

化学品管理体系的建立

Chemical management system set-up

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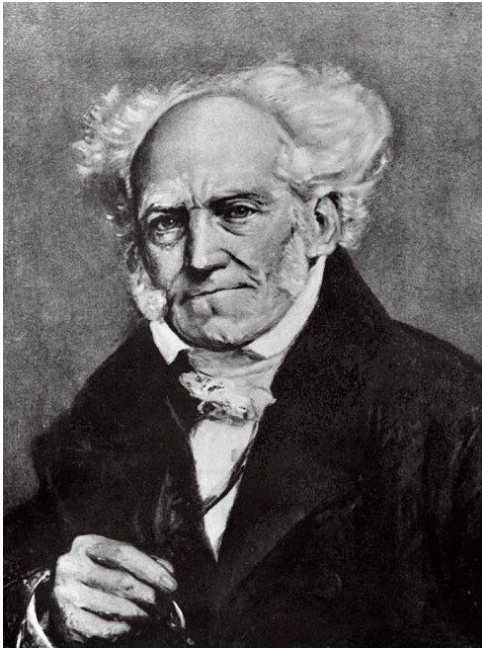
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Arthur Schopenhauer: "One's life is not to pursue happiness, but to avoid pain (reduce risks) ."



1 纺织业、制鞋业化学品管理的基本格局的形成

The formation of the basic pattern of chemical management in textile and footwear industry

化学品管理对安全的影响 Chemical's impact on Safety

Ten typical cases of production safety accidents in 2020

1. "3.7" collapse accident of Xinjia hotel in Quanzhou, Fujian Province;
2. "6.13" explosion accident of liquefied petroleum gas tank truck in Wenling section of Shenhai Expressway in Zhejiang Province;
3. "8 · 3" flash explosion accident of Lanhua silicone Co., Ltd in Xiantao, Hube Province;
4. "8.29" collapse accident of Juxian hotel in Linfen, Shanxi Province;
5. "9.6" production safety accident of Gansu Hongda aluminum profile Co., Ltd in Baiyin, Gansu Province;
6. "9. 18" water traffic accidents in Laotie Mountain waterway in Bohai Strait;
7. "9.27" fire accident in Songzao Coal Mine of Yuxin Energy Co., Ltd of Chongqing Energy;
8. "10.1" fire accident of Agriculture and Forestry Ecological Amusement Park Co., Ltd in Taitai mountain skating world, Taiyuan, Shanxi Province;
9. "11.29" water inrush accident in Yuanjuanshang coal mine, Hengyang, Hunan Province;
10. "12.4" fire accident of Diaoshuidong Coal Co., Ltd., Yongchuan, Chongqing Province.

On May 24, 2021, a hydrogen sulfide poisoning accident occurred in Furong bamboo food factory in Changning County, Yibin City, Sichuan Province ,

On September 14, 2020, a hydrogen sulfide poisoning accident occurred in Yaobang Chemical Technology Co., Ltd., Zhangye City, Gansu Province.



1 纺织业、制鞋业化学品管理的基本格局的形成

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化学品管理对职业健康的影响 Chemical's impacts on occupational health

Types of occupational diseases	2018	2019
Total number of occupational disease cases	23497	19428
Occupational pneumoconiosis and other respiratory diseases	19,524	15947
Occupational ENT and stomatology Diseases	1528	1623
Occupational chemical poisoning	1333	778
Occupational infectious diseases	540	578
Occupational diseases caused by physical factors	331	264
Occupational tumor	77	87
Occupational dermatosis	93	72
Occupational ophthalmopathy	47	53
Occupational radiation diseases	17	15
Other occupational diseases	7	11

Statistical bulletin of health development in China in 2018 and 2019

1 纺织业、制鞋业化学品管理的基本格局的形成

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化学品管理对环境的影响 Chemical's impact on Environment

Actively polluting case:

From July 2016 to may 2017, Huang guanqun in Baoxun company handed over pickling sludge to Li Changhong, who didn't have qualification of hazardous waste disposal, for illegal disposal without issuing a hazardous waste transfer table. Li Changhong used cars and ships to transport hazardous wastes across provinces by forging seals of state agencies and companies, making false official documents and certificates. Li Changhong illegally dumped and disposed 1071 tons of pickling sludge in Huai'an City, Yangzhou City, Suzhou City, Jiangsu Province, and Tongling City, Anhui Province. Huang Guanqun and other defendants who committed the crime of environmental pollution were sentenced to imprisonment from six years to four months and a fine of 200 thousand yuan.

27/5/2021

Passively polluted case:

On April 10, 2014, Lanzhou Weiliya Water Company detected that the benzene content in its water exceeded the standard. The test showed that the maximum value was 20 times higher than national standard. According to national regulations, benzene content in drinking water should not exceed 10 $\mu\text{g} / \text{L}$. At 5:00 a.m. on April 11, 2014, after four inspections, Weiliya company finally confirmed that the benzene content in tap water of inlet and outlet of No.2 water plant of No.4 ditch seriously exceeded the standard. The benzene in Lanzhou tap water was due to the leakage of Lanzhou petrochemical pipeline.

Secondary pollution case:

At 22:51 on August 12, 2015, a fire and explosion accident occurred in the dangerous goods warehouse of Ruihai company in Tianjin port, Binhai New Area, Tianjin. In terms of wastewater and water environment monitoring, the number of on-site water quality monitoring points was changed to 40, including 26 points in the warning area and 14 points outside the warning area. On 17th, 76 water samples were collected on site. According to related standards, 29 spots were detected with cyanide, 8 of which (all of them were in the warning area) exceeded the standard, with the maximum exceeding 28.4 times

Impact on environmental protection facilities:

Overloaded operation of disposal facilities;

Toxicity of pollutants to microorganisms in wastewater disposal facilities.

1 纺织业、制鞋业化学品管理的基本格局的形成

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化学品管理对产品品质的影响 Chemical's impacts on Product's quality

According to RAPEX warning notice of week 15, 2021 (released on April 16), 46 product notices were issued by the EU this week. 19 products were noticed in mainland China, accounting for 41.3t%. The products involved kitchen / cooking fittings, jewelry, toy, electrical equipment, gadgets, clothing, textiles, fashion products and machines. The notifying countries were Germany, France, Finland, Czech Republic, Lithuania, Romania, Maltese, Sweden, Slovakia, Hungary, Italy, etc. The measures taken included withdrawing from the market, removing the product from online market, recalling, banning from sales, warning consumers of risks, etc.

