



中国科学院大连化学物理研究所

DALIAN INSTITUTE OF CHEMICAL PHYSICS, CHINESE ACADEMY OF SCIENCES



Safety Training Series (10)

——For Foreigners

Department of Comprehensive Management
Department of Safety and Security
2018

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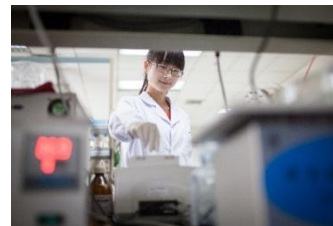
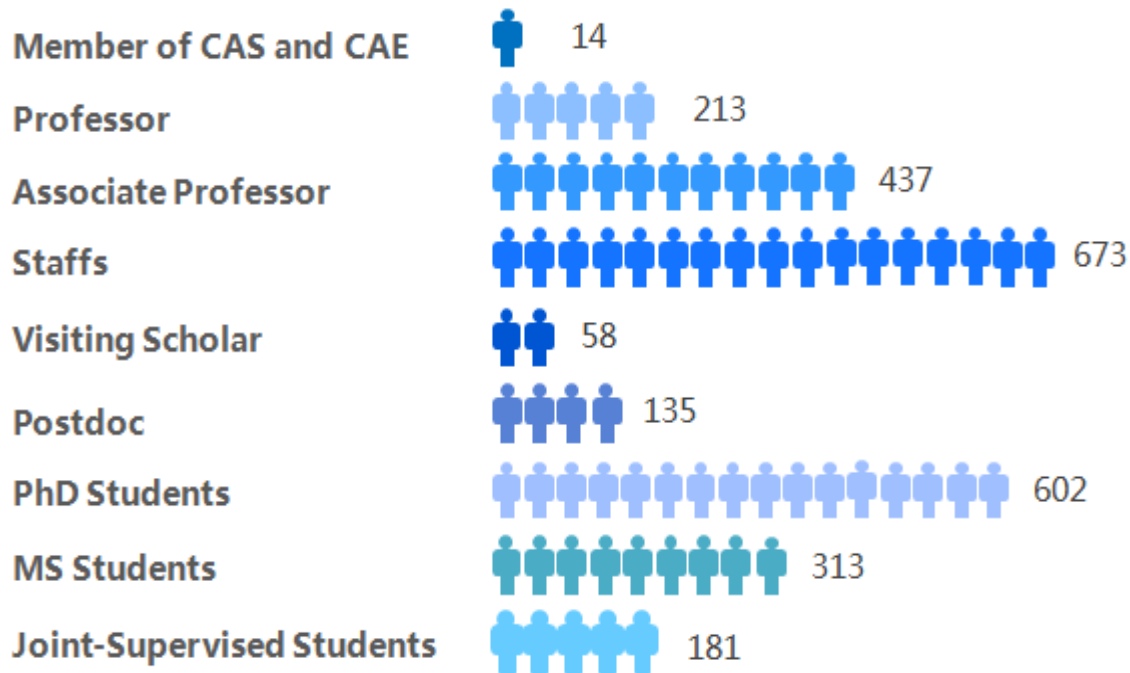
Introduction of DICP

Campus



Introduction of DICP

Human Resources



Introduction of DICP

Members of CAS and CAE



Dayu ZHANG
(1906-1988)



Xiexian GUO
(1925-1998)



Peizhang LU
(1925-2017)



Cunhan ZHANG
(1928-)



Guozhong HE
(1933-)



Quan YUAN
(1934-)



Nanguan LOU
(1922-2008)



Qingehi ZHU
(1946-)



Liwu LIN
(1929-2014)



Guohe SHA
(1934-)



Shengli YANG
(1941-)



Baolian YI
(1938-)



Fengting SANG
(1942-)



Yukui ZHANG
(1942-)



Can LI
(1960-)



Xinhe BAO
(1959-)



Xueming YANG
(1962-)



Tao ZHANG
(1963-)



Zhongmin LIU
(1964-)



Donghui Zhang
(1967-)

20 distinguished scientists have been elected from DICP as members of CAS and CAE.

14 of them are now working in DICP.

