

2019

Bahagian Pengurusan Kimia

eBuletin CHEM

JKKP

**FUNGSI DAN
AKTIVITI**

*Artikel
Perkongsian Pengalaman
Pelaporan*

**KAWALAN
KONVENSYEN
PENGELASAN
PENAKSIRAN**

Leader in Chemical Management

Bapa Kimia Moden

Abu Musa Jabir ibn Hayyan al-Barqi al-Azdi

(أبو موسى جابر بن حيان الأزدي)

Ilmuan Perancis bernama **Berthelot** : “*Bandingan kepakaran Jabir dalam kimia adalah umpama kepakaran Aristotles di bidang ilmu logik*”

Penaung:
Hazlina Yon

Ahli falsafah Inggeris **Francis Bacon** : “*Jabir bin Hayyan adalah orang yang pertama memberi pengetahuan tentang kimia kepada dunia dan beliau adalah seorang bapa dalam bidang kimia*”

Penasihat:
Shabanon Mohd Sharif

Editor :
Mohd Norhisyam Omar

Orientalis Jerman, **Otto Meyerhof** : “*Jabir telah mencipta satu anjakan evolusi dalam perkembangan ilmu kimia di Eropah*”. Otto merujuk kepada ketokohan Jabir bin Hayyan secara langsung dan bukti terbesarnya adalah banyak istilah yang diciptanya digunakan dalam pelbagai bahasa di Eropah.

Penolong Editor:
Norhidayah Nazammudin
Siti Nur Nadirah Mohamad

Rekabentuk & Susun atur :
Mohd Norhisyam Omar

Artikel & Bahan :
Pegawai-pegawai BPK

Sumber



Bahagian Pengurusan Kimia
Jabatan Keselamatan dan Kesihatan Pekerjaan
Aras 1, 3, 4 & 5,
Blok D4, Kompleks D
Pusat Pentadbiran Kerajaan Persekutuan
62530 W.P. Putrajaya

Leader in Chemical Management

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Bahagian Pengurusan Kimia (BPK) bertanggungjawab dalam memastikan keselamatan dan kesihatan pekerja-pekerja yang terlibat dalam pengurusan bahan kimia di tempat kerja. Di dalam hal ini, peruntukan utama yang digunakan di bawah Akta Keselamatan dan Kesihatan Pekerjaan 1994 adalah :

- i. Peraturan-Peraturan Keselamatan dan Kesihatan Pekerjaan (Penggunaan dan Standard Pendedahan Bahan Kimia Berbahaya Kepada Kesihatan) 2000
- ii. Peraturan-Peraturan Keselamatan dan Kesihatan Pekerjaan (Pengelasan, Pelabelan dan Helaian Data Keselamatan Bahan Kimia Berbahaya) 2013
- iii. Perintah Keselamatan dan Kesihatan Pekerjaan (Larangan Penggunaan Bahan) 1999
- iv. Tataamalan Industri Kualiti Udara Dalam 2010
- iv. Tataamalan Indusri Mengenai Pengelasan Bahan Kimia dan Komunikasi *Hazard* 2014

Selari dengan *tagline* BPK iaitu *Leader in Chemical Management*, BPK sentiasa berusaha memberikan yang terbaik dalam usaha untuk menjadi peneraju di kalangan agensi dan jabatan yang terlibat di dalam pengurusan kimia kebangsaan dan antarabangsa. Penglibatan dalam Konvensyen-konvensyen seperti Konvensyen Senjata Kimia, Konvensyen Minamata, Konvensyen Stockholm dan Konvensyen Rotterdam meletakkan BPK antara agensi pelaksana utama di peringkat kebangsaan. Kerjasama dan komitmen yang diberikan dalam

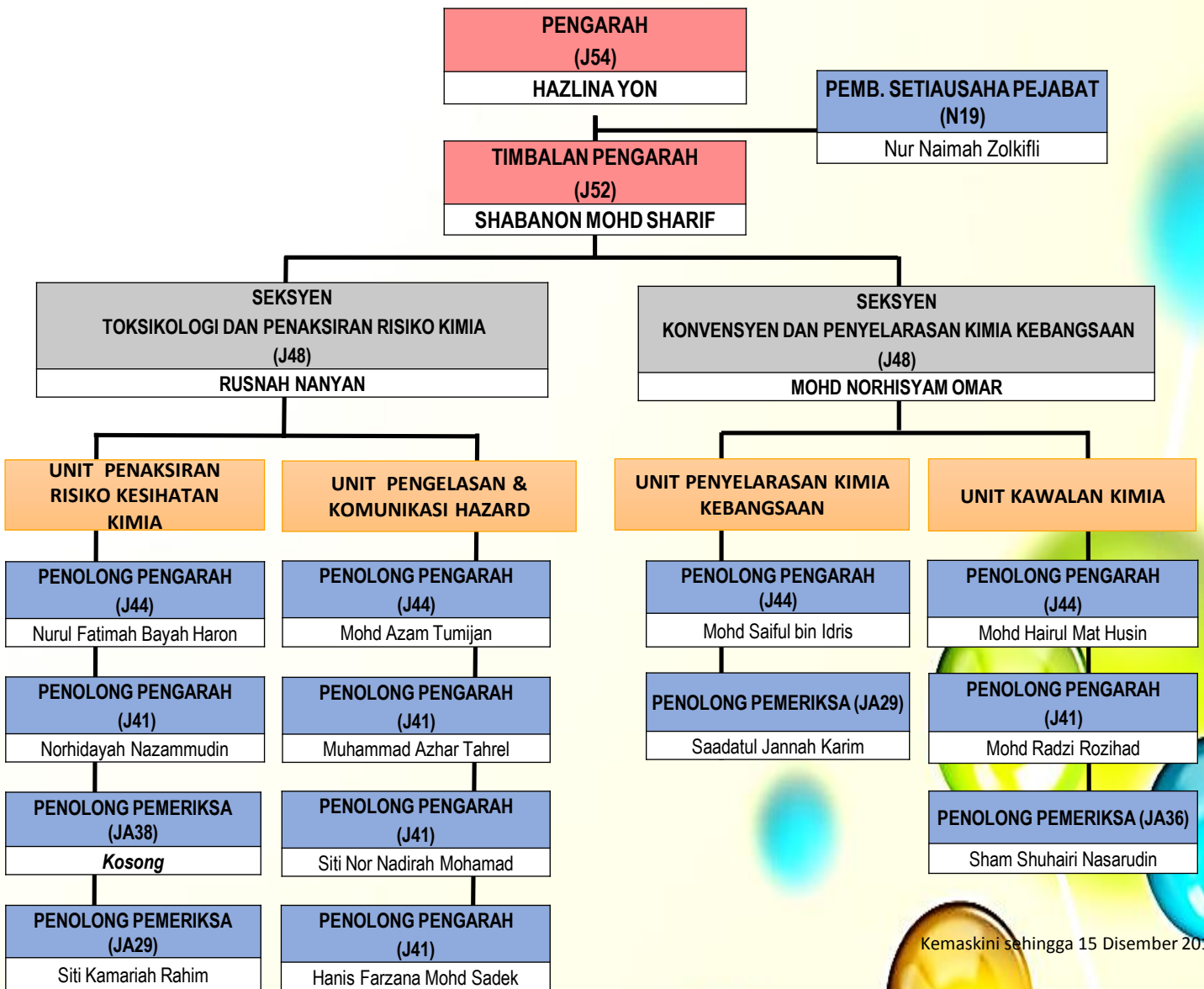
menjayakan pengurusan kimia di peringkat kebangsaan dan antarabangsa memainkan peranan yang penting dalam menaikkan imej dan kredibiliti BPK yang turut membawa nama Jabatan dan Kementerian.

BPK sentiasa komited dan memberikan komitmen terbaik dalam melaksanakan aktiviti yang dirancang. Pelaksanaan aktiviti-aktiviti yang digariskan secara langsung dan tidak langsung akan memberi impak kepada penghasilan output yang akan dapat membantu jabatan dalam merealisasikan *outcome* yang telah ditetapkan.

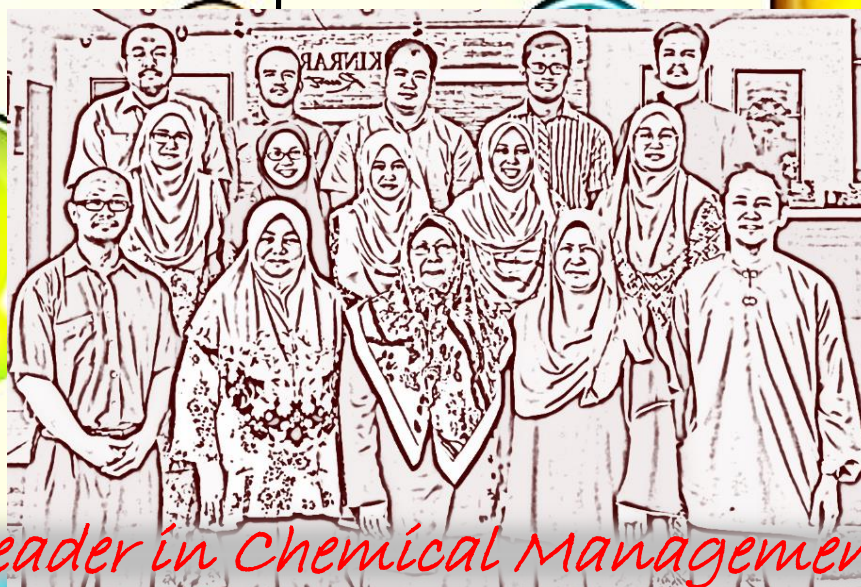
Kerjasama antara BPK dan Pejabat Negeri akan dipertingkatkan melalui proses-proses tambah baik berkaitan dengan komunikasi, pemahaman yang sekata dan bantuan-bantuan teknikal yang dapat membantu Pejabat Negeri melaksanakan perancangan dan aktiviti berkaitan.

Bahagian Pengurusan Kimia (BPK) JKKP

JABATAN KESELAMATAN DAN KESIHATAN PEKERJAAN (JKKP) MALAYSIA
 BAHAGIAN PENGURUSAN KIMIA (BPK)



Kemaskini sehingga 15 Disember 2019



Leader in Chemical Management

Functions and Activities of BPK

CHEMICAL HEALTH RISK ASSESSMENT UNIT

- Development of CHRA 3rd edition
- Approve & monitor alternative method of CHRA
- Approve and process Generic CHRA
- Development of SiRAC Manual
- Development of SiRAC Online
- Register, renewal and monitor CHRA Assessor
- Register and monitor CHRA training centre and trainer
- Conduct training on CHRA for DOSH Officer
- CHRA Assessor Internal Competency
- Conducting risk assessment

- Coordinate enforcement of USECHH Regulations 2000
- Indoor Air Quality audit
- Register, renewal and monitor HT1 / IAQ Assessor
- Register and monitor HT1 / IAQ training centre and trainer
- Engagement with industry
- Manage technical equipment
- Asbestos removal application and inspection
- Complaint investigation
- Review USECHH Regulations, Prohibition Order and Guideline on CEM
- IAQ Assessor & Hygiene Technician 1 Internal Competency