表1 第15周我国产品受RAPEX通报统计情况

通报产品	通报原因
充气气球	该产品释放出的亚硝化物质过量，可通过摄入或皮肤接触引起癌症。不符合玩具安全指令和EN 71-12的相关要求。
纺织娃娃	该产品的小零件（眼睛）易拆卸，儿童可能将其吞食并窒息。不符合玩具安全指令和EN 71-1的相关要求。
塑料娃娃	该产品的塑料材料中邻苯二甲酸二（2-乙基己基）酯（DEHP）超标，可损害儿童健康。不符合REACH法规和2009/48/EC的相关要求。
心形气球	该产品密封袋中装有高浓度的柠檬酸，当与碳酸氢盐进行化学反应以使气球膨胀时，酸溶液可刺激眼睛、腐蚀皮肤。不符合玩具安全指令和EN 71-4的相关要求。
指画颜料	该产品含有过量的正亚硝基二乙醇胺（NDELA）（测量值：1.5mg/kg）。NDELA是亚硝胺，摄入或皮肤接触可致癌。不符合玩具安全指令和EN 71-12的相关要求。

警报号	产品类别	通报国	产品名称	品牌	危害分类	违反法规	通报国措施
A12/00514/21	厨房/烹饪配件类	瑞典	数字厨房计时器	Biltema 84-4700	环境危害	RoHS 2	禁止销售
INFO/00094/21	首饰类	德国	戒指	未知	化学危害	REACH	销毁产品召回禁止销售
A12/00499/21	其他	意大利	热水袋	Linea Casa S. r. l.	化学危害 环境危害	REACH	禁止销售产品及任何附带措施
A12/00507/21	首饰类	德国	项链	gigitube	化学危害	REACH	在线上市场下架该产品
A12/00505/21	首饰类	德国	项链	YASUI	化学危害	REACH	在线上市场下架该产品
A12/00504/21	首饰类	德国	项链和吊坠	DTKJ	化学危害	REACH	在线上市场下架该产品
A12/00517/21	玩具类	斯洛伐克	塑料娃娃	未知	化学危害	REACH; 2009/48/EC	召回警告消费者风险撤出市场

1 纺织业、制鞋业化学品管理的基本格局的形成

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Greenpeace – Detox report

The first issue of Detox report was “The Big Fashion Stitch-up”. Later, Greenpeace published the next report “Putting Pollution on Parade” and accelerated information transfer. Driven by Greenpeace, brands established ZDHC, which coordinated Detox actions of brands on technology and pace.

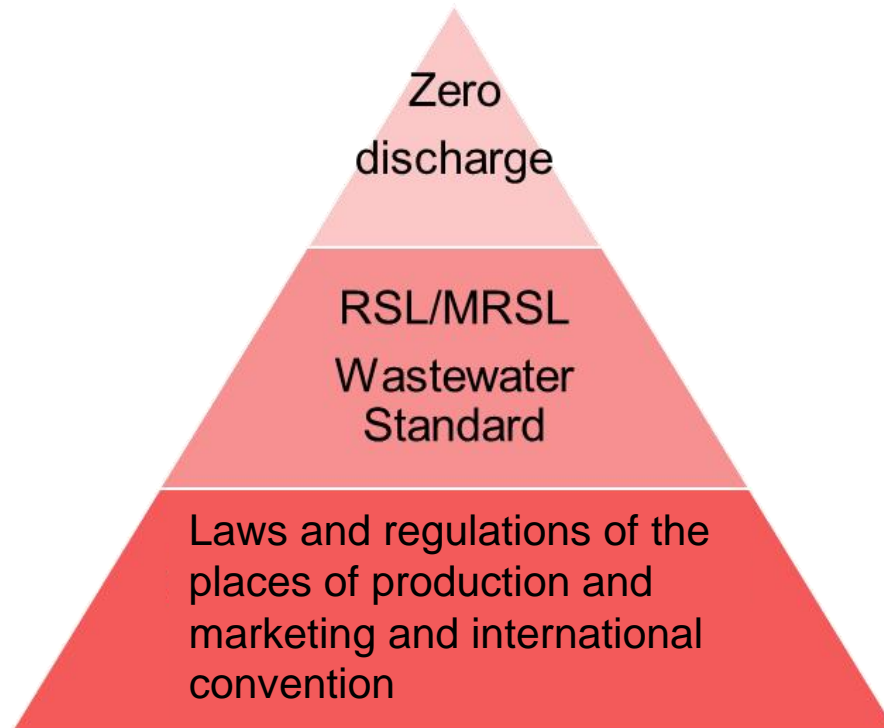


2 化学品管理基本框架的构建

The construction of framework of chemical management

Question: how to put forward three objectives from the first principle, and then put forward the basic pattern of three-level chemical management?

After 10 years of development, the textile industry and shoemaking industry have formed a basic pattern as follow: 1) The basic requirements are the laws, regulations and compulsory standards of the places of production and marketing; 2) RSL / MRSL of brands and retailers are the main control targets; 3) Zero discharge of hazardous chemicals is the ultimate goal.



Our roadmap

The ZDHC Roadmap to Zero Programme outlines our activities into the future. It provides a clear path to the safer outputs we all want to see. Key stakeholders helped to create this roadmap, so we know we are on the right track.



2 化学品管理基本框架的构建

The construction of framework of chemical management

Question: How to introduce various requirements of chemical management from the three levels of management and control?



汉高祖 (前256—前195) 明人绘

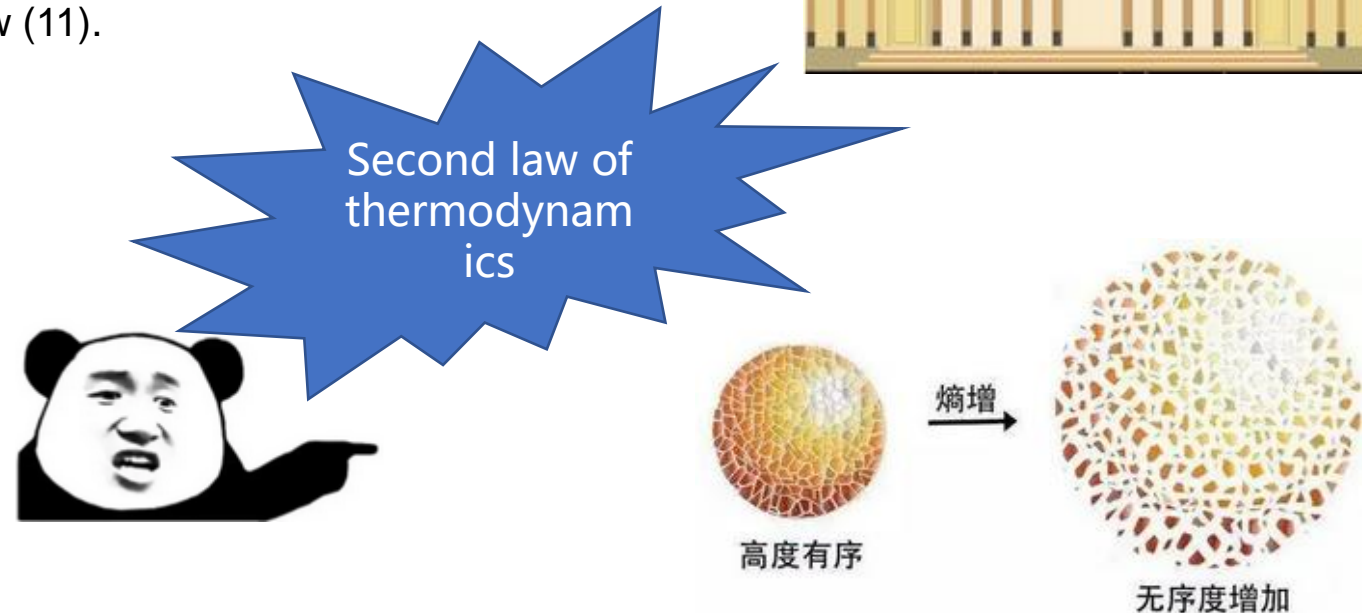
Historical Records, records of founder of the Han Dynasty, by Sima Qian: "Now my elders and I have agreed that there are only three laws: murderers shall be sentenced to death, people who wounded others and robbers shall be punished by law."