Introduction of DICP

Facts



1200

Employees



1100

Graduate Students



18

Research Laboratories



10

International Research Centers



29

Spin-off Companies



4000

Publications*



4000

Filed Patents*



¥ 5000 million

Research Funds*



50

Major Award*



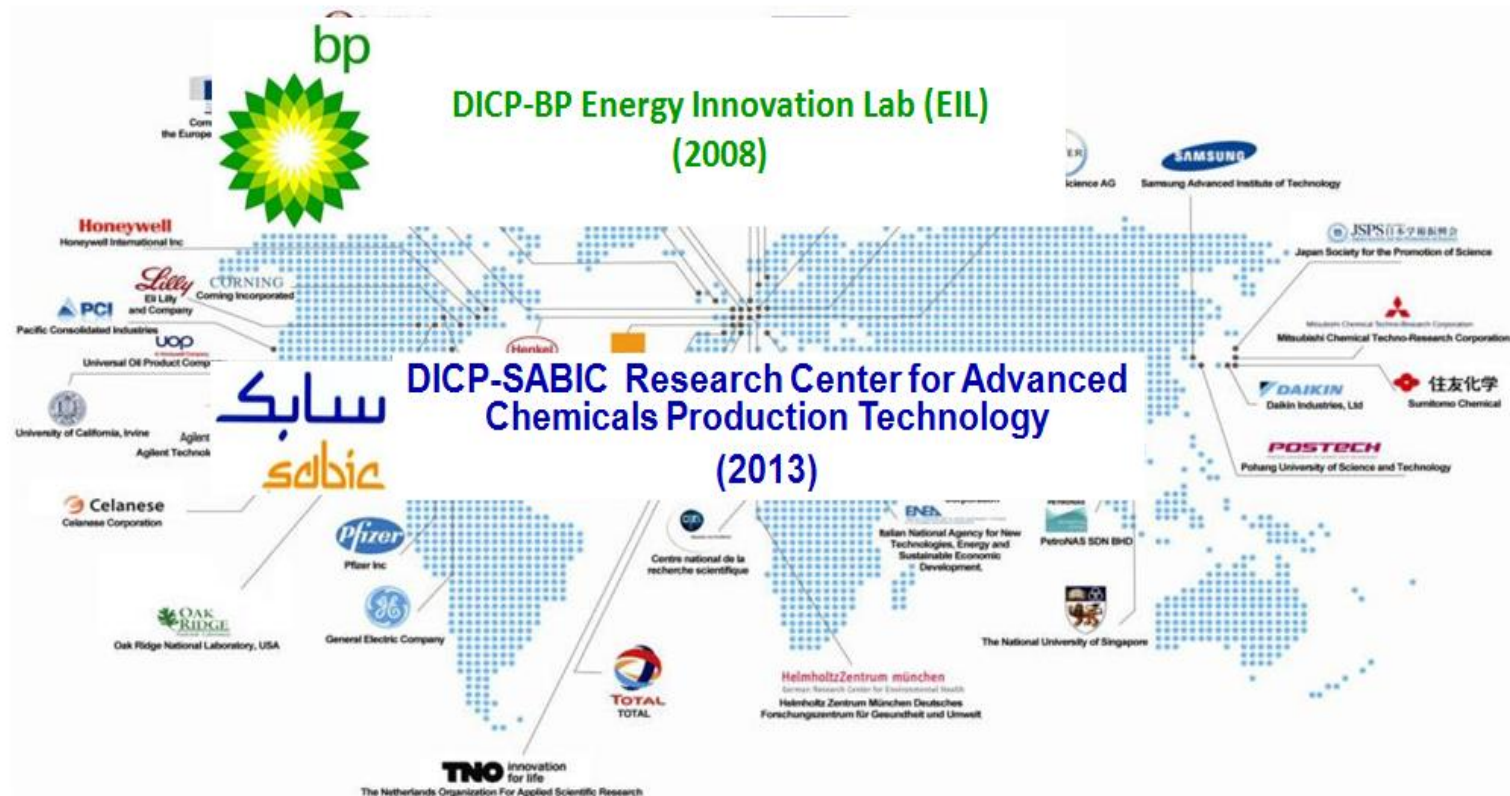
50

Industrial Applications*

*statistical date from 2012 to 2016

Introduction of DICP

International Collaboration



DICP has already established collaborations with institutions and companies from over **50** countries and regions.