CHEMICAL CONTROL UNIT

CLASSIFICATION AND HAZARD COMMUNICATION UNIT

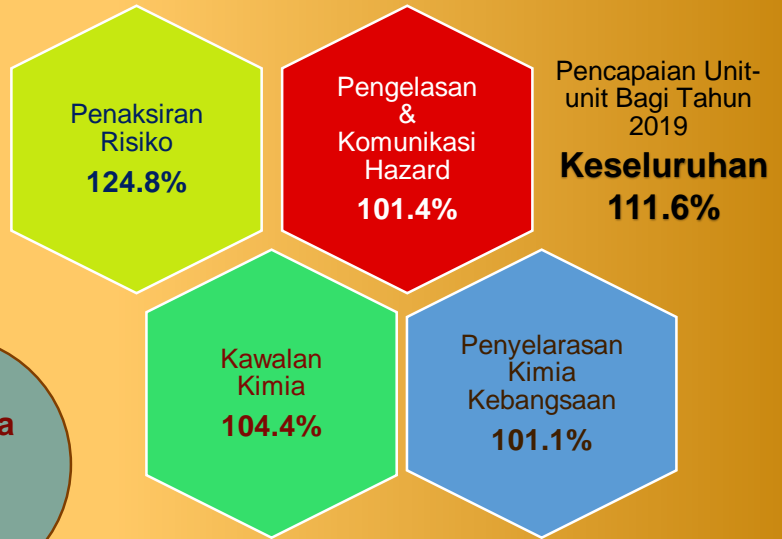
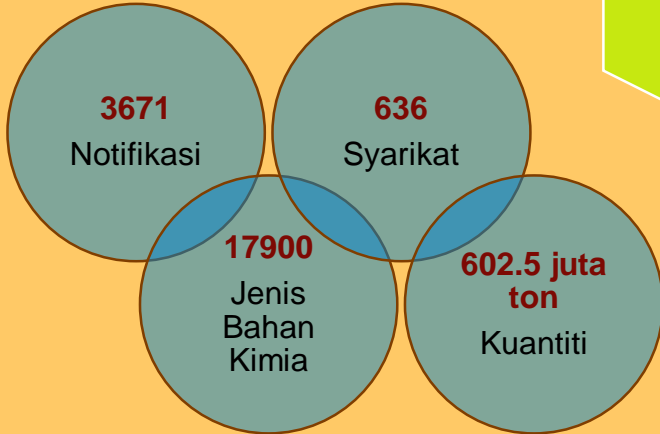
- Coordinate enforcement of CLASS Regulations 2013
- Strengthening compliance of CLASS Regulations 2013
- Review CLASS Regulations 2013
- Process of acknowledgement Chemical Inventory submitted by industry
- Maintain Chemical Information Management System (CIMS)
- No CLASS No Entry policy
- Register and monitor CLASS Regulations training center and trainer.
- Review classification of hazardous chemical in Part 1 ICOP CHC

- SOHELP
- Enforcement of Chemical Weapon Convention
- Implementation of Prior Informed Consent (PIC) under the Rotterdam Convention
- Implementation of Minamata Convention
- Implementation of Stockholm Convention
- Use and maintenance equipment - FTIR & GCMS
- Manage procedure and documentation of officer that participates in chemical management program at national and international level

CHEMICAL CONVENTION UNIT

Nombor-nombor BPK

CIMS 2019

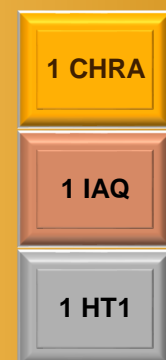


11 Pemeriksa Kebangsaan Konvensyen Senjata Kimia

(Koordinasi oleh BPK bagi semua Pejabat/Bahagian JKPP)



Orang Yang Kompeten Kawal Selia oleh BPK



Pusat Pengajar



*Dalam proses permohonan

CHRA & SiRAC

by
Norhidayah

SiRAC

What is SiRAC?

- It stands for Simple Risk Assessment and Control for Chemicals.
- A simplified assessment method based on “control banding” approach which involve a process of grouping workplace risks into control bands based on combination of hazard and exposure information.

Application of SiRAC

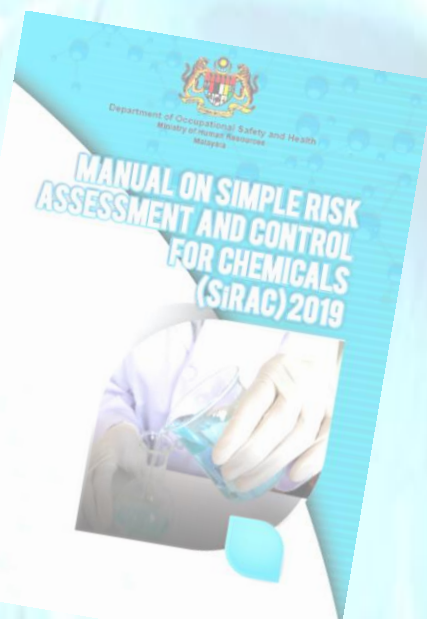
- SiRAC can be used as an alternative for conducting an assessment of risk to health due to exposure to chemicals hazardous to health EXCEPT for the following types of chemicals:

- Classified as carcinogenicity category 1, mutagenicity category 1 or respiratory sensitization category 1;
- Process generated dusts and fumes;
- Organic dust;
- Gases; and
- Scheduled wastes as listed in EQ (Scheduled Wastes) Regulations 2005

Who to Conduct SiRAC?

- Assessor
- Trained Person (after amendment of USECHH Regulations 2000)

Manual on SiRAC has been launched on 26 September 2019.



Regulations 9(1), USECHH

An employer shall not carry out any work which may expose or is likely to expose any employee to any chemical hazardous to health unless he has made a written assessment of the risks created by the chemical to the health of the employee

CHRA

14 Feb 2018

The launch of Manual CHRA 3rd Edition

31 Dis 2018

End date of report using Manual CHRA 2nd Edition

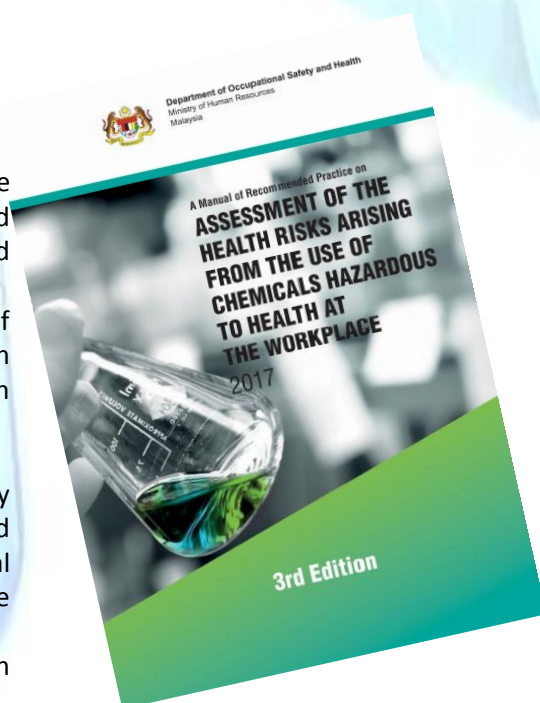
1 Jan 2019

Full implementation of Manual CHRA 3rd Edition

Implementation of Manual CHRA 3rd Edition

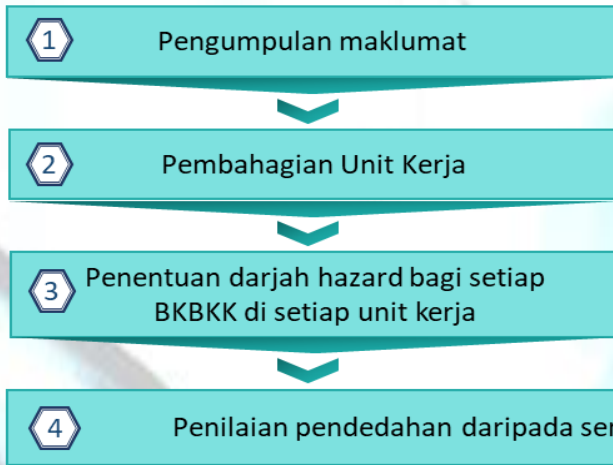
Strategy Plan for Manual CHRA 3rd Edition

- Strengthening assessor's competency
 - All assessors registered with DOSH are compulsory to attend Manual CHRA 3rd Edition course by DOSH approved training provider
 - Assessor to submit certificate of attendance of Manual CHRA 3rd Edition course during competency renewal with DOSH
- Registration of new assessor
 - Applicant who has attended competency course and passed the exam (using 2nd edition manual), need to attend Manual CHRA 3rd Edition course as one of the conditions for registration
 - Review of the training module based on Manual CHRA 3rd Edition



Kaedah Penaksiran CHRA Edisi ke-3

oleh
Nurul Fatimah



Maklumat?

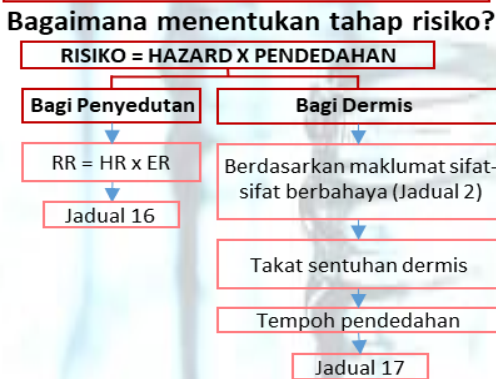
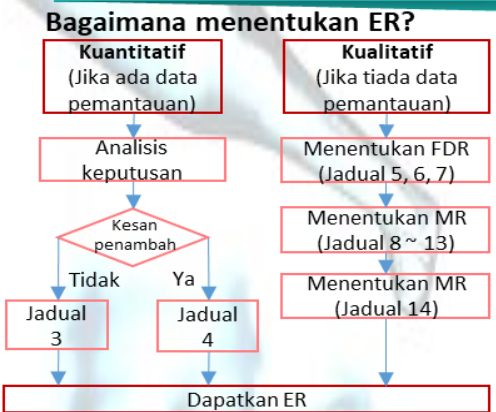
- Maklumat hazard (cth: daftar bahan kimia, SDS, label)
- Maklumat tapak kerja (cth: lokasi loji, pelan susun atur, carta alir proses, langkah kawalan)
- Maklumat unit kerja (cth: pekerja berisiko, POS, PKS)
- Maklumat pendedahan (cth: pemantauan udara, pemantauan biologi)
- Maklumat KKP lain (cth: program pengawasan perubahan, program latihan, program PPE, rekod kemalangan & insiden)

Unit kerja?

- Unit Kerja = Kumpulan pekerja yang mempunyai potensi pendedahan yang serupa
- Tugasan yang serupa
- BKBKK yang serupa
- Kemasukan rutin
- Kemasukan bukan rutin

Darjah hazard?

- Keterangan hazard kesihatan sesuatu bahan kimia
- Penyedutan – HR ~ rujuk Jadual 1
- Dermis – Sifat berbahaya yang relevan dengan pendedahan dermis (kulit dan mata) ~ rujuk Jadual 2



Tindakan yang perlu diambil?

- Kawalan teknikal (TC)
- Kawalan organisasi (OC)
- Kesediaan tindakan kecemasan (ERP)
- Pemantauan pendedahan
- Pengawasan perubahan

Bagaimana menentukan AP?

Tahap risiko	Kecukupan kawalan	Keutamaan Tindakan (AP)
Tinggi	Tidak mencukupi	1
HR / ER tidak dapat ditentukan	-	1
Sederhana/Rendah	Tidak mencukupi	2
Tinggi / Sederhana / Rendah	Mencukupi	3

Hantar = 1 bulan setelah selesai kepada majikan

Laporan ringkas:
a. JKKP Negeri
b. KP (JKKP HQ)



Penguatkuasaan Peraturan CLASS 2013



Elemen 1: Rekod Pengelasan

Rekod pengelasan bahan kimia yang dirumuskan, dikilangkan, diimport, dikitar semula atau dirumus semula akan disemak oleh pegawai Jabatan. Setiap bahan kimia hendaklah disediakan rekod pengelasan. Pengelasan bahan kimia akan disemak berdasarkan Bahagian 1 Tataamalan Industri Mengenai Pengelasan Bahan Kimia dan Komunikasi Hazard (ICOP CHC). Jika bahan kimia tersebut tidak tersenarai di dalam Bahagian 1, pengelasan hendaklah dibuat berdasarkan kaedah yang ditetapkan di Bahagian 2 ICOP CHC. Dokumen tersebut hendaklah mengandungi maklumat seperti yang ditetapkan di dalam Bahagian 2 ICOP CHC (muka surat 255).