By the end of the 25th session of the Standing Committee of the 13th National People's Congress on January 22, 2021, there are 275 existing laws in China, including constitution related laws (46), civil law and commercial Law (23), administrative law (93), economic law (75), social law (25), criminal law (1), procedural law and non procedural law (11).



Question:

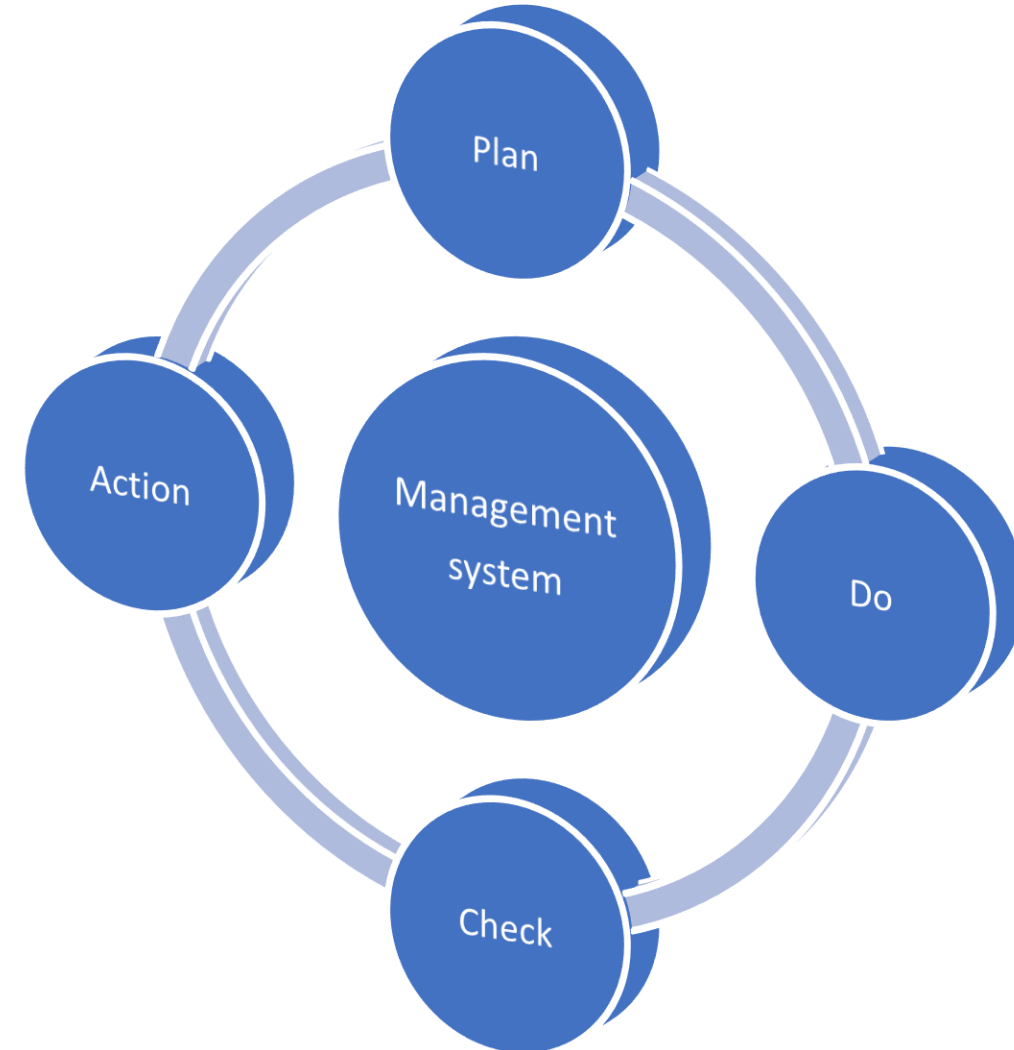
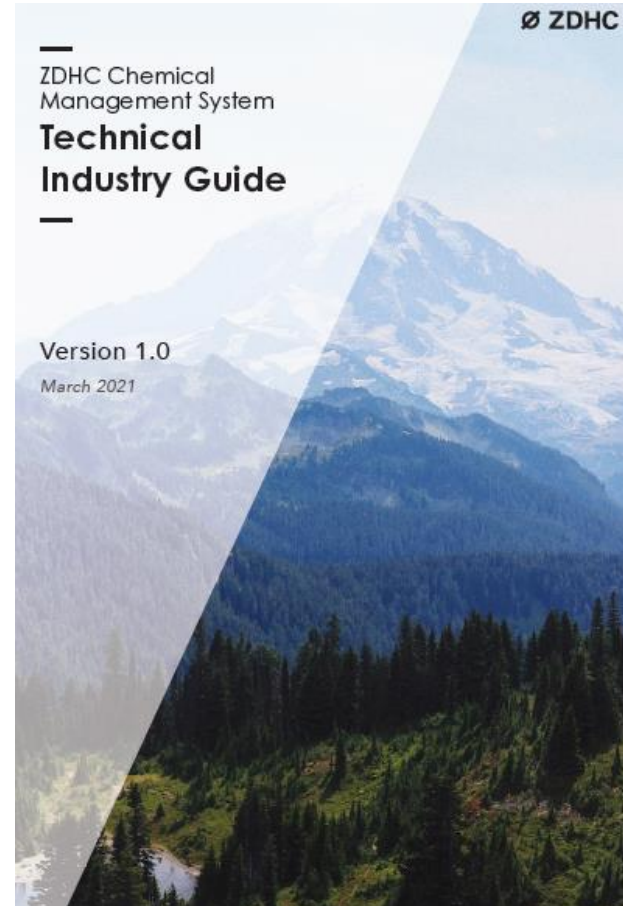
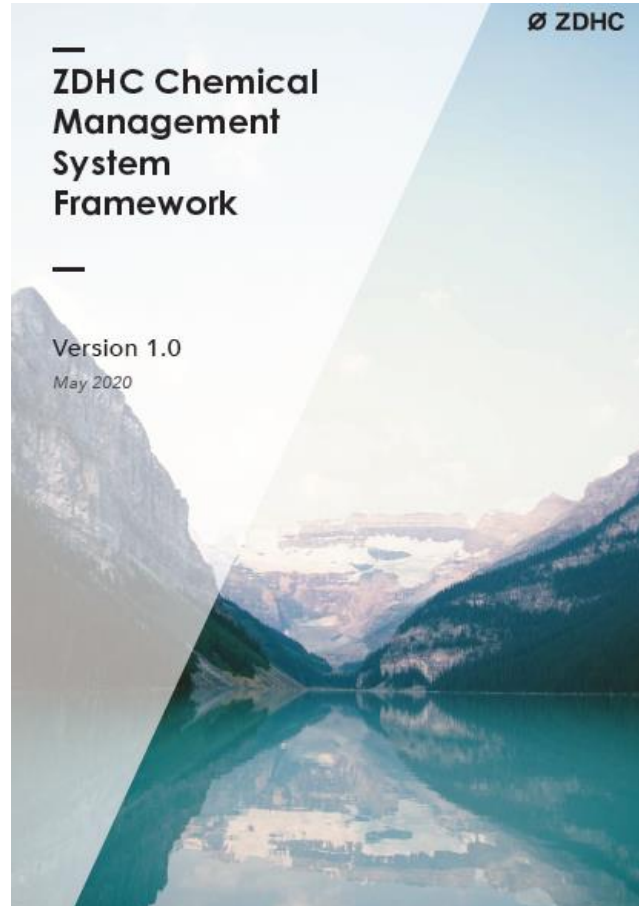
- 1) Why are there more and more laws to regulate people's behavior with the progress of society?
- 2) Why are there more and more apps in your mobile phone?
- 3) Why are there more and more requirements for chemicals?



