Standards Committee and its Technical Committees and Working Groups for their contributions in FY 2013.

The deep commitment and efforts of the CSC standards partners have made it possible for the CSC to exceed the targeted KPIs by more than 50% when a total of 54 standards were completed in FY 2013.

73 chemical standards partners attended the appreciation lunch at AquaMarine in Marina Mandarin on 14 March 2014 which enabled members from the different committees to meet and share their experiences in standards development.



Welcoming New Committee Members

SCIC would like to extend a warm welcome to the following members and companies into the:

REGULATORY AFFAIRS COMMITTEE

Ms Phoebe Lim

Specialist, Global Product Strategy
SABIC Asia Pacific Pte Ltd

RESPONSIBLE CARE COMMITTEE

Mr Christopher Archie Varel

Risk Management Section Head
ExxonMobil Chemical Asia Pacific Pte Ltd

Mr Chai Ming Han

Regional Land Logistics Manager
Shell Eastern Trading (Pte) Ltd

PROCESS AND ENGINEERING COMMITTEE

Mr Chen Wah Sit

Assistant Manager, Production Planning
Mitsui Elastomers Singapore Pte Ltd

Appreciation to Committee Members

SCIC would like to express its thanks to the following committee member for their outstanding contributions to SCIC during their tenure as a member of the following committee:

RESPONSIBLE CARE COMMITTEE

Ms Cheong Shu Jun

Sembcorp Industries Ltd (Utilities Singapore)

Mr Simon Wee

Shell Eastern Trading (Pte) Ltd

PROCESS AND ENGINEERING COMMITTEE

Mr Kuah Hsian Yang

Mitsui Elastomers Singapore Pte Ltd

19th AMEICC-WGCI Meeting 2014

The 19th AMEICC-WGCI (ASEAN Economic Ministers (AEM) Ministry of Economic, Trade and Industry (METI), Economic and Industrial Cooperation Committee – Working Group for Chemical Industry) Meeting was held on 16 and 17 June 2014 at Hyatt Regency Resort and Spa in Danang, Vietnam.

Comprising government and industry representatives from the ASEAN nations and Japan, this is an annual meeting that provides a good platform for exchange of information on the developments of the respective ASEAN chemical industries.

The Meeting was co-chaired by Dr Luu Hoang Ngoc, Deputy Director General, Vietnam Chemicals Agency, Ministry of Industry and Trade, and Mr Tadashi Mogi, Director of Chemicals Division, Manufacturing Industries Bureau, Ministry of Economy, Trade and Industry (METI), Japan.



The 2-day meeting was updated on the following:

- ASEAN Chemical Safety Database (ACSD)
 - Introduction on current development of ACSD
 - Report from special workshop on ACSD
 - Next Steps
- Global Petrochemical Industry & Supply & Demand for Petrochemical Products in Japan
- Overview of Chemical Industry in ASEAN & Japan
- Chemical Safety Management in ASEAN & Japan (related issues such as GHS development and actions towards achieving WSSD 2020 goal)
- Global Trend & Japanese Chemical Industry's Approach

The meeting agreed that the 20th AMEICC WG-CI Meeting will be held in Cambodia, Siem Reap in 2015, subject to further confirmation.

New Members to the SCIC Board of Director

SCIC would like to extend a warm welcome to the following Director as the newest board member of SCIC:



Mr Jacques Cazin

General Manager
Manufacturing & Supply, APR
Chevron Oronite Pte Ltd



Mr Shuji Matsuyama

Director/General Manager, Plant
Mitsui Elastomers Singapore Pte Ltd

Welcoming New SCIC Members

SCIC would like to welcome the following companies:

ENVIRONCORP CONSULTING SERVICES (S) PTE LTD

ENVIRONCORP Consulting Services (S) Pte Ltd is a wholly owned subsidiary of ENVIRON®, a multi-disciplinary environmental, health and safety (EHS) consultancy with over 90 offices around the world.