Classification Record	
A.1 Identification of the chemicals	
(a) Name of chemicals	Active Chem
(b) CAS number	Not applicable
(c) Synonyms	Methoxy solution
(d) Molecular formula (if any)	Not applicable
(e) Structural formula (if any)	Not applicable
(f) Purity ¹	80%
(g) Significant impurities or additives ²	None
(h) Known uses	Organic synthesis

¹(w/w) for solids, liquids, dusts, mists and vapours, and (v/v) for gases
²Only those contributing to the hazard classification

A.2 Classification result			
	Classification	Justification ^a	Data Source ^a
Physical	Flammable liquids category 2	Flash point: 2°C Boiling Point: 77°C	Test data
Health	Acute toxicity category 2 (inhalation)	LC ₅₀ (rat, 4 hrs) = 200 ppm	IUCLD (2008)
	Acute toxicity category 3 (oral)	LD ₅₀ (rat) = 100 mg/kg	
	Acute toxicity category 3 (dermal)	LD ₅₀ (rabbit) = 225 - 300 mg/kg	
	Skin corrosion or irritation category 1	May cause reddening, blistering or burn with permanent damage.	ACGIH (2001)
	Serious eye damage or eye irritation category 1	Based on product test data.	ACGIH (2001)
	Skin sensitization category 1	Positive result in patch test.	EHC-INCHEM
	Germ cell mutagenicity category 2	Positive data on somatic cell mutagenicity test in vivo.	CERI-NITE Assessment No. 61 (2004)
	Carcinogenicity category 1B	Evidence of carcinogenicity in experimental animals.	IARC
	Reproductive toxicity category 2	Suspected of damaging fertility or unborn child.	Patty 5 th Ed. Handbook (2001)
	Specific target organ toxicity – repeated exposure category 2	Causes damage to respiratory (nervous system) to prolong repeated exposure.	ACGIH 7 th Ed. (2001)
Environment	Not classified		
Remark	Date of classification: 28/12/2010 Name of classifier & Position: FADHIL Approved by: Ir. ANUAR BIN MOHD MOKHTAR		

^aObservation or test data for the classification decision
^a Primary source of data (refer to 2.3.5)

Elemen 2: Bungkus

Bungkusan bahan kimia berbahaya akan diperiksa di premis pembekal. Bungkus tersebut hendaklah memenuhi ciri-ciri berikut:

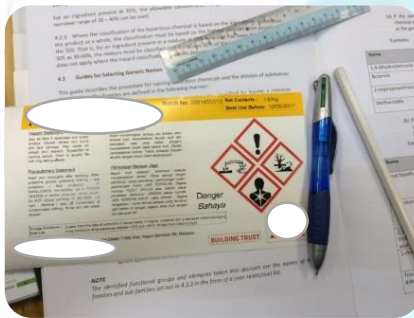
- ✓ Bekas/bungkusan direka bentuk agar bahan kimia tidak terkeluar.
- ✓ Bungkus dan kancingnya kukuh dan mampu menampung kandungannya
- ✓ Bahan bungkus dan pengancing yang digunakan tidak mudah rosak dan tidak bertindak balas dengan kandungannya
- ✓ Jika bungkus dipasang dengan peranti pengancingan boleh ganti, ianya perlu direkabentuk agar boleh dikancing berulang kali tanpa kandungan terkeluar
- ✓ Bungkus dilengkapi dengan pendedap

Elemen 3: Pelabelan

Label setiap bahan kimia berbahaya akan disemak supaya selaras dengan rekod pengelasan dan helaian data keselamatan (SDS) dan mengandungi maklumat yang berikut.

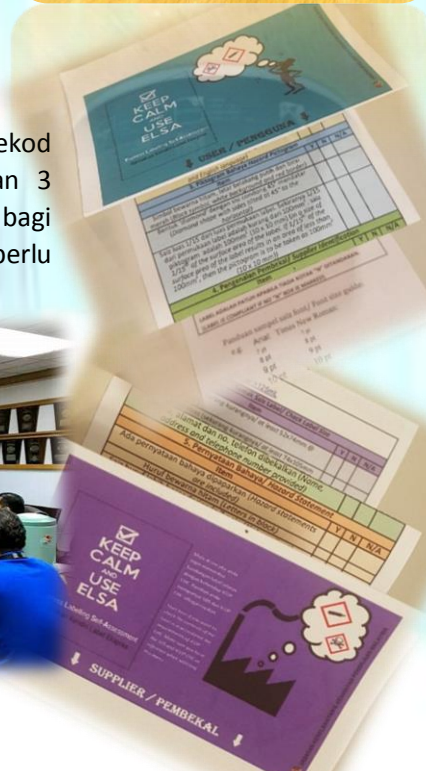
- ✓ Pengecam produk
- ✓ Pengenalan pembekal
- ✓ Kata isyarat
- ✓ Pernyataan bahaya
- ✓ Piktogram bahaya
- ✓ Pernyataan berjaga-jaga

- Untuk bekas <125 ml sahaja;
- ✓ Pengecam produk
- ✓ Pengenalan pembekal
- ✓ Kata isyarat
- ✓ Piktogram bahaya
- ✓ Pernyataan "baca Helaian Data Keselamatan sebelum digunakan"



Elemen 4: Helaian Data Keselamatan (SDS)

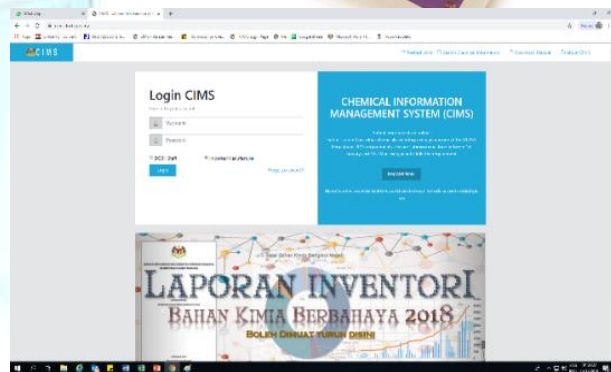
SDS setiap bahan kimia berbahaya akan disemak supaya selaras dengan rekod pengelasan dan kehendak minimum yang telah ditetapkan di dalam Bahagian 3 Tataamalan Industri. Di samping itu, maklumat di dalam SDS juga akan disemak bagi memastikan tiada percanggahan antara Seksyen 2, 9, 10, 11 dan 12. Setiap SDS perlu disediakan di dalam bahasa Melayu dan bahasa Inggeris.



Elemen 5: Inventori Bahan Kimia Berbahaya

Pegawai Jabatan akan menyemak rekod penghantaran inventori yang telah dibuat oleh pembekal untuk bahan kimia berbahaya yang diimport atau dibekalkan (kuantiti lebih 1 metrik tan/setahun). Semakan akan dibuat melalui sijil pengiktirafan yang diterima pembekal ataupun semakan terus di dalam sistem Chemical Information Management System (CIMS).

<https://cims.dosh.gov.my/>



Chemical Information Management System (CIMS)

by
Azhar Tahrel & Azam
Tumijan

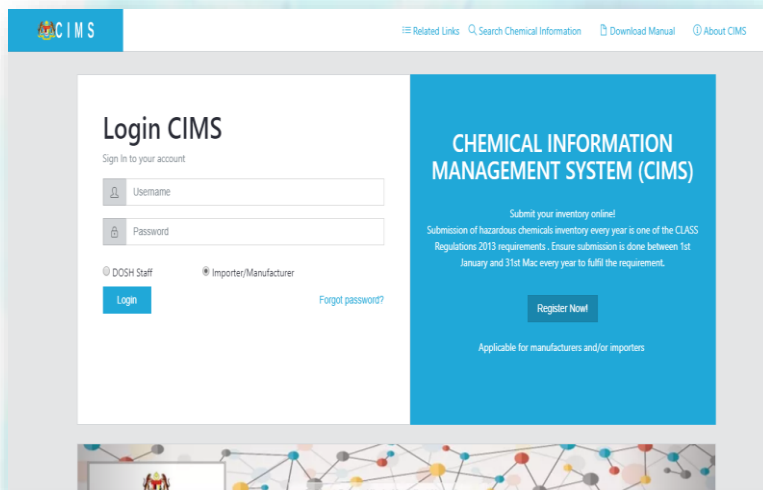
The Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 (CLASS Regulations) has been gazetted on 11th October 2013.

The CLASS Regulations, promulgated under the OSHA 1994 (Act 514), replaced the Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulations 1997 (CPL Regulations). The main objective of the CLASS Regulations is to ensure suppliers of hazardous chemicals provide sufficient information on hazards of chemicals that they supply, so as to mitigate the risk of accidents happening in the workplace, thus providing a safe and healthy working environment and condition.

The responsibilities of suppliers as stated in the CLASS Regulations are to do classification, labelling, preparation of Safety Data Sheet, packaging and chemicals inventory information submission. In the regulations, suppliers are defined as persons who supply hazardous chemicals, and include principal suppliers (that is, suppliers who formulate, manufacture, import, recycle or reformulate hazardous chemical chemicals) and subsidiary suppliers (that is, suppliers who repack, distribute or retail hazardous chemicals).

Chemical Information Management System (CIMS) is developed to simplify the process of chemical inventories submission from the supplier. The system can be accessed online at <https://cims.dosh.gov.my>. As of now, CIMS already managed to handle inventories from 2015 up to 2018.

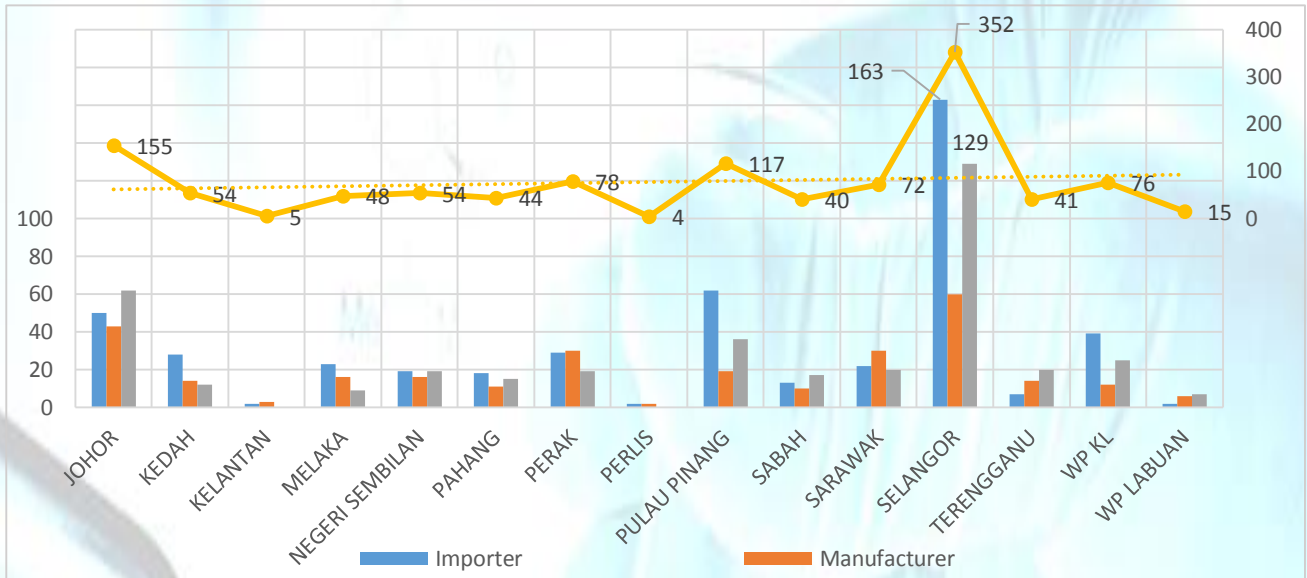
Apart from handling the inventories, CIMS is also a platform for public user to access data such as chemical name, CAS no, permissible exposure limit (PEL), and hazard classification are available for selected chemicals.