2 化学品管理基本框架的构建

The construction of framework of chemical management

ZDHC: input, process, and output



2 化学品管理基本框架的构建——规划阶段

The construction of framework of chemical management_ **Planning Phase**

General principle : Chemicals should be managed in a standardized and orderly manner according to regulations and customer requirements to achieve good performance in environment, safety, health and quality .

Example 1:

Purpose and scope: To standardize the management of hazardous chemicals and ensure the production security of enterprises. This system is applicable to the production, use, transportation, purchase, sales and storage of hazardous chemicals within the company.

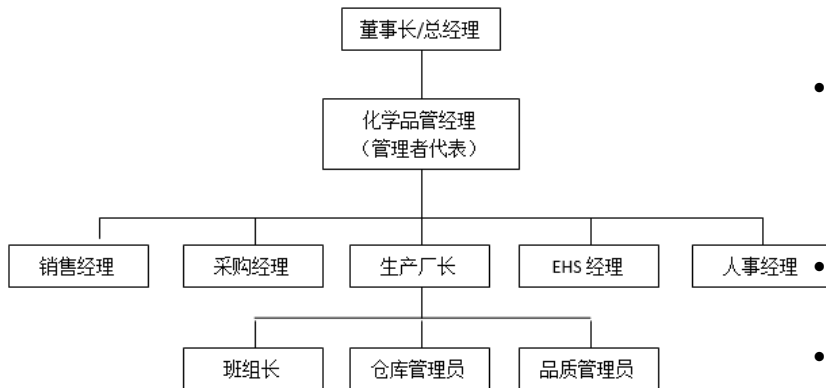
The general principle of the company's chemical management is: To make products that meet the requirements of customers and regulations, to control the risk of exceeding permitted levels of restricted substances, to prevent and reduce safety accidents, to ensure the security of employees, to standardize the storage and use of chemical, to protect the environment, to enhance the understanding and compliance of chemical related laws and regulations, and to continuously improve the chemical management of the company.

2 化学品管理基本框架的构建——规划阶段

The construction of framework of chemical management_ Planning Phase

People in charge: Specify the general director or the representative of the general director, and the sub leaders, clearly point out positions, personnel and specific requirements.

Example 2:



- The chairman / general manager is the general director in charge of company's chemical management. He or she is responsible for appointing the chemical manager as the management representative for the company's chemical affairs on his behalf;
- The chemical manager, as the management representative, is responsible for the formulation and implementation of company's chemical management system, setting KPI and coordinating the work among all departments;
- EHS Manager is responsible for collecting laws and regulations related to chemicals, establishing and maintaining the list of laws and standards, personal protective equipment and identification related to the safe use of chemicals, formulating the emergency plan of the factory, and organizing emergency drills at least once a year;
- The sales manager collects the RSL and MRSL about customers and submits the information to EHS manager for summarizing the list of laws and regulations;
- The purchasing manager evaluates and approves the chemicals to be purchased in accordance with regulations and customer requirements, and purchases compliant chemicals;
- The production plant manager is responsible for fully implementing the chemical management system in front-line operators such as teams, warehouses and quality control staff; and formulating annual maintenance plans, implementing plans and keeping maintenance records;
- The human resource manager shall formulate annual employee training plans and incorporate chemical management content into the employee training plan.

2 化学品管理基本框架的构建——规划阶段

The construction of framework of chemical management_ **Planning Phase**

Identify compliance requirements: laws, regulations, standards, mandatory rules, customer requirements, special contract provisions.

Example 3:

The department shall collect chemical-related laws and regulations and restricted substances list (RSL) and MRSL of customers regularly. Also ensure that the products are updated at least once a half year. The factory sales department is responsible for the collection and update of relevant laws and regulations, customer's list of restricted substances, and manufacture restricted substances list.