Introduction of DICP

Main Campus - Xinghai Campus



Bio-tech. Building



Chem.-Engi. Building



Lovely Alley



Front Gate



DNL Building

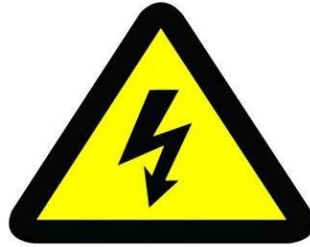


Stadium

Safety Hazards



Hazardous chemical
44.6T



Electricity



Radiation



Fire



Hazardous waste
220T



Hazardous gas
3000 cylinders



Biohazard

Safety Hazards



Occupational Health

**Personal Protective Equipment
(PPE)**



Special Equipment



Environmental Protection

Safety Hazards

“Heinrich's Law”



General Laboratory Safety

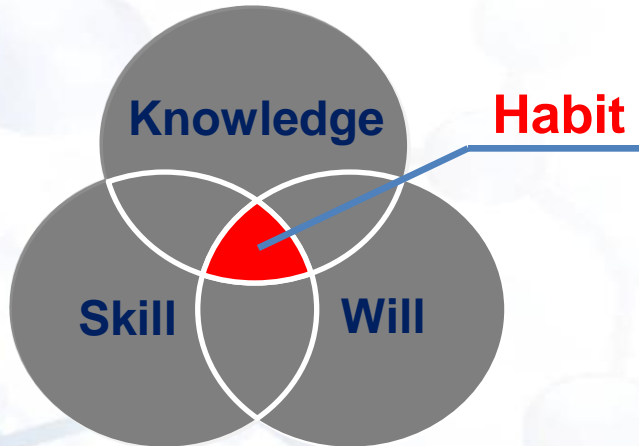
safety 安全



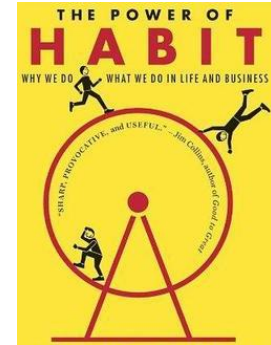
- **Environment Health Safety (EHS) guideline**

Inform the lab safety practices and standards

Follow a good habit and operate safely



Important



Good Habit & Practice !

Emergency Response

Ask your supervisor:

Emergency response plans of the lab

Make particular note of the locations

- Emergency telephone numbers;
- Eyewash fountains and emergency showers;
- Oil Spill kits;
- Emergency exits and evacuation routes;

1. Supervisor Tel. No.
2. Research director Tel. No.
3. HSSE manager Tel. No.



Speak English

Fire Hazard

FIRE is the most devastating emergency in the laboratory.

How to prevent fires and respond to the fire occur

Flammable solvents is a primary cause of lab fires:

- Use the smallest quantities of flammable solvents;
- Store in flammables dedicated cabinets;
- Separate flammable solvents from sources of ignition;
- DO NOT use Bunsen burner near the flammable solvents;



Fire Hazard

GET READY FOR:

- The fire emergency response procedures;
- Keep the aisles and evacuation routes clear;

REMEMBER:

- Safe passage is benefit for you and emergency responders;
- Practice emergency response procedures periodically;



Fire Hazard

Fume hood Fire

A flammable liquid was spilled in the fume hood and caused a fire disaster in 2016.



Small Fire — What should you do?

- ☐ Alert people in lab and activate the alarm
- ☐ Make sure of a clear exit route
- ☐ Put out the fire by fire extinguisher or fire blanket
- ☐ The fire extinguisher aims at flame roots
- ☐ Report the incident to you director



Major Fire - Evacuate



Perform the procedures immediately as follows:

- Alert people to evacuate the area;
- Activate nearest fire alarm or call for emergency response;
- Close the lab doors to confine fire;
- The safety officer or person who knows lab well prepared to assist the rescue;



Hazard Communication

YOU NEED TO KNOW:

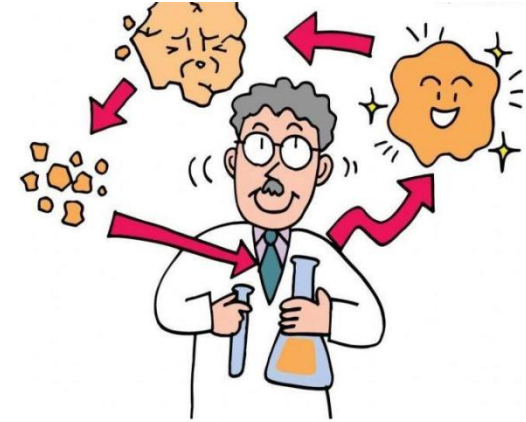
- How to find the hazards chemicals information in your work area?
- When you need to use the fume hood?
- How to select goggles and gloves ?
- What should you do when you are involved in a fire or chemical spill emergency?

You can learn all the information from **OSHA standards.**

(Occupational Safety and Health Administration)

Hazard Communication

1. You must receive adequate training **BEFORE** working with hazardous chemicals.
2. Material Safety Data Sheets is very useful for you.
3. Learn the safety risk and operating rules of the hazardous chemicals very well.
4. You should know how to detect the presence or release of the hazardous chemical.
5. The personal protective equipment is required.
6. Knowing of evacuate route and proper procedures for responding to emergencies.