Since 1982, ENVIRON® has worked with clients around the world to help resolve their most demanding environmental and human health issues. Our Singapore office offers a wide range of EHS services to our clients both in the private and public sectors.

 www.vironcorp.com

EYVA CONSULTING

Eyva Consulting is a boutique EHS consultancy with the capacity of providing quality services in Asia and Middle-East in:

- M&A and Due Diligence Consulting
- EHS Compliance and Management Systems
- Occupational Health and Safety services
- Environmental, Social, Health Impact/Risk Assessment
- Property Condition Assessments
- (EICC) Labor and Ethics Consulting
- EHS Knowledge Brokering

 www.linkedin.com/company/eyva-consulting
www.eyvaconsulting.com

INTERGRAPH PROCESS, POWER AND MARINE PTE LTD

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Business and governments in more than 60 countries rely on Intergraph's industry -specific software to organize vast amounts of data to make processes and infrastructure better, safer and smarter. The company's software and services empower customers to build and operate more efficient plants and ships and protect critical infrastructure and millions of people around the world.

"Intergraph has established itself as the premier enterprise engineering company by understanding that engineering data is a valuable corporate asset and must be properly managed at the enterprise level" – Janice Abel, ARC Principal Consultant

 www.intergraph.com

KAO SINGAPORE PTE LTD

Kao Singapore was incorporated in July 1965. The Company Net Sales for the fiscal year 2013 has exceeded USD\$130 million. Beside the Chemical business, our other range of businesses include Kao Toiletries, Kanebo Cosmetics, Molton Brown and the Salon (Goldwell & KMS) Business.

The current office is situated at 83 Clemenceau Avenue, #16-08 UE Square, Singapore 239920.


 www.kao.com.sg

PURE CHEMICALS PTE LTD

Pure Chemicals PTE Ltd is the subsidiary of Pon Pure Chem (P) Ltd, India which is having 30 marketing offices in India and 5 overseas offices and the group is in Petrochemical trading and distribution business since 1981.

Major suppliers are ExxonMobil, Shell Chemicals, LyondellBassell etc and major customers are Ranbaxy, Mylan, Aurbindo Pharma, Akzo Nobel, Reckiet, SC Johnson, Sheela foam, Micro Inks etc.

Major products traded and distributed by the group are BTX, Solvent C9, C10, Acetone, Phenol, Hexane, Polyol, MPG, D grades etc.

 www.pure-chemical.com

THE PETROCHEMICAL STANDARD

The Petrochemical Standard is a news and pricing agency set up in 2014 to address the growing need for reliable, real-time pricing information and analysis in the global petrochemical markets.

The company's price assessments and analysis are designed to support the decision making process of producers, consumers, traders, distributors and consultants.

 www.petchemstandard.com

SCIC Responsible Care Good Practices Sharing Workshop (Distribution and Product Stewardship Codes)



Following the SCIC Annual Dinner 2014 and the Responsible Care Awards 2013 presentation held on 21 March 2014, the SCIC Responsible Care committee organised the first series of the Responsible Care good practices sharing workshop on 30 May 2014.

The Responsible Care good practices sharing workshops are annual events organised by the committee which served as excellent platforms for fellow practitioners of Responsible Care member companies to gather, network, share and exchange of valuable information. Such industry sharing events will provide participants some take back from the sharing of experiences and good practices by award winners. This could ultimately benefit the chemical industry and improve the health, safety and environment performances.

The first workshop held on 30 May covered the "Distribution" and the "Product Stewardship" codes. SCIC would like to thank the SCIC Responsible Care code leaders and the speakers for their time and support in sharing with the participants at the workshop:

Responsible Care workshop (Distribution Code)

SCIC Responsible Care Committee - Distribution (DIST) Code Leaders:

Mr Simon Wee - Shell Eastern Trading Pte Ltd

Mr Tommy Chng - BASF South East Asia Pte Ltd

Good practices sharing by:

Mr Steven Chua - Lubrizol South East Asia Pte Ltd

Mr Jagajeevan Narayanasamy - LTH Logistics (Singapore) Pte Ltd

Mr Thet Naing - Sumitomo Chemical Singapore Pte Ltd

Responsible Care workshop (Product Stewardship Code)