No.	法规名称	类型	有效区域	发布机构	发布/更新年份
1	中华人民共和国环境保护法	法律	全国	全国人民代表大会常务委员会	2015
2	中华人民共和国大气污染防治法	法律	全国	全国人民代表大会常务委员会	2018
3	中华人民共和国安全生产法	法律	全国	全国人民代表大会常务委员会	2002
4	中华人民共和国职业病防治法	法律	全国	全国人民代表大会常务委员会	2003
5	安全生产许可证条例	法规	全国	国务院	2011
6	危险化学品安全管理条例	法规	全国	国务院	2011
7	危险化学品储存管理条例	法规	全国	国务院	2011
8	危险货物道路运输安全管理办法	法规	全国	交通部, 工信部等	2020
9	中华人民共和国固体废物污染环境防治法	法规	全国	国务院	2005
10	危险化学品登记管理办法	法规	全国	国安安全生产监督管理总局	2012
11	危险化学品重大危险源监督管理暂行规	法规	全国	国安安全生产监督管理总局	2011
	国家危险废物名录	法规	全国	全国人民代表大会常务委员会	2019

2 化学品管理基本框架的构建——规划阶段

The construction of framework of chemical management_ **Planning Phase**

Standard and orderly management requirements: chemical training and drills, evaluation, approval, procurement, transportation, inputting, warehousing, internal audit, KPI, CAP

Example 4:

- The department shall incorporate chemical management trainings into the company's annual training plan, make sure to organize chemical management trainings at least once a year and evaluate the effect of trainings by exams;
- The department shall establish a sound chemical evaluation, approval and procurement system. The purchased chemicals shall meet the requirements of laws, regulations, standards and customers;
- The company shall establish a sound management system of the transportation, inputting, storage and use of chemicals and supervise its implementation;
- The company shall organize an internal review of chemical management at least once a year to evaluate the implementation of the system, make an improving plan for the problems found, and actively carry out rectification;
- The factory shall hold a chemical management meeting attended by the company's senior management at least once a year to study and discuss the internal review results and the improving plan of chemical management, track the KPI of chemical management and evaluate chemical managers and their works;
- Key performance indicators (KPIs) should be developed to measure the performance of chemical management in the factory and to indicate the improvement or worsening of chemical management.

2 化学品管理基本框架的构建——实施阶段

The construction of framework of chemical management_ Do Phase

SOP: Standardized operation process

Example 5: Assessment, approval and procurement process of chemicals

- The needs and technical requirements of chemical procurements of the company are put forward by the production department and the procurement department is responsible for purchase;
- The procurement department should request a safety data sheet (SDS) that meets GHS requirements from the chemical supplier;
- The procurement department should know the manufacturer's information of the purchased chemicals, including the name and address of the manufacturer, the production date and batch number of the purchased products;
- The procurement department should fully consider the needs of the user departments. The purchased chemicals should meet the requirements of production and use. At this stage, the suppliers can be required to provide an appropriate amount of samples for testing;
- The procurement department shall preliminarily estimate whether the chemical contains hazardous substances listed in RSL and MRSL according to the information provided in safety data sheet;
- The procurement department shall identify whether the chemical belongs to hazardous chemicals according to the information provided in the safety data sheet and the list of hazardous chemicals;
- The procurement department shall require the chemical suppliers to send certification files to prove that the chemicals they provided do not contain hazardous substances. The types of certification files are self declaration or guarantee of the chemical manufacturer, the test report certification of the chemical provided;
- For new chemicals, the procurement department shall make a special evaluation form, submit evaluation results to chemical manager for approval after evaluating. The formal purchasing procedure will start after approval;

2 化学品管理基本框架的构建——实施阶段

The construction of framework of chemical management_ Do Phase

Example 6: Instrumentality documents of standardized operation process :

化学品评估和审批表

编号: _____ 制表人: _____ 制表日期: _____

化学品名称		型号	
生产商名称		生产商地址	
产品批次号		产品生产日期	
联系人		联系方式	

生产部门评估结果:

生产厂长签字

是否有 RSL 以及 MRSL 的禁用物质:

采购主管签字

化学品是否提供了证明材料:

采购主管签字

是否有危险化学品:

采购主管签字

评估审批结果:

1. 化学品清单

版本: 试用版

公司名称: ABC公司

联系人: 王伟

职位: 化学产品经理

邮箱地址: wei.wang@abc.com

填写日期: 2017年3月16日

报告期: 2017年2月

提示

指出Higg FEM 3.0, CM 1.6 (beta) 的要求项

关于如何填写的说明

所需信息的范例

注意: 不要合并单元格

必填

化学品名称 (英文)	化学品供应商名称 (英文)	化学品供应商类型	ZDHC 使用类型分类	现场数量	现场数量 (单位)	月用量	月用量 (单位)	是否有 MSDS/SDS ?	是否合规于最新版ZDHC MRSL?	ZDHC MRSL 合规性的支持文档	证书	证书过期日期	逆生
Higg FEM 3.0	Higg FEM 3.0		Higg FEM 3.0	Higg FEM 3.1	Higg FEM 3.2	Higg FEM 3.3	Higg FEM 3.4	Higg FEM 3.0	Higg FEM 3.0			(月, 日, 年)	(月)
		(使用下拉菜单选择)	(使用下拉菜单选择)	(输入数字)		(输入数字)		(使用下拉菜单选择)	(使用下拉菜单选择)			(月, 日, 年)	(月)
SERAGAL C-FTRH	DyStar Colours Distribution GmbH	原厂生产厂家	1.2.a. Bleaching	2000	kg	150	kg	有, 合规于GHS	是	GOTS 证书	GOTS, OEKO-TEX	GOTS: Dec 31, 2017; OEKO-TEX: Jun 30, 2018	01

2 化学品管理基本框架的构建——检查阶段

The construction of framework of chemical management_ Check Phase

Example 7: Internal review form of chemical management of a factory

日期：		
内审员：		
编号	检查项目	内
1	公司是否建立了化学品管理制度，并定期更新？	
2	公司是否组建了化学品管理团队？	
3	公司是否收集了必要的化学品管理的法律、法规、标准，并保证每半年更新一次？	
4	公司是否建立了关于化学品管理相关的标准作业流程？	
5	公司制定的化学品评估，审批，采购流程，及相关规定是否全面落实？	
6	公司制定的化学品入库，仓储，使用流程，及相关规定是否全面落实？	
7	公司是否给员工提供了必要的关于化学品安全使用的培训？	
8	公司是否为员工配备了必要的个人防护用品？	
9	公司是否准备了与工厂实际使用的化学品相一致的化学品清单？	
10	公司是否对化学品管理制订了可量化的关键绩效指标KPI，并监测KPI的变化？	

Example 8: Chemical management module of Higg



LEVEL 1

* 1. Does your facility keep an inventory of chemicals used and the suppliers of each chemical product?