Material Safety Data Sheets

- **Material Safety Data Sheet is provided by the chemical manufacturer.**
- **It describes the physical and chemical properties of the product, the health hazards, and emergency measure.**
- **It can also show acute and chronic effects if you exposure to hazardous chemicals.**



Personal Protective Equipment

- How to use personal protective equipment (PPE) in a right way.
- It includes safety helmet, lab coat, respiratory mask, goggles, gloves and safety shoes.
- You should realize the potential hazards during experimental process before doing the operation.



Chemical Storage

- Provide effective management of chemicals;
- Lessen the risk of fire;
- Prevent accidental mixing of incompatible chemicals;
- Minimize exposure to corrosive and toxic chemicals.;

The flammable, explosive or corrosive liquid should be less than 1.0 liter or one day dose.



Chemical Storage

- **Where is the designated storage areas and the specific storage locations of each chemical?**
- **Read the chemical's label and the receipt date before storing.**
- **Do not store a chemical without label!**
- **How to store the acids, flammables, and detergents?**
- **Keep the highly toxic chemicals in designate areas separately.**
- **Put the chemicals back to the same place!**
- **Concern to your colleague and a safe practice.**



Chemical Storage

- ❑ Combustible chemicals that can ignite at room temperature -- **Normal cabinet**
- ❑ Inflammable chemicals -- **Explosion proof refrigerator**
- ❑ Do not put flammable, explosive and volatile chemicals into the non-explosion-proof refrigerator
- ❑ The safety signs of laboratory refrigerator should be clear.
- ❑ The corrosive, toxic, flammable and highly reactive chemicals should be stored near to the laboratory fume hood.



- ※ Do not store the hazardous chemicals under the sink.
- ※ Do not store liquid hazardous chemicals above eye level.
- ※ Leave heavy containers on lower shelves, instead of the floor.
- ※ Put chemicals on shelves with raised edges.



QUIZ

You are required to clean the lab and dispose of all the chemical containers.
When you find a bottle of colorless liquid without label, **What should you do?**

1. Put it near to the chemical container with the same shape.
2. Pour it down the drain, since it seems harmless.
3. Take the container to the Hazardous waste staging area.
4. Ask your supervisor for the advice.

Notice:

The supervisor is the first responsibility person.

Do not store or dispose of the unidentified chemical.



Chemical Using

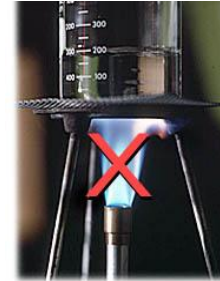
The premise of scientific research is using chemical safely:

- **Carry out the regulations of maintaining, usage and safety operation;**
- **Learn your chemicals very well;**
- **Use the minimum dose of chemical or safer chemical replacement;**
- **Wear the Personal Protective Equipment (PPE);**
- **Use the fume hood when deal with hazardous chemicals;**
- **Acquire some knowledge of safety and focused;**



Physical Hazards

- Keep floors dry and clean, lest slips, trips, and falls;
- Open flames should be replaced by electrical heating if possible;
- Pay high attention on the high voltage, ultraviolet light, heat sources, and cryogenic materials ;
- Take care of the glass, needles, or sharps;
- Transport hazardous chemicals according to relevant regulations;



Physical Hazards

High voltage equipment:

Ensure it is power-off before connection;

Beware of loose connections causing sparks or electrical arc;

Keep it far away from the sink or wet area;

Stop using it immediately when you feel a sharp pain;

Microwave ovens:

Superheated liquids may get capped containers exploded;

Inappropriate plastic containers may get melted.



Others

- **DO NOT perform the experiments alone;**
- **DO NOT eat or drink in the lab;**
- **DO NOT wear PPE when you leave the lab;**
- **Pressure test – Strength and gas tightness test at first;**
- **Disposed of all chemicals before you leave DICP;**
- **Register with the local police within 24 hours when you arriving in China;**
- **Pay attention to traffic safety!**
- **DO NOT get in trouble!**
- **Dalian - Coastal city - please be aware of deep harbor areas;**
- **Learn some Chinese – Good communicate with your Chinese friends!**

Contact

- Mr. DONG Jia
- E-mail: dongjia@dicp.ac.cn
- 15842437703

**If you have any question about safety and security,
please feel free to contact with us!**



Thank you!

Welcome to DICP!

Hope you have a secure and happy life in China!