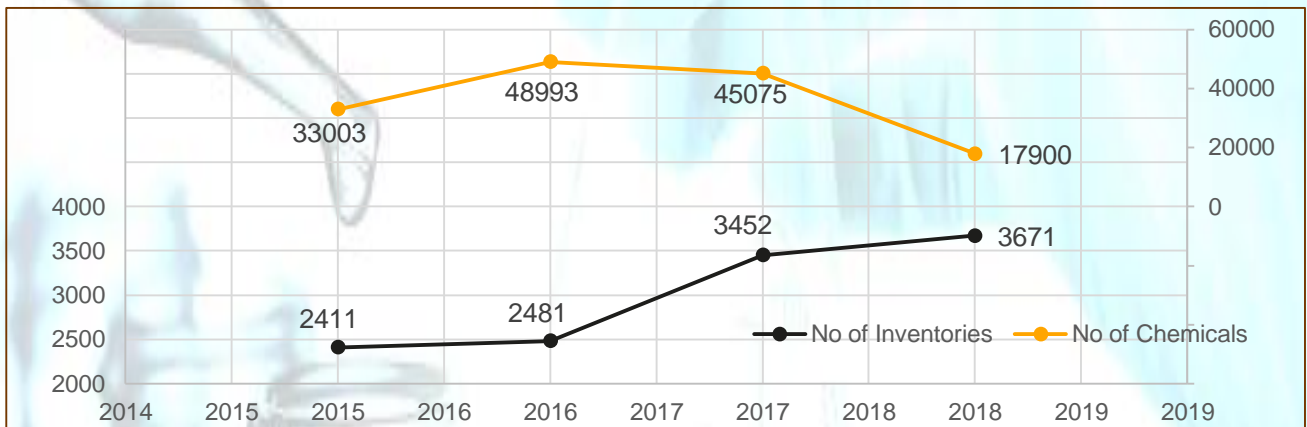
Screenshots of CIMS Interface

<https://cims.dosh.gov.my/>

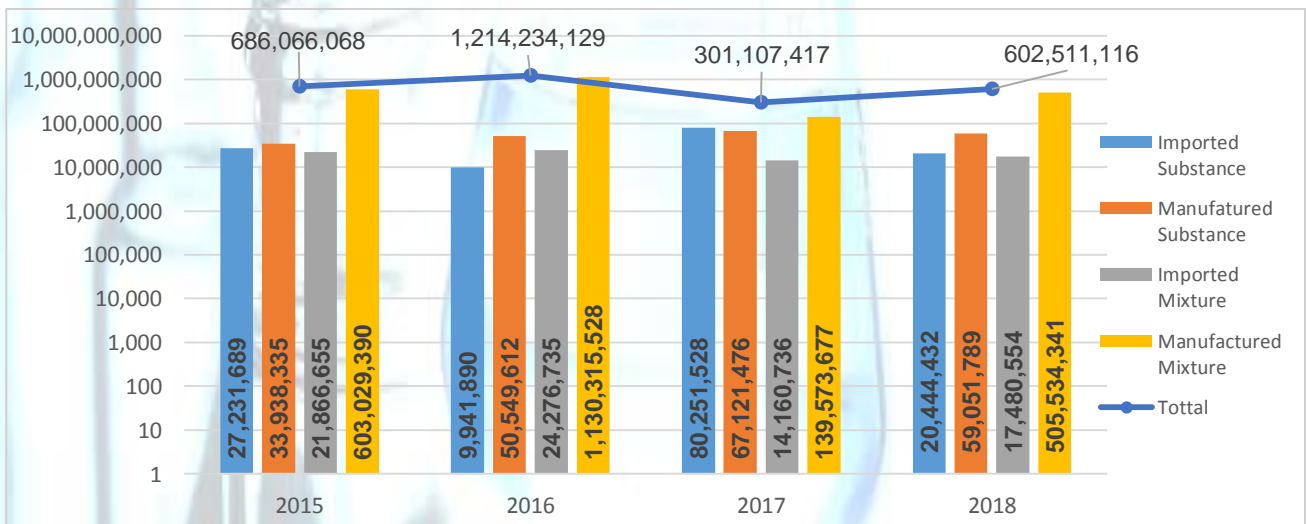




Number of CIMS accounts according to states



Number of inventories and chemicals submitted through CIMS from 2015-2018



Total weight (tonne) of chemicals submitted through CIMS from 2015-2018

SESI ENGAGEMENT DAN DIALOG BERSAMA PEMBEKAL BAHAN KIMIA BERBAHAYA

Sesi *engagement* dan dialog ini telah berlangsung pada 8 Mac 2019 (Jumaat) di Bangi Convention Centre. Majlis dialog tersebut telah disempurnakan oleh Tn. Ir. Saiful Azhar bin Mohd Said, Timbalan Ketua Pengarah (Kesihatan Pekerjaan). Turut hadir Puan Hazlina binti Yon, Pengarah Bahagian Pengurusan Kimia. Sesi dialog ini menjadi platform kepada Jabatan untuk menyampaikan maklumat terkini yang sahih kepada pembekal bahan kimia berbahaya seluruh negara. Ianya juga memberi ruang kepada pembekal bahan kimia berbahaya menyuarkan permasalahan yang dihadapi terutamanya dari segi prosedur import bahan kimia ke Malaysia. Di samping itu, sesi dialog ini juga dilihat dapat menggalakkan percambahan idea terutama dari segi kaedah-kaedah yang mungkin boleh diambil kira bagi mengatasi cabaran sedia ada yang dihadapi.



KONVENSYEN SOHELP FASA III DAN PELANCARAN SOHELP DIY PERINGKAT KEBANGSAAN 2019



Majlis Konvensyen SOHELP Fasa III telah disempurnakan oleh Yang Berusaha Ir Omar bin Mat Piah, Ketua Pengarah JKKP Malaysia. Jabatan telah berjaya menganjurkan Konvensyen SOHELP Kebangsaan Tahun 2019 di Bangi Resort Hotel pada 29 Ogos 2019 (Khamis). Antara aktiviti yang telah dijalankan dalam program pada hari tersebut ialah majlis perasmian konvensyen, pelancaran SOHELP DIY, sesi pembentangan oleh pihak industri dan Jabatan, serta sesi soal jawab. Selain itu, empat syarikat telah

diumumkan sebagai pemenang SOHELP Fasa III mengikut kategori ergonomik, bising, kimia dan keseluruhan ketika program tersebut. Konvensyen SOHELP kali ini telah berjaya mengumpulkan sehingga seramai 250 orang peserta. Segmen perkongsian pengalaman dan amalan terbaik memberikan gambaran sebenar komitmen pihak industri menyahut misi meningkatkan tahap keselamatan dan kesihatan pekerjaan dalam merapatkan jurang antara sayap keselamatan pekerjaan dan sayap kesihatan pekerjaan. Melalui pelaksanaan program ini, objektif-objektif yang digariskan telah dapat tercapai dan dilaksanakan dengan jayanya



MAJLIS DIALOG BERSAMA ORANG YANG KOMPETEN (OYK) KESIHATAN PEKERJAAN DI BAWAH PERATURAN USECHH 2000 & PELANCARAN MANUAL SIRAC



Seramai 150 orang terdiri dari pelbagai kategori termasuk Pengapit, Juruteknik Higien 1 dan Juruteknik Higien 2, AJK penggubal manual SIRAC dan Pegawai JKKP telah menghadiri Majlis Dialog OYK di bawah Peraturan USECHH 2000 dan Pelancaran Manual SIRAC. Majlis tersebut telah berjaya diadakan pada 26 September 2019 (Khamis) di Bangi Convention Centre dan disempurnakan oleh Tn. Ir. Saiful Azhar bin Mohd Said, Timbalan Ketua Pengarah (Kesihatan Pekerjaan). Secara amnya, objektif utama dialog mengenalpasti masalah yang dihadapi OYK Kesihatan Pekerjaan telah dapat dicapai dengan jayanya. Para peserta turut terlibat secara aktif menyuarkan pertanyaan dan pendapat ketika sesi dialog serta memberi cadangan agar aktiviti seumpama ini diadakan dengan secara konsisten dan lebih kerap. Di pihak Jabatan, program seumpama ini diharapkan dapat menjadi platform pertemuan secara langsung antara pihak berkuasa dan pihak berkepentingan bagi membincangkan permasalahan di hadapi pihak industri mahupun inisiatif baru yang dirancang pihak berkuasa.



Sesi Engagement & Dialog bersama Pembekal Bahan Kimia Berbahaya

Pemantauan Aktiviti Asbestos Removal di Lapangan



DOSH Involvement with CWC

by
Saadatul Jannah



NATIONAL AUTHORITY OF CWC

Members as under Section 7(1) Chemical Weapon Convention Act 2005, The National Authority shall consist of the following members:

- (a) a Chairman, to be appointed by the Minister;
- (b) a representative of the Ministry responsible for foreign affairs,
- (c) a representative of the Ministry responsible for defence,
- (d) a representative of the Ministry responsible for internal security,
- (e) a representative of the Ministry responsible for international trade,
- (f) a representative of the Ministry responsible for technology,
- (g) a representative of the Ministry responsible for the environment,
- (h) the Director of the Pharmaceutical Services Division of the Ministry responsible for health,
- (i) the Chairman of the Pesticides Board,
- (j) the Director General of Environmental Quality,
- (k) the Inspector General of Police,
- (l) the Director General of Customs,
- (m) the Director General of Chemistry,
- (n) the Director General of Occupational Safety and Health,**
- (o) the Director General of Science and Technology Research Institute for Defence.

ACTIVITIES

1. National Inspection by NI for declarable site

2. Chemical profiling activities to identify potential declarable site

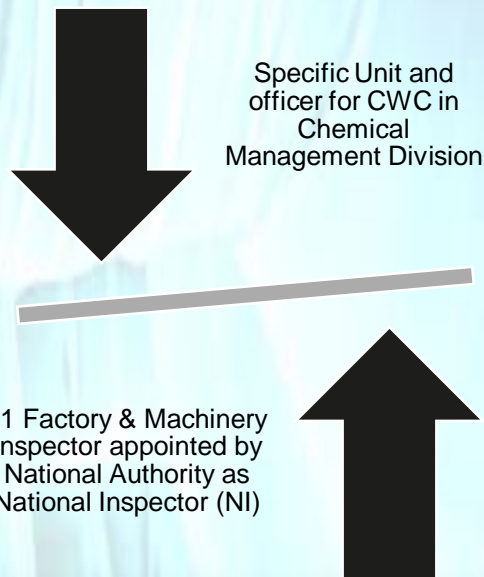
3. Advance & Escort Team for International Inspection by OPCW

4. Arrangement with industry for Industry Module Associate Programme (IMAP)

5. Attended OPCW or other organization trainings pertaining to CWC activities

6. Participate in any programme by National Authority as participant, speaker or co-organizer

STRENGTH



List of DOSH National Inspector gazetted under Section 5(1) Chemical Weapon Act 2005

- i. Ir Roslenda Hasan (DOSH Selangor)
- ii. Azreen Shazwani Omar (DOSH Selangor)
- iii. Fauziah Kamaruddin (DOSH Headquarters)
- iv. Muhammad Faisal Jusoh (DOSH Headquarters)
- v. Kasman Nasir (DOSH Headquarters)
- vi. Fazira Azita Abdul Rashid (DOSH Perak)
- vii. Ir Mokhtar Sabtu (DOSH Headquarters)
- viii. Thavaselman a/l Superamaniam (DOSH Selangor)
- ix. Mohd Norhisyam Omar (DOSH Headquarters)
- x. Noor Hafizie Sulkafle (DOSH Headquarters)
- xi. Sham Shuhairi Nasarudin (DOSH Headquarters)

Chemical Weapon Convention Implementation Activities 2019

by
Ir. Mohd Saiful

DOSH has been listed in Chemical Weapons Convention Act 2005 as one of the agencies in the National Authority Chemical Weapons Convention (NACWC) to meet the requirements of the Chemical Weapons Convention (CWC) as well as to implement the Act, which is coordinated by the Ministry of Foreign Affairs. The Department is also responsible for dealing with issues related to the security and management of chemicals, including chemical conventions. The department plays a vital role in helping NACWC to enforce the Chemical Weapons Conventions Act 2005 and Chemical Weapons Conventions Regulations 2007. Department is given the responsibility to provide a national inspection procedure for chemical weapons by the National Inspector. In line with Malaysia's responsibilities under the Chemical Weapons Convention (CWC), DOSH is one of the 13 active agencies in the National Authority for Chemical Weapons Convention (NACWC). To ensure the effective implementation of the CWC, DOSH through the Chemical Coordination and Convention Unit, a unit under the Chemical Management Division, has actively performed various activities throughout the year 2019.