SCIC Responsible Care Committee - Product Stewardship (PDS) Code Leaders:

Ms Dahliyah Hamid - Bayer (South East Asia) Pte Ltd

Mr Vinay Narshimha Nayak - DuPont Company (Singapore) Pte Ltd

Mr Varian Han - Borouge Pte Ltd

Good practices sharing by:

Mr HK Wong - Shell Eastern Petroleum (Pte) Ltd

Mr Tay Khoon Eng - The Polyolefin Company (S) Ltd

Mr Vinay Narshimha Nayak - DuPont Company (Singapore) Pte Ltd



Look-out and register for the next two upcoming Responsible Care good practices sharing workshops:

→ **17 July 2014**

"Community Awareness & Emergency Response" and "Employee Health & Safety" codes

→ **22 July 2014**

"Pollution Prevention" and "Process Safety" codes

For more information on the registration of the workshops, visit SCIC website at www.scic.sg

Welcoming New Responsible Care Member Company

SCIC warmly welcomes the following companies into the Responsible Care family:



Henkel Singapore Pte Ltd



Yang Kee Chemicals Logistics Pte Ltd

Submission for SCIC Responsible Care Annual Self-Evaluation and Responsible Care Awards 2014

SCIC Responsible Care Commitment mandates the annual submission of annual self-evaluations for the relevant codes of practice as one of our requirements for Responsible Care member company.

The annual exercise for the SCIC Responsible Care self-evaluation and Responsible Care Awards 2014 will start in early July 2014.

All Responsible Care member companies will receive an email notification on the submission exercise from SCIC.

For more information, please contact the SCIC Responsible Care co-ordinator, Ms Agmer Lee at agmerlee@scic.sg