Yes

A complete chemical inventory includes: chemical name and type, supplier/vendor name and type, Safety Data Sheet (SDS) data quantities, CAS number(s), lot numbers, MRSL compliance, purchase date, and expiration dates (if applicable). You will be awarded partial points if you track all chemicals in a partial inventory, you will be awarded partial points. Similarly, if you have a detailed inventory but do not

Check all types of chemicals included in the inventory:

* All chemicals used in manufacturing processes (including chemicals in production, reactants and additives applicable)

Yes

2 化学品管理基本框架的构建——整改行动阶段

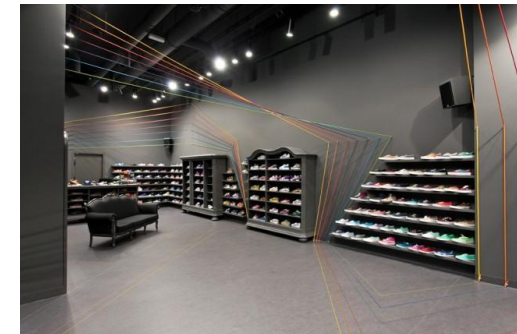
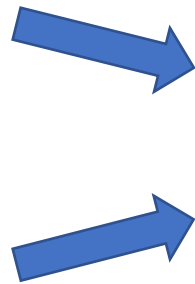
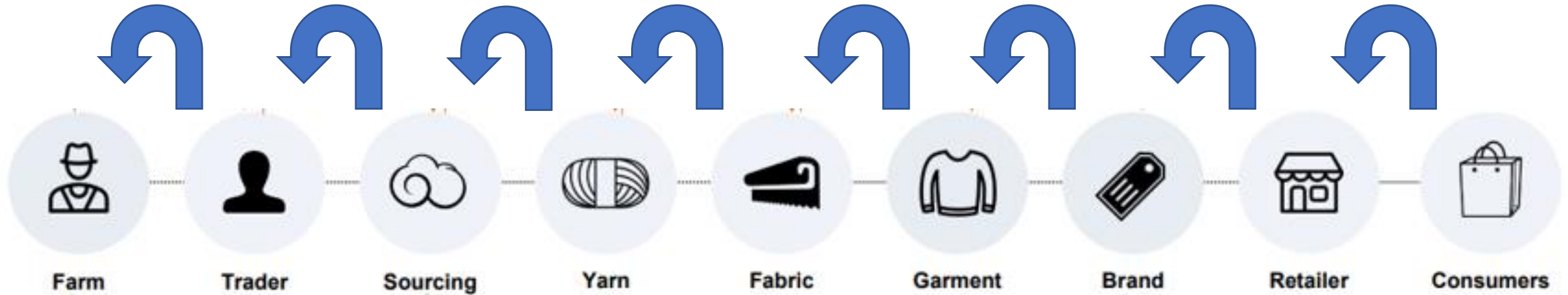
The construction of framework of chemical management_ **Action Phase**

Example 9: Unqualified aspects and improving measures of a factory

Unqualified aspects	Reasons	Corrective measures	Precautions	Person in charge
<p>The factory has built a hazardous waste warehouse, in which most hazardous waste can be stored. However, some empty chemical containers are stored in the open air at the waste gas treatment facilities while there are rainwater pipelines passing by. Thus, there is a risk of polluting rainwater on rainy days and after rain.</p>	<p><i>At present, as the factory is a new one, all the waste produced by the factory is directly transferred from the workshop to the hazardous waste warehouse. Due to the large amount of hazardous wastes produced every day and delay of workers, a small amount of hazardous wastes will be temporarily placed in the open air waiting for transfer.</i></p>	<p>The hazardous wastes are packed and fixed with drawing film to prevent liquid leakage. Hazardous wastes produced by every shift shall be transferred to the hazardous waste warehouse on the same day.</p>	<p>The factory safety personnel shall inspect the hazardous wastes that are not transported to the hazardous waste warehouse in time every day.</p>	

2 化学品管理基本框架的构建——追溯能力

The construction of framework of chemical management_ Traceability



2 化学品管理基本框架的构建——有害物质的识别能力

The construction of framework of chemical management_ Hazardous Substance Identification

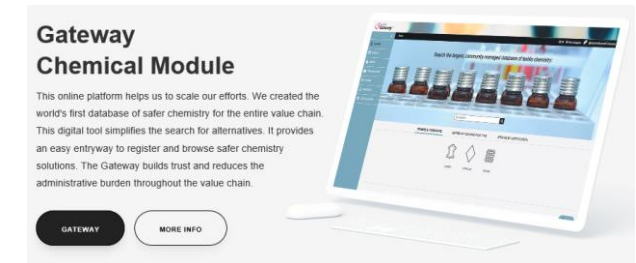
Basic ability:

The factory is able to fully understand the basic requirements of GHS-format SDS, obtain chemical SDS from chemical suppliers and judge whether necessary information is provided;



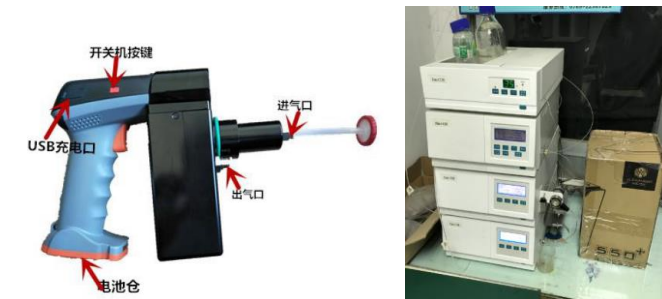
improved capabilities:

Grade chemicals by using database tools such as ZDHC chemical gateway;



Best ability:

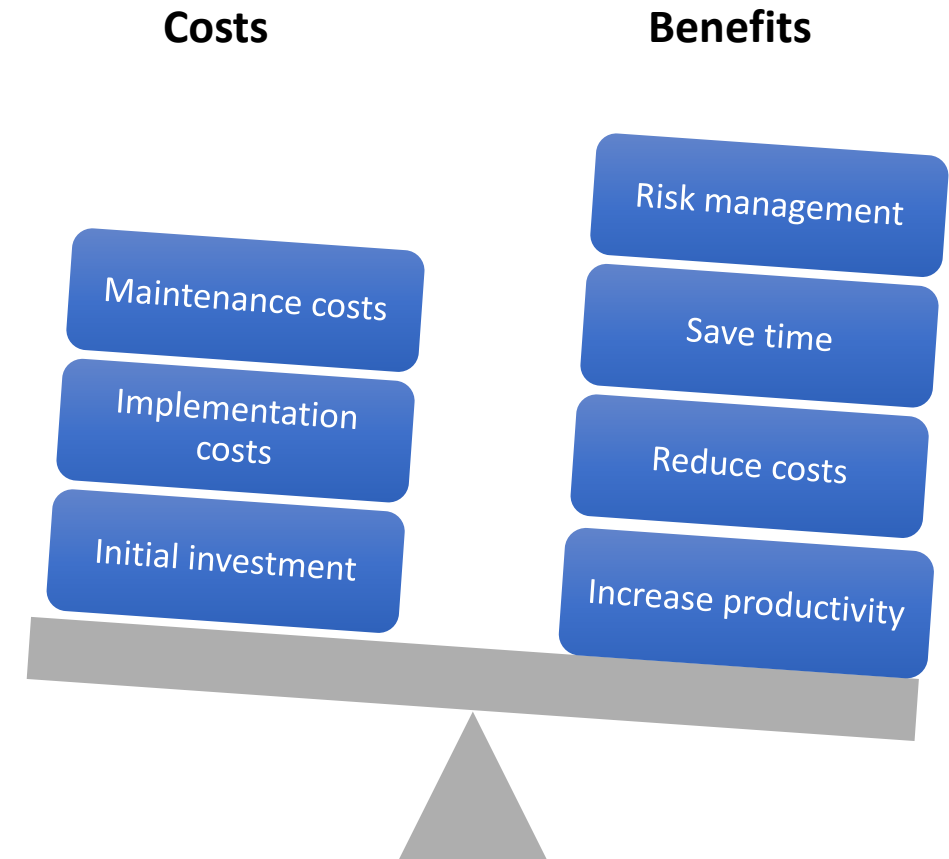
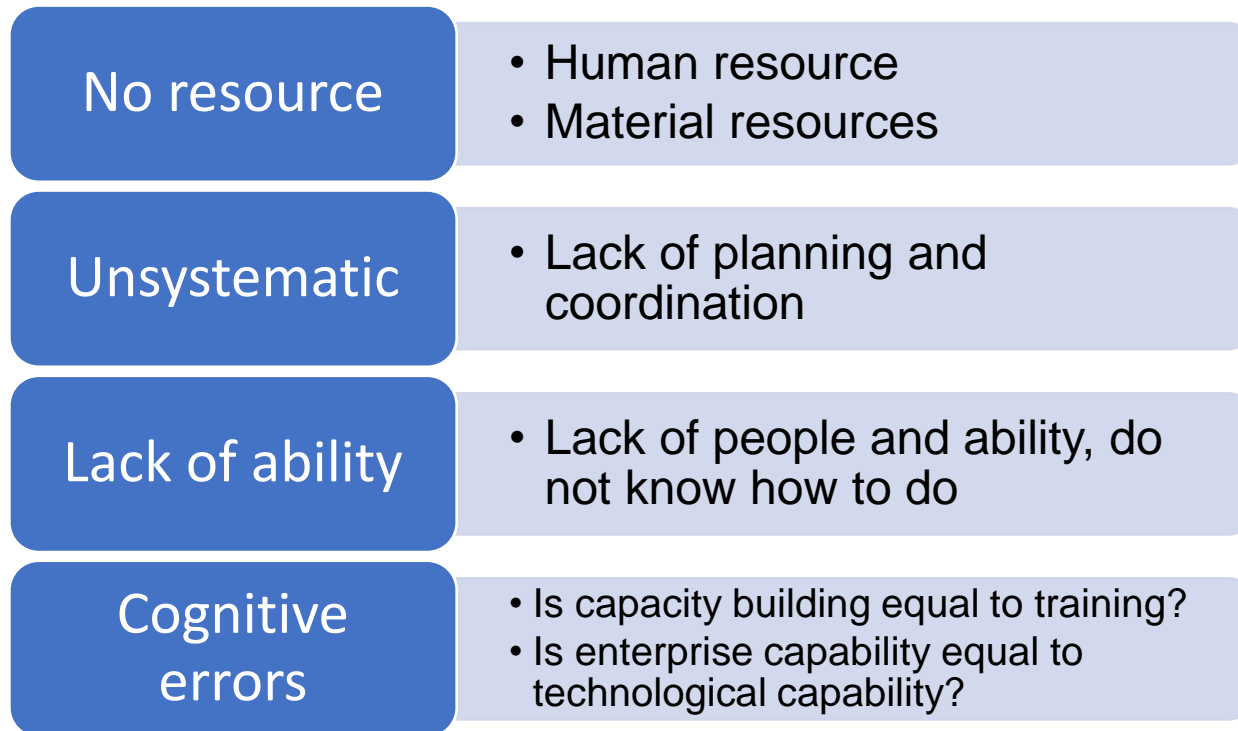
Have basic knowledge to analyze the sources of hazardous substances. The factory has purchased necessary analytical instruments to develop chemical analysis ability.