Inspection

Several inspections in the country were arranged and completed at the national and international levels. Among them, 4 inspections were arranged by NACWC and 1 inspection was conducted with the OPCW Inspector involvement. The inspections took place at various factories that were selected by the declaration and information from

the NACWC database. For information, all declarations on activities in the previous year were subjected to International Inspection sent by the Technical Secretariat of the OPCW. On the other hand, the CWC Act 2005 provides provisions to the National Inspectors to conduct National Inspections to the industries.

Inter-agencies meeting and discussion

With the aim to have better coordination and dissemination of the latest information, several meetings were held among the agencies and stakeholders. Throughout the year 2019, more than a dozen meetings took place particularly discussing the chemical weapon and CBRNe matters in Malaysia. These meetings were not only organized by NACWC but also by other various agencies namely Atomic Energy Licensing Board (AELB), National Disaster Management Agency (NADMA), etc. Besides, DOSH has also organized several briefings and discussions with the industry as part of the compliance support to the CWC Act 2005. Hence, the industry would have a clearer picture of CWC roles and importance.

Capacity building

One of the essential pillars of the OPCW goal is the continuous capacity building. This is to ensure the knowledge and know-how of the stakeholders are current and simultaneously enhance the awareness among them. Once again, a national inspector from DOSH was successfully accepted to join the 2019 Associate

Programme hosted by OPCW. This 20th programme took place from 26th July until 27th September 2019 and included three weeks of exercises and lectures at OPCW Headquarters, a three-week chemical engineering course at the University of Surrey in the United Kingdom, and three weeks of practical training at one of 17 industrial plant facilities located in 12 OPCW Member States in Europe, Asia and Latin America. Other than that, several trainings, seminars and also workshops have also been successfully participated by DOSH. The list is given as below:

Title	Organizer	Location
DOSH GASMET Portable FTIR Training	IPSA Sdn Bhd	Everly Hotel
Demo Thermo Fisher Asbestos Analyzer	Thermo Fisher	JKKP
Advance Course On Chemical Emergency Response for First Responders from Asia Region	OPCW	Ritz Carlton Hotel Kuala Lumpur
NCT ASIA 2019	CBRNe Society	Le Meridien, Kuala Lumpur
Workshop on Chemical On The Chemical Supply Chain Safety and Security Management For The member States of the OPCW in the Southeast Asia	OPCW	Bogor, Indonesia
20 th Associate Programme	OPCW	The Hague, Netherland
Seminar Pemeriksaan Kebangsaan Konvensyen Senjata Kimia bagi Tahun 2019	NACWC	Zenith Hotel, Putrajaya



Advance Course On Chemical Emergency Response for First Responders from Asia Region



Workshop on Chemical On The Chemical Supply Chain Safety and Security Management For The Member States of the OPCW in the Southeast Asia





Seminar Pemeriksa Kebangsaan Pihak Berkuasa Kebangsaan Konvensyen Senjata Kimia 2019



Site Verification and Inspection by OPCW's Inspection Team



Peralatan Pengukuran FTIR Mudah Alih

oleh
Sham Shuhairi

JKKP merupakan antara agensi kerajaan yang terawal memiliki Analisis *Fourier-Transform Infrared Spectroscopy* (FTIR) Mudah Alih dalam negara. FTIR mudah alih memberikan kelebihan kepada JKKP untuk menjalankan pengukuran dalam membuat pengesanan awal bahan-bahan kimia yang berkemungkinan hadir di sesuatu kawasan dengan keputusan pengukuran awal dapat diketahui serta merta.

FTIR Mudah Alih merangkumi komponen Pembolehubah sinar inframerah spektrometer, dimana sel 100% bersalut rhodium-emas dan dilengkapi dengan pemrosesan isyarat elektronik.

Sampel gas yang diekstrak ke dalam sel sampel melalui muncung pistol monitor gas tersebut akan melalui proses pemanasan sehingga 180 darjah Celcius. Kemampuan menganalisis kepekatan campuran gas yang lembab dan mengakis disamping

mampu mengkonfigurasi analisis 50 sebatian gas serentak dalam satu masa termasuk H₂O, CO₂, CO, NO, NO₂, N₂O, NH₃, SO₂, dan HCl merupakan kelebihan alat ini.

Alat ini direka cipta ideal untuk pengukuran sebatian tidak diketahui



(VOC) yang berbeza (kedua-dua organik & bukan organik) pada tahap kepekatan rendah dalam udara ambien. Ia juga dihubungkan terus kepada komputer riba PC untuk keupayaan analisis lanjutan (cth. Identifikasi kation sebatian yang tidak diketahui dengan perbandingan spektrum perpustakaan)

menggunakan mode *bluetooth*. Di samping itu, kelebihan teknologi FTIR dengan tiada keperluan pertukaran komponen secara berkala tetap membolehkan alatan ini stabil dan tetap dalam keperluan penentukurannya. Oleh itu, tiada penentukuran *span* diperlukan



seperti kebiasaan alatan penganalisis di pasaran. Sehubungan itu, alatan ini dapat menghindari sebarang kacau gangguan daripada gas lain semasa proses menganalisis beroperasi dan membolehkan secara automatik mengimbangi dalam algoritma analisis semasa pengiraan dan menghasilkan keputusan yang tepat.

oleh
Siti Kamariah

Kursus Kompetensi Dalam HT1

Program pemerksaan pengetahuan dan kemahiran pegawai-pegawai JKKP diteruskan dengan pengenalan Kursus Kompetensi Dalam Juruteknik Higien 1 selepas kursus kompetensi Pengapit CHRA dan Penaksir IAQ yang telah dijalankan sebelum ini. Kursus ini telah dijalankan di Kinrara Resort Puchong pada 6-11 Oktober 2019.

Objektif kursus ini adalah:

- Meningkatkan kefahaman pegawai mengenai *Guidelines on Monitoring of Airborne Chemical Hazardous to Health*
- Melatih pegawai dan mempunyai kompetensi sebagai OYK HT1
- Menjalankan pemantauan BKBKK berdasarkan situasi sebenar di tempat kerja, membuat perkiraan hasil dari pengukuran dan menghasilkan laporan.

Kursus ini telah disertai seramai 20 orang pegawai pejabat negeri, BPK dan BHIE. Bagi tujuan kompetensi, ujian secara individu telah dijalankan iaitu:

- Ujian bertulis
 - Pengujian peralatan & praktikal
 - Laporan & pembentangan
- Pegawai yang tidak melepasi markah lulus dikira gagal dan tidak layak mendapat kompetensi dalaman.



Program Semarakkan IAQ 2019

Tinjauan Status Pematuhan ICOP IAQ 2010 Pejabat-pejabat di Bangunan Kerajaan

oleh

Radzi Rozihad & Hairul Husin

Matlamat Program

Mendapatkan status pematuhan ICOP IAQ 2010 pejabat-pejabat kerajaan bagi input :
 i. Bilangan pejabat yang telah menjalankan pemeriksaan/ pemantauan parameter fizikal
 ii. Bilangan pejabat yang telah mewujudkan prosedur aduan bagi kualiti udara dalaman
 iii. Tahap pengurusan kualiti udara dalaman (markah audit)

Output - 1: Profil tempat kerja yang telah menjalankan pemantauan parameter fizikal dan kawalan pendedahan

- Pemeriksaan terhadap tempat kerja untuk menyenggara persekitaran kerja dengan mematuhi julat boleh terima mengikut Jadual 1
- Pemeriksaan terhadap tempat kerja berdasarkan kepada kewajipan untuk mengawal pendedahan sekiranya laporan penaksiran menunjukkan kualiti udara dalaman tidak boleh diterima (jika ada)

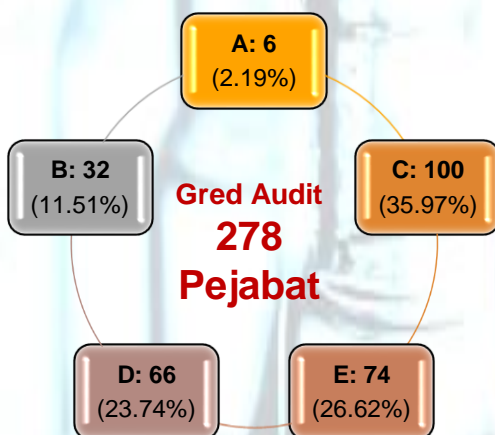
Output - 2: Profil tempat kerja yang telah mewujudkan prosedur aduan bagi kualiti udara dalaman

- Mengenalpasti tempat kerja yang telah mewujudkan prosedur aduan berkaitan dengan tanda dan gejala yang dianggap disebabkan oleh kualiti udara dalaman
- Memeriksa prosedur aduan yang dibangunkan mematuhi atau tidak kriteria penetapan prosedur aduan yang ditetapkan

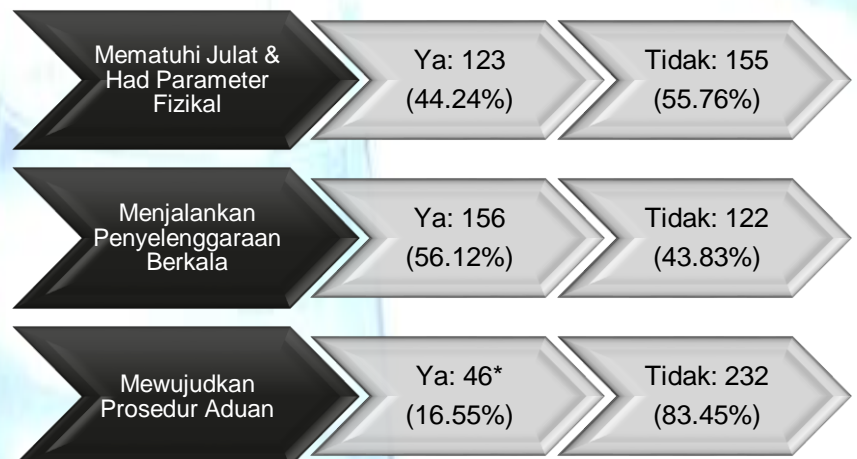
Output - 3: Tahap pengurusan kualiti udara dalaman di tempat kerja

- Menjalankan audit IAQ
- Mengenalpasti tahap pematuhan pengurusan kualiti udara dalaman berdasarkan kehendak ICOP IAQ 2010

KEPUTUSAN



Elemen Wajib Patuh ICOP IAQ 2010



Elemen Pilihan/ Tidak Wajib Patuh ICOP IAQ 2010



* Hanya 16 sahaja yang ada prosedur aduan dan mengikut kehendak ICOP IAQ 2010 daripada 278

Associate Programme 2019

by
Norhisyam Omar

One of national inspector for National Authority of Chemical Weapon Convention (NACWC) from Department was successfully accepted to join the 2019 Associate Programme hosted by OPCW. This 20th programme took place from 26th July until 27th September 2019. The Associate Programme was launched in 2000 to promote a culture of safety and best practice in chemical industries in OPCW Member States, and has so far benefited 519 professionals originating from 121 countries.