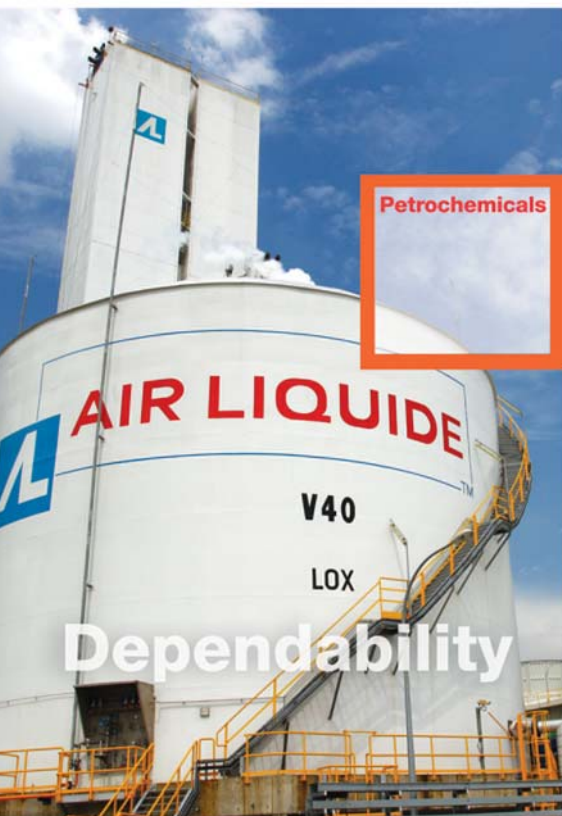
🔍 Forthcoming Events

2014 < >

10 Jul	Accidents Investigation workshop
16 Jul	Training Workshop on Globally Harmonised System (GHS) for Chemical users
17 Jul	Responsible Care Good Practices Sharing Workshop (Community Awareness & Emergency Response and Employee Health & Safety Codes)
22 Jul	Responsible Care Good Practices Sharing Workshop (Pollution Prevention and Process Safety Codes)
22 Jul	Workshop on Management of Hazardous Chemicals Programme
24 Jul	SCIC – Annual 5th Golf Challenge Trophy
29-31 Jul	Compliance of the International Maritime Dangerous Goods (IMDG) Code
02 Aug	ChemEx 2014 – The Jurong Island Open Day
13 Aug	Process Safety Management (PSM) Engagement Seminar
14 Aug	SCIC-MOM Dialogue Session
15 Aug	Workshop on Management of Hazardous Chemicals Programme
19 Aug	Training Workshop on Globally Harmonised System (GHS) for Chemical users
25-26 Aug	Training Course on GHS Classification for Single Substance
27 Aug	SCIC-IGAS Seminar 2014
9-10 Sep	Training Course on GHS Classification for Mixture
10 Sep	Workshop on Management of Hazardous Chemicals Programme
17 Sep	Training Workshop on Globally Harmonised System (GHS) for Chemical users
26 Sep	Process Safety Management (PSM) Engagement Seminar

For more information on the dates of these training courses, you may visit our website at www.scic.sg or contact SCIC at secretariat@scic.sg

Note: SCIC may change/amend the events listed above without any prior notice.



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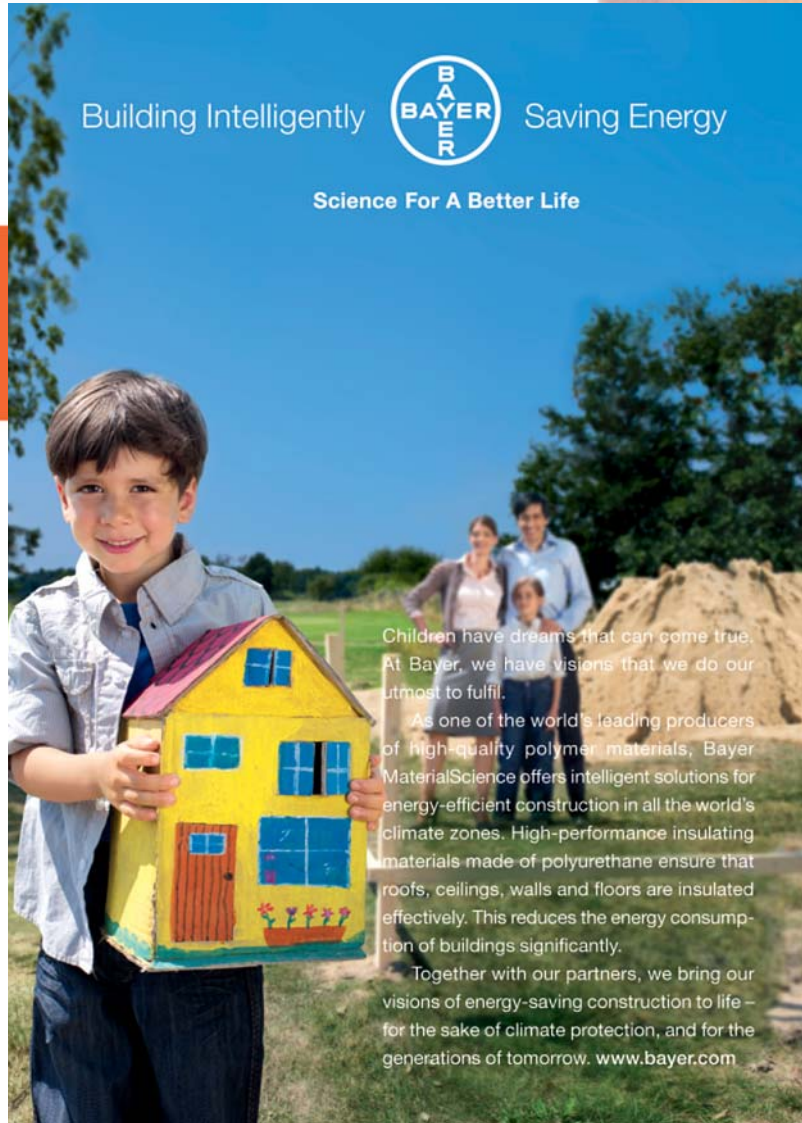
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