The objectives of the Programme are to facilitate national implementation of the Convention in relation to the chemical industry; enhance national capacities in Member States by offering training to personnel from industry, academic institutions, and government in chemistry, chemical engineering, and related areas; facilitate trade through the adoption of sound practices in the chemical industry; and broaden the talent pool for industry-related positions in the National Authorities, institutions, and economies of the Member States, as

well as in the Secretariat.

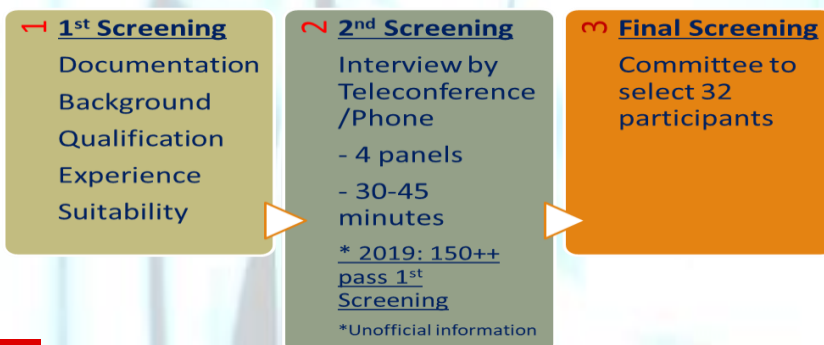
The selection of participants for the programme involved a few stages with strict selection criteria by NACWC and OPCW itself. NACWC will accept all nominations from dept. & agencies and will be screened thoroughly for endorsement. If there is more than one eligible candidates, NACWC will choose the best candidate or send all eligible nominations to OPCW for selection.

List of participants from Malaysia:

- 2000-2003: No nomination
- 2004: **DOSH** (Zaiton Sharif)
- 2005: **MIDA**
- 2006: Not selected by OPCW
- 2007: Not selected by OPCW
- 2008: **DOSH** (Kasman Nasir)
- 2009: **DOSH** (Ir. Mokhtar Sabtu)
- 2010: **MINDEF**
- 2011: **STRIDE**
- 2012: **DOSH** (Thavaselvan)
- 2013: **DOSH** (Ir. Roslenda Hasan)
- 2014: **DOSH** (Fazira Azita)
- 2015: Not selected by OPCW
- 2016: **DOSH** (Noor Hafizie)
- 2017: **DOSH** (Muhammad Faisal)
- 2018: **DOSH** (Azreen Shazwani)
- 2019: **DOSH** (Mohd Norhisyam)

NACWC invite relevant department/ agencies for a nomination;
Endorsement by NACWC;
Submission by NACWC to OPCW

OPCW





The 2019 programme ran for 9-weeks included three weeks of exercises and lectures at OPCW Headquarters, a three-week chemical engineering course at the University of Surrey in the United Kingdom, and three weeks of practical training at one of 17 industrial plant facilities located in 12 OPCW Member States in Europe, Asia and Latin America. Throughout the programme, participant need to complete specific assignments, research project in pair, special project given by industry, assessment, practical & site activities, and engagement with partners.

As a random selection by programme secretariat, Malaysian participant was been selected to underwent a practical placement training in San Martin, Rosario, Argentina with participant from Chile as a pair.

Participants of this year's programme represent the following countries: Afghanistan, Algeria, Argentina, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Chile, China, Colombia, Costa Rica, Georgia, India, Jamaica, Malawi, Malaysia, Moldova, Namibia, Nepal, Nigeria, Peru, Senegal, Serbia, South Africa, Sri Lanka, Tajikistan, Togo, Trinidad and Tobago, Uganda, Uzbekistan, and Zimbabwe.

(Source: OPCW Website)



States USECHH Regulations Enforcement Summary 2019

Op. 1

24 – 29 March 2019

Op. 2

29 Sept – 4 Oct 2019

1 Focus of Enforcement

The focus of enforcement in Ops 1 involved two (2) sectors as below:

- ✓ Printing; and
- ✓ Hospital (Civil & Private)

1 Focus of Enforcement

The focus of enforcement in Ops 2 involved two (2) sectors as below:

- ✓ Laboratory; and
- ✓ Business service

2 Total No. of Workplace

The enforcement involved 235 workplaces in all states.

235 Workplaces

2 Total No. of Workplace

The enforcement involved 197 workplaces in all states.

197 Workplaces

3 Results

Overall Compliance Level

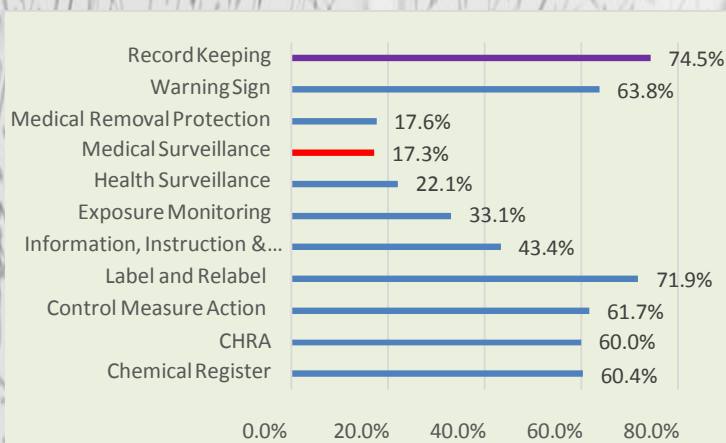
Satisfactory Category (A, B & C)	Non-Satisfactory Category (D & E)
48 % (113)	52 % (122)

3 Results

Overall Compliance Level

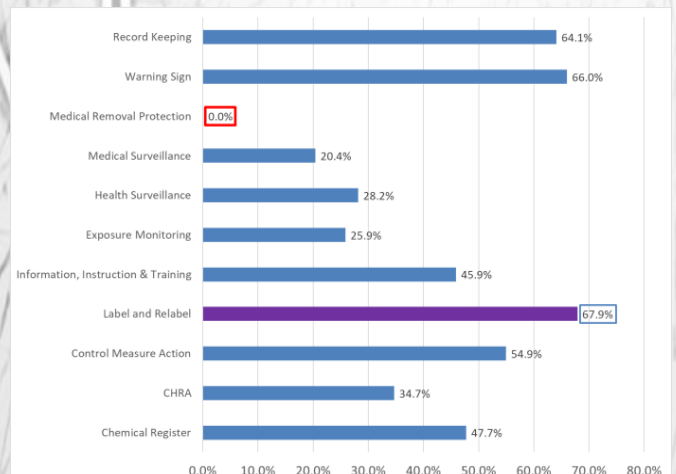
Satisfactory Category (A, B & C)	Non-Satisfactory Category (D & E)
32 % (64)	68 % (133)

Level of Compliance Based on Element (%)



■ Element Easy to Comply ■ Element Difficult to Comply

Level of Compliance Based on Element (%)



■ Element Easy to Comply ■ Element Difficult to Comply

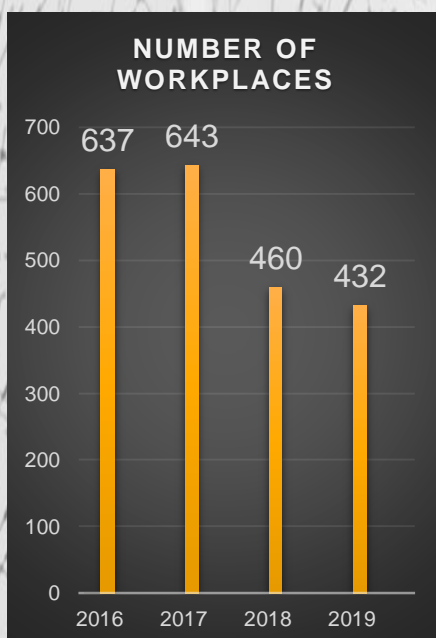
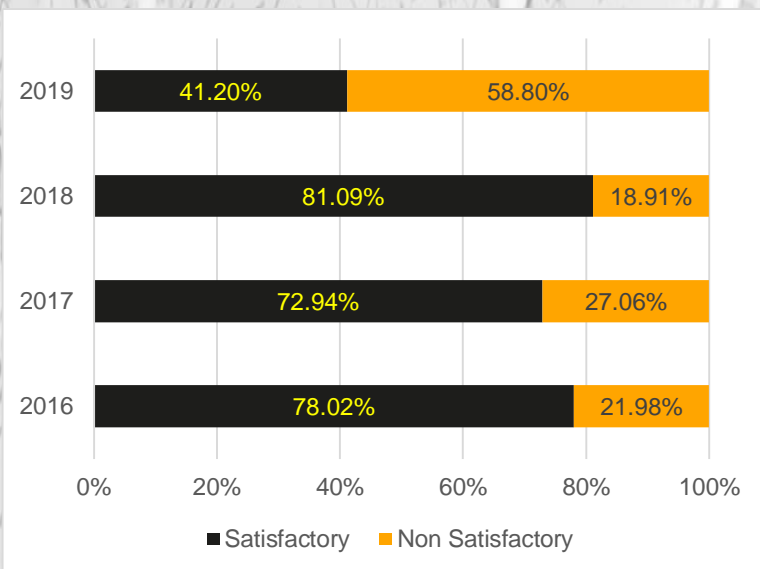
Compiled by:

Chemical Control Unit,
Chemical Management Division,
Department Occupational Safety & Health Malaysia.

USECHH Regulations Operation Enforcement Summary 2016-2019

Number of Workplaces and Results			
Year	Number of Workplaces	Grade A, B, C (Satisfactory)	Grade D, E (Non- Satisfactory)
2016	637	497	140
2017	643	469	174
2018	460	373	87
2019	432	178	254

	Grade A, B, C (Satisfactory)	Grade D, E (Non- Satisfactory)
2016	78.02%	21.98%
2017	72.94%	27.06%
2018	81.09%	18.91%
2019	41.20%	58.80%



Year	Sector Involved
2016	1.Plantation : 132 2.Oil and Gas : 58 3.Electric & Electronic : 108 4.Quarry : 80 5.Palm Oil Processing : 83 6.Manufacturing : 176 Total: 637
2017	1. Manufacturing : 442 2. Mining & Quarry : 3 3. Building Construction : 51 4. Agriculture, Forest & Fishing :3 5. Facilities : 113 6. Transportation, Storage & Communication : 1 7. Hotel & Restaurant:13 9. Civil Service & Statutory Body:17 Total: 643
2018	1. Manufacturing : 421 2. Mining & Quarry : 1 3. Agriculture, Forest & Fishing : 2 4. Facilities : 7 5. Transportation, Storage & Communication : 4 6. Hotel & Restaurant : 4 7. Finance, Insurans, Real Estate, Business Services : 20 8. Civil Service & Statutory Body : 1 Total: 460
2019	1. Printing : 127 2. Hospital : 66 3. Manufacturing : 35 4. Business Services : 121 5. Solid Waste Services: 1 6. Laboratory: 82 Total: 432

States CLASS Regulations Enforcement Summary 2019

1 Focus of Enforcement

The focus of enforcement in 2019 is on principal suppliers of chemicals and are based on the following 5 elements:

- ✓ Classification
- ✓ Packaging
- ✓ Labelling
- ✓ Safety Data Sheet
- ✓ Inventory

Ops 1

17 – 23 March 2019

Ops 2

29 Sept – 11 Oct 2019

2 Total No. of Supplier

The enforcement involved 168 chemicals suppliers in all states.

168 Suppliers

2 Total No. of Supplier

The enforcement involved 149 chemicals suppliers in all states.

149 Suppliers

3 Results

Overall Compliance Level

Satisfactory Category (A, B & C)	Non-Satisfactory Category (D & E)
59 % (99 Suppliers)	41 % (69 Suppliers)

3 Results

Overall Compliance Level

Satisfactory Category (A, B & C)	Non-Satisfactory Category (D & E)
71 % (106 Suppliers)	29 % (43 Suppliers)

Compliance Level Based on Element

Element	Comply	Partially Comply	Not Comply	N/A	Total %
Classification	23%	14%	38%	25%	100%
Packaging	73%	5%	2%	20%	100%
Labelling	45%	15%	21%	19%	100%
Safety Data Sheet (SDS)	60%	17%	21%	2%	100%
Inventory	37%	6%	30%	27%	100%

Compliance Level Based on Element

Element	Comply	Partially Comply	Not Comply	Total (%)
Classification	38%	17%	45%	100%
Packaging	94%	3%	3%	100%
Labelling	64%	18%	18%	100%
Safety Data Sheet (SDS)	67%	15%	18%	100%
Inventory	71%	1%	28%	100%

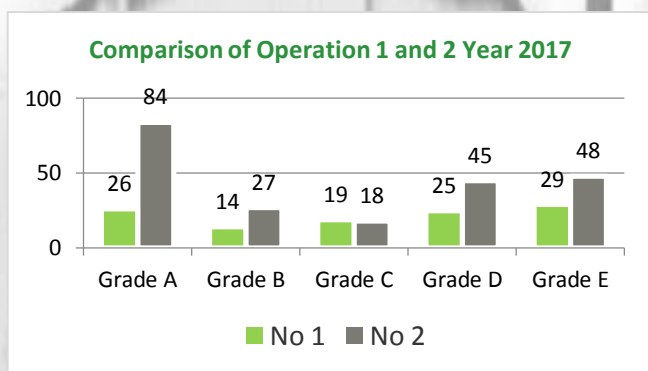
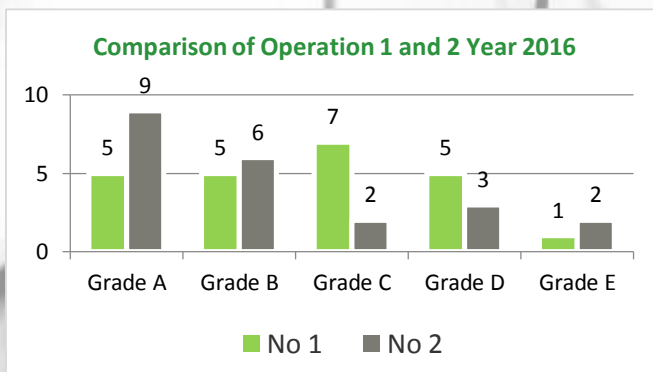
Compiled by:

Classification & Hazard Communication Unit,
Chemical Management Division,
Department Occupational Safety & Health Malaysia.

CLASS Regulations Operation Enforcement Summary 2016-2019

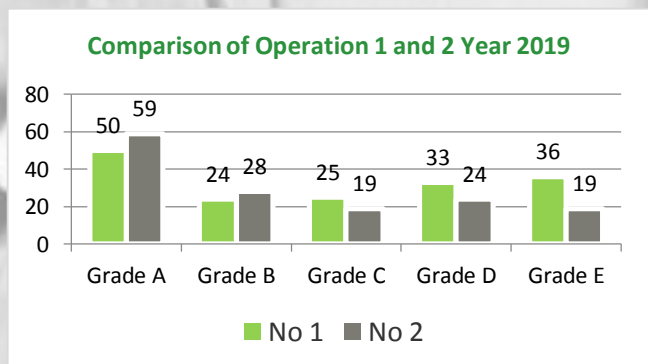
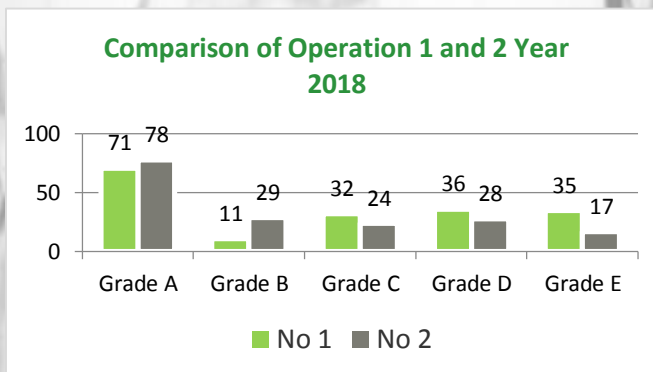
Focus on hazardous chemicals supplier as an application of CLASS Regulations 2013. Enforcement by operation twice a year.

2016	1/2016		2/2016	
	Number of Suppliers	%	Number of Suppliers	%
Grade A	5	21.7	9	40.9
Grade B	5	21.7	6	27.3
Grade C	7	30.4	2	9.1
Grade D	5	21.7	3	13.6
Grade E	1	4.3	2	9.1
TOTAL	23		22	



2017	1/2017		2/2017	
	Number of Suppliers	%	Number of Suppliers	%
Grade A	26	23.0	84	37.8
Grade B	14	12.4	27	12.2
Grade C	19	16.8	18	8.1
Grade D	25	22.1	45	20.3
Grade E	29	25.7	48	21.6
TOTAL	113		222	

2018	1/2018		2/2018	
	Number of Suppliers	%	Number of Suppliers	%
Grade A	71	38.4	78	44.3
Grade B	11	5.9	29	16.5
Grade C	32	17.3	24	13.6
Grade D	36	19.5	28	15.9
Grade E	35	18.9	17	9.7
TOTAL	185		176	



2019	1/2019		2/2019	
	Number of Suppliers	%	Number of Suppliers	%
Grade A	50	29.8	59	39.6
Grade B	24	14.3	28	18.8
Grade C	25	14.9	19	12.8
Grade D	33	19.6	24	16.1
Grade E	36	21.4	19	12.8
TOTAL	168		149	

by
Norhisyam Omar

Drones in Chemical Industry: Benefits and Threats

Technology has grown exponentially with the passage of time and in this era; introduction of drones has made many changes in human activities and tasks. Drone also known as Unmanned Aerial Vehicle (UAV) or Uncrewed Aerial Vehicle has a lot of potential to change the way of transportation, delivery system, activities or tasks involving with high place, etc. According to Merriam Webster Dictionary, drone is “an unmanned aircraft or ship guided by remote control or on-board computers” [1].

Typical drone is made from light composite material with the aim to reduce the weight and to increase the manoeuvre of the device. The material will change or have a different strength according to the use or task. Drones are equipped with different state of the art technology such as infrared cameras, global positioning satellite and laser (consumer, commercial and military UAV). Drones are controlled by remote ground control systems and also referred to as a ground cockpit. The engineering materials used to build the drone are highly complex

composites designed to absorb vibration, which decrease the sound produced. These materials

one of the popular drone services required by the chemical plant is inspection of flare stacks [3].



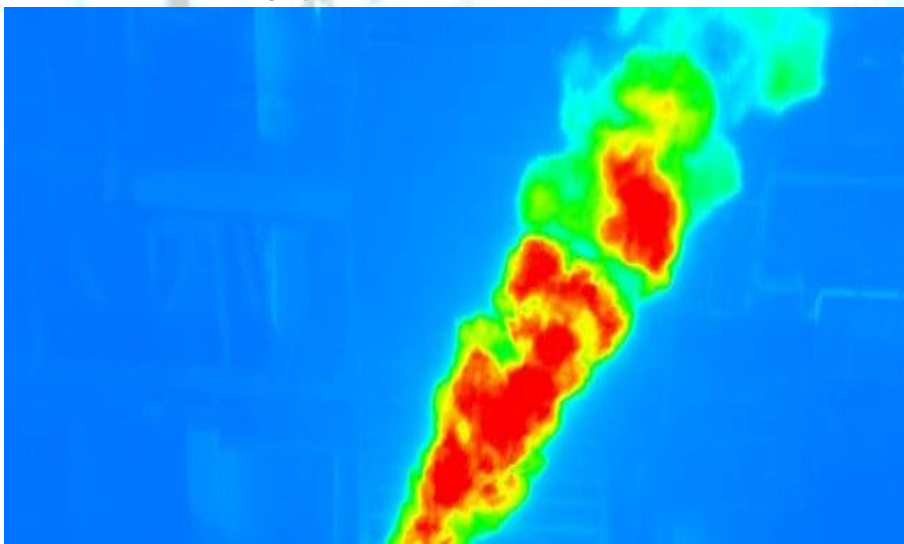
Drone Used by AETOS Group for Flare Stacks Inspection [3]

are very light weight [2].

The use of drone in chemical industry was evolved from time to time. In most of the activities related, drone has been used for inspection of equipment or parts in chemical plant. For example, AETOS Group used drone in their services for chemical plant as in Figure 3. AETOS works with operating companies to develop bespoke drones and robotics and

In the extent of drone activities for any kind of inspection, there are companies that equipped with high-definition video surveys that been complemented by forward-looking infrared thermal technology such as Horus Dynamics and Sky Futures [3,4]. In the past year, Sky Futures released imagery-analysis tools with algorithms that quickly pinpoint the most pertinent data from drone surveys, such as hot spots on pipe racks that can indicate potential leaks or corrosion under insulation as in Figure below [3].

Bentley System, Inc. use the data captured by drone to survey the plants which allowed them to enable modelling and analytics. With the full image that been captured, the 2-D image were converted into 3-D reality mesh for a comprehensive view of entire plant assets. Drone also can give



Drone Captured Thermal Imagery by Sky Futures [3]

a full 360-degree overview of the plant [3]. The full range of plants such as pipe racks, pressure vessels and all other type equipment that have a difficult access can be viewed as one of the benefits as it can be useful in safety reviews and site modifications.

Drones also have a positive impact in the environmental and regulatory sectors. Early 2019, SeekOps Inc. licensed a miniature gas sensor originally developed at NASA Laboratory [5]. This sensor is specifically suited for aerial configuration due its miniaturized nature and can detect methane to precisely small leaks. The leaks of methane can pose a problem to operators and surrounding. In Finland, Aeromon Oy created a

management that will allow them to protect their plants without harming the people who will eventually eat them. Chemical pesticides can be toxic for both people and the environment, so companies are taking action with the help of drones [13]. According to MyTani Sdn Bhd, drones can benefit the agricultural sector in:

CROP MONITORING.

Drone can take level images and traverse the whole field rather than just the perimeter. The camera can get up close and monitor things that even the expert eye can't detect using a multi-spectral sensor, such as moisture, plant health, stress level, as well as things like crop density, contour problems and plant height [14].

mineral content. Farmers can plot their crop rotation based on precise soil analysis and early detection; which means less dependence on, and more precise use of pesticides and fertilisers [14].

Threats

Advantages and benefit can also been threat to the system. Drones are already being used as one of component of cyber-attacks. The advantages of low cost and easy to use make it can deliver a better performance in carry out surveillance, to capture images or data and very effective to influence and disrupt any networks. The worst is drones are hard to detect and defeat due to these advantages [7].

Most of the industries and plant (sites) perhaps not so ready for



Drone Releasing Chemical Pesticides in Agricultural Sector [13]

drone to monitor the emissions through sensor module designed specifically for aerial use. They use up to eight different gas sensors simultaneously with capabilities to measure up to 70 different gases. Example of the gas that been monitored are combustible or explosive gases, volatile organic compounds, refrigerants, particulate matter, etc. This drone also enabled noise monitoring [6].

In a modern agriculture, chemical pesticides has been used to control diseases, weeds and insect infestation. Agricultural growers are striving to find alternatives to crop

PLANTING AND SPRAYING. Drone planting systems are being developed that could reduce planting costs by up to 85% in developed countries. Drones equipped with sprayers can use ultrasonic echoing devices and lasers to measure distances with even more precision. This means that high-value crops are planted more effectively, less pesticides are required and the job is completed faster [14].

WATER AND SOIL ANALYSIS. Drones equipped with 3D mapping equipment can even provide data on soil fertility and help detect deficiencies in

this kind of situation as there were not so many cases happened in previous history. However, there are cases of drone threat were happened in Saudi Arabia and the recent cases was in August and September 2019. Saudi Arabia's oil fields and pipeline has been the target of attacks over the past year and oftenly using drones. For August attack, drone launched allegedly by a rebellion group attacked a massive oil and gas field at Saudi Arabia's desert, causing what the country

described as a “limited fire” in the second such recent attack on its crucial energy industry. The attack on the Shaybah oil field, which produces some 1 million barrels of crude oil a day located near the Saudi Arabia border with the United Arab Emirates. It is believed that the drones have been remotely controlled from distance around 1200 km [8].

In 14th September 2019, there was again a massive attack to other facilities of oil field in Saudi Arabia [9]. This attacked reportedly using 10 drones targeting Saudi Aramco oil facilities in Abqaiq and Khurais, represents the largest oil facilities in Saudi Arabia. Abqaiq facility according to Saudi Aramco is the largest oil processing facility and the largest crude oil stabilization plant in the world. In a statement posted on Twitter by Saudi Interior Ministry, the fires were under control and that authorities are still investigating the incident [9]. Saudi Arabia produces approximately 10% of the total global supply of 100 million barrels per day, make the number is 10 million barrel per day [10]. The attacks on Saturday knocked out about 5.7 million barrels per day which it approximately equal to 5% global supply [11].

This is the example for related situation and beyond from this case, the distance, the power and the impact can be increase in near future as drone technology is fast evolve. This is an area that needs an urgent attention and priority to look into.

In most countries, law-enforcement agencies or regulators are increasingly concerned about the risks and threats posed by drones. They pose an unacceptable risk to jetliners, buildings, operations, etc. For instance, as simple as the use of

heavy lithium-ion batteries in drones that could puncture the skin of an aircraft wing, or smash the blades in an engine. Groups in Syria and Iraq have used modified remote control aircraft as flying bombs [7].

Miasnikov has summarised the advantages that make drone very useful for attacker, terrorist or any culprits to be as a threat [12]:

- Possibility to attack targets that are difficult to reach by land
- Possibility of carrying out a wide-scale attack aimed at inflicting a maximum death rate on a population
- Covertness of attack preparation

and flexibility in choice of a UAV launch site

- Possibility of achieving a long range and acceptable accuracy with relatively inexpensive and increasingly available technology
- Poor effectiveness of existing air defences against targets such as low-flying UAVs
- Relative cost effectiveness of UAVs as compared with ballistic missiles and manned airplanes
- Possibility of achieving a strong psychological effect by scaring people and putting pressure on politicians.



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Insiden Pembuangan Sisa Toksik di Sungai Kim Kim Pasir Gudang, Johor

oleh
Radzi Rozihad

Imej, keupayaan dan kepakaran BPK mewakili JKKP sekali lagi terserlah dan diperlukan ketika insiden “Kim Kim” yang menggegarkan negara pada Mac 2019. Gabungan pegawai-pegawai BPK, bekas pegawai-pegawai BPK bersama-sama pegawai-pegawai JKKP Johor yang berkampung selama 2 minggu di Pasir Gudang telah meletakkan JKKP antara Jabatan Teknikal di baris hadapan dalam insiden berkenaan.

Jabatan Alam Sekitar (JAS) selaku pihak berkepentingan utama kerana kes yang melibatkan alam sekitar telah meminta bantuan JKPP dan agensi-agensi kerajaan berkaitan yang lain untuk menjalankan pemantauan pendedahan udara di kawasan sekitar lokasi terjejas berdasarkan keupayaan Jabatan yang mempunyai peralatan pengukuran FTIR *Portable*, GCMS *Portable* dan pengesan gas lain. Berdasarkan kapasiti ketika itu, Jabatan Teknikal yang mempunyai FTIR *Portable* adalah JKKP, BOMBA dan JAS sendiri manakala hanya JKKP dan Jabatan Kimia Malaysia sahaja yang mempunyai GCMS *Portable*. Kos yang mencecah jutaan ringgit bagi kedua-dua peralatan utama ini menyebabkan ianya terhad.

Di dalam insiden ini, sebanyak 12 buah sekolah telah terlibat secara langsung dengan 5,039 kes dicatatkan. Bahan kimia utama yang dikatakan sebagai penyumbang cemar insiden adalah *acrolein*, *acrylonitrile* & *methyl mercaptan*.

“Dalam memastikan JKKP tidak terkebelakang dan sebagai antara baris hadapan dalam mempunyai keupayaan dan kredibiliti berkaitan, peningkatan keupayaan peralatan perlu dilakukan dan tidak hanya bergantung kepada peralatan sedia ada yang telah usang”

Berdasarkan kepada kenyataan di media massa, prodising perbicaraan ke atas Orang Kena Saman (OKS) bagi kes ini telah dimulakan pada 3 Disember 2019. Pemandu lori di syarikat pemprosesan tayar terpakai bersama tiga pengarah syarikat itu telah didakwa melupuskan atau bersubahat melupuskan buangan terjadual iaitu buangan minyak atau enap cemar berminyak ke Sungai Kim Kim, Pasir Gudang dengan menggunakan lori jenis Mitsubishi dan semi trailer tangki sawit. Tuduhan ke atas mereka dibuat mengikut Seksyen 34B (1)(a) Akta Kualiti Alam Sekeliling 1974 yang boleh dihukum di bawah 34B(4) akta yang sama yang memperuntukkan hukuman penjara maksimum lima tahun selain denda RM500,000.

Susulan daripada insiden ini, kebanyakan Jabatan dan Agensi dilihat telah meningkatkan keupayaan dan bilangan aset terutamanya peralatan-peralatan seperti FTIR *Portable*, GCMS *Portable* dan pengesan gas lain. Dalam memastikan JKKP tidak terkebelakang dan sebagai antara baris hadapan dalam mempunyai keupayaan dan kredibiliti berkaitan, peningkatan keupayaan peralatan perlu dilakukan dan tidak hanya bergantung kepada peralatan sedia ada yang telah usang.

Pengetahuan dan kemahiran dalam menangani kes-kes kritikal dan berprofil tinggi juga dilihat sebagai salah satu aspek yang boleh ditambah baik kepada pegawai-pegawai JKKP dalam menangani insiden-insiden yang serupa di masa akan datang.





Kursus Kompetensi Dalaman Penaksir Kualiti Udara Dalaman Pegawai-pegawai JKPP



*Latihan Statistik Pegawai
BPK dan JK Garis Panduan
Pemantauan Pendedahan
Bahan Kimia Berbahaya
Kepada Kesihatan*



Sesi Engagement Bersama Pihak Berkepentingan Di Kalangan Agensi Kerajaan Bagi Cadangan Pelaksanaan No Class No Entry



Bengkel Pengelasan Bahan Kimia Berbahaya Pegawai-pegawai Seksyen Higien Industri Pejabat Negeri



Pengujian dan Penerangan Handheld Asbestos Analyzer



Perbincangan Bersama Wakil Industri Bagi Isu Bahan Kimia Berbahaya

Kes Pendakwaan

oleh
Rusnah Nanyan

Kes di bawah Peraturan-Peraturan Keselamatan dan Kesihatan Pekerjaan (Penggunaan dan Standard Pendedahan Bahan Kimia Berbahaya Kepada Kesihatan) 2000.

JKKP lawan Ocean Hardware Paint Trading Sdn Bhd

Mahkamah Majistret Kulim 10 April 2019

PO: Mohd Najib bin Anuar (JKKP Kedah)
IO: Faisal Jusoh (BPK)
AIO: Radzi Rozihad (BPK)
Perihal Kesalahan: Peraturan 9 (1), USECHH 2000
Kesalahan: OKS gagal menjalankan penaksiran risiko bahan kimia berbahaya kepada Kesihatan di tempat kerja bagi bahan kimia Toluene dan Ferum Oksida

Keputusan: OKS mengaku salah.
Denda: RM5,000.00 @ 2 bulan penjara(jika gagal bayar)
Mahkamah Majistret Kulim 10 April 2019

JKKP Lawan Syarikat X Sdn Bhd

IO: Noor Hafizie (BPK)
AIO: Norhisyam Omar/ Sham Shuhairi (BPK)
Perihal Kesalahan: Peraturan 11, USECHH 2000
Kesalahan: OKS gagal memastikan bahawa mana-mana penaksiran yang dijalankan oleh seseorang pengapit.
Status : Menunggu tarikh sebutan di mahkamah

JKKP Lawan Syarikat Y Sdn Bhd

IO: Mohd Azam (BPK)
AIO: Mohd Hafizullah (BPK)
Perihal Kesalahan: Peraturan 14 (1) CLASS 2013
Kesalahan: OKS gagal menyediakan inventori bahan kimia sebagai bahan kimia berbahaya yang terdiri daripada maklumat mengenai setiap bahan kimia berbahaya yang diimport atau dibekalkan dalam kuantiti sebanyak satu tan metric dan lebih setahun bagi setiap tahun calendar.
Status : Izin Pendakwaan, Timbalan Pendakwa Raya, JKKP

JKKP Lawan Approfit Zinc Manufacturing

Mahkamah Majistret Seremban
29 Mei 2019

PO: Shabanon binti Mohd Sharif (BPK)
IO: Mohd Nadzim (BPK)
AIO: Rusnah Nanyan/ Muhammad Azhar (BPK)
Perihal Kesalahan: Peraturan 5(2) CLASS
Kesalahan: OKS gagal menjadikan rekod pengelasan bahan kimia berbahaya tersedia untuk diperiksa oleh pegawai.

Keputusan: OKS mengaku salah.
Denda: RM2,300.00 @ 2 bulan penjara(jika gagal bayar)
Mahkamah Majistret Seremban 29 Mei 2019

Kes Pendakwaan di bawah Peraturan-Peraturan Keselamatan dan Kesihatan Pekerjaan (Pengelasan, Pelabelan dan Helaian Data Keselamatan Bahan Kimia Berbahaya) 2013

Siasatan kes tahun 2019 oleh BPK dengan pegawai-pegawai BPK menjadi PO, IO atau AIO.

PERGERAKAN PEGAWAI 2019

PEGAWAI BERTUKAR 2019 (KELUAR)



MUHAMMAD FAISAL BIN JUSOH
KE SEKRETARIAT MAJLIS
KESELAMATAN & KESIHATAN
PEKERJAAN



MOHD NADZIM BIN MASLAN
KE JKPP WILAYAH PERSEKUTUAN
KUALA LUMPUR



AZREEN SHAZWANI BINTI OMAR
KE JKPP SELANGOR



MOHD HAFIZULLAH BIN HARUN
KE BAHAGIAN KESELAMATAN
INDUSTRI



NOOR HAFIZIE BIN SUKAFLE
KE BAHAGIAN DASAR
ANTARABANGSA &
PEMBANGUNAN PENYELIDIKAN

PEGAWAI BARU DI BPK 2019 (MASUK)



**NURUL FATIMAH BAYAH BINTI
HARON**
DARI BAHAGIAN KESELAMATAN
PETROLEUM



MOHD HAIRUL BIN MAT HUSIN
DARI JKPP WILAYAH
PERSEKUTUAN KUALA LUMPUR



**HANIS FARZANA BINTI MOHD
SADEK**
DARI BAHAGIAN KESELAMATAN
INDUSTRI



**NORHIDAYAH BINTI
NAZAMMUDIN**
PENGAMBILAN PEGAWAI BARU



IR. MOHD SAIFUL BIN IDRIS
DARI JKPP WILAYAH
PERSEKUTUAN KUALA LUMPUR

Terima kasih dan selamat maju jaya diucapkan kepada pegawai yang bertukar. Kepada pegawai baru di BPK pada 2019, selamat datang ke keluarga BPK

eBuletin CHEMI 2019

Bahagian Pengurusan Kimia
Jabatan Keselamatan dan Kesihatan Pekerjaan
Aras 1, 3, 4 & 5,
Blok D4, Kompleks D
Pusat Pentadbiran Kerajaan Persekutuan
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