3 企业在落实化学品管理体系的常见问题

The common issues in implementation of the chemical management system

The responsibility of enterprise VS The value of enterprise existence

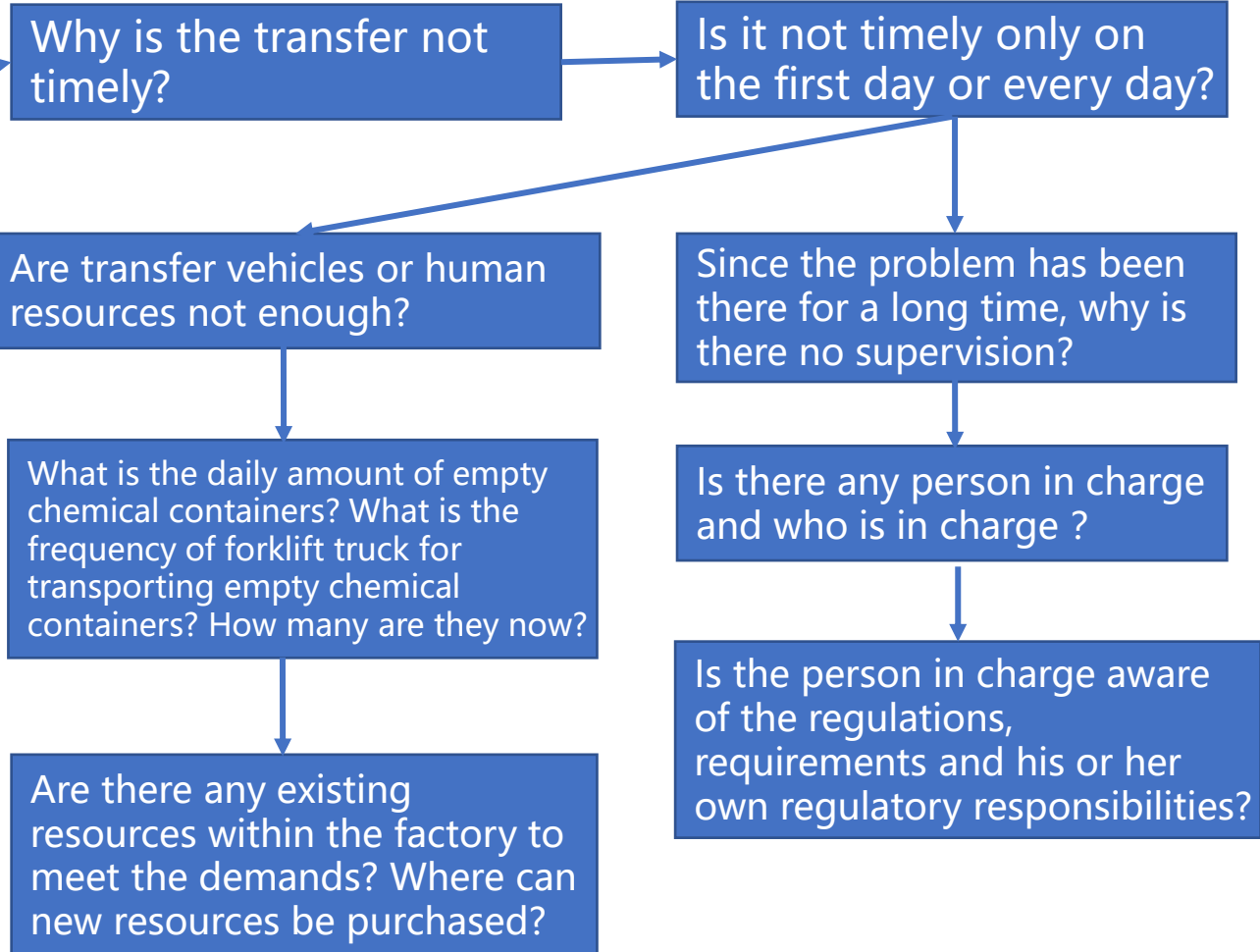


3 企业在落实化学品管理体系的常见问题

The common issues in implementation of the chemical management system

No resource

Unqualified aspects	Reasons
<p>The factory has built a hazardous waste warehouse, in which most hazardous waste can be stored. However, some empty chemical containers are stored in the open air at the waste gas treatment facilities while there are rainwater pipelines passing by. Thus, there is a risk of polluting rainwater on rainy days and after rain.</p>	<p>At present, as the factory is a new one, all the waste produced by the factory is directly transferred from the workshop to the hazardous waste warehouse. Due to the large amount of hazardous wastes produced every day and delay of workers, a small amount of hazardous wastes will be temporarily placed in the open air waiting for transfer.</p>



甩锅三连！



不是我



不怪我



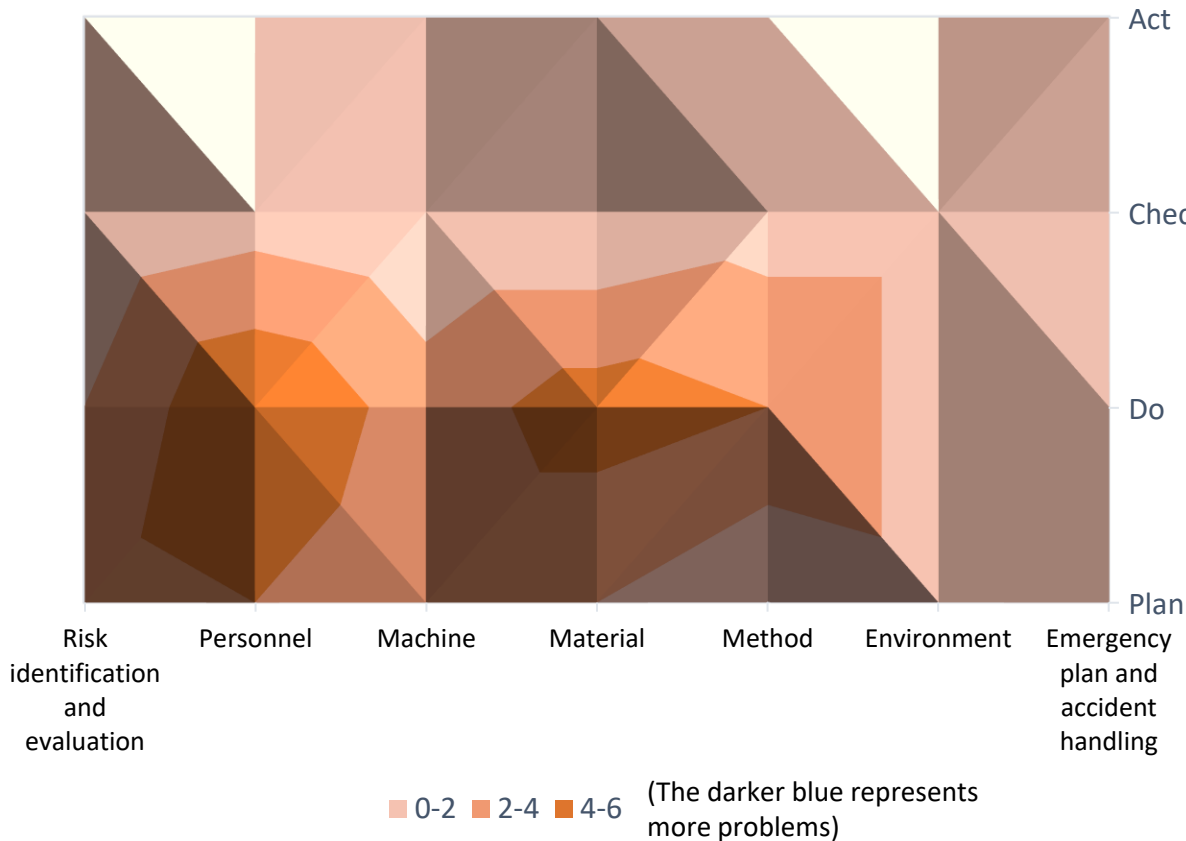
别瞎说啊

3 企业在落实化学品管理体系的常见问题

The common issues in implementation of the chemical management system

Unsystematic

Supplier A environmental problems cause analysis chart



Non-conformity root cause exploration



Non-conformity	Type	PDCA stage	Cause analysis
On May 11, 2020, the local environmental protection bureau identified during unannounced inspection that the VOCs in the exhaust gas outlet of the sprayed workshop of supplier A exceeded the standard by two times and imposed a fine of CNY 100k.	Personnel	Implement	EHS operating personnel pre-job training documents and training records are missing.
	Machine		The operating records of the exhaust gas treatment facility is missing.
	Material		The <i>Raw Materials List</i> does not contain the purchase record of activated carbon used as exhaust gas adsorbent.
	Method		Local VOCs emission standard is not included in the <i>List of Environmental Laws, Regulations and Standards</i> .

3 企业在落实化学品管理体系的常见问题

The common issues in implementation of the chemical management system

Lack of ability

key challenges

Believe that they are not well educated and lack self-confidence;

Away from the classroom for a long time and have weak knowledge base;

Regard learning as a burden and lack internal motivation;

Confused about the significance of training to themselves and to the factory;

have a loose and passive attitude but don't have good study habits;

Used to listen, but not to participate in discussions and interactive practice.

Solutions

Have clear objectives, go step by step;

Support and promotion from factory senior managers who should personally participate in the study;

Develop action plan tracking forms for factory and learning files for trainees;

After the training, an examination should be conducted. The results are linked to the performance appraisal and excellent students will be rewarded;

Interactive teaching with questions and answers to ensure that students pay close attention;

Use case analysis related to trainees' production activities and design exercises to solve practical problems;

Use verbal encouragement to cultivate self-confidence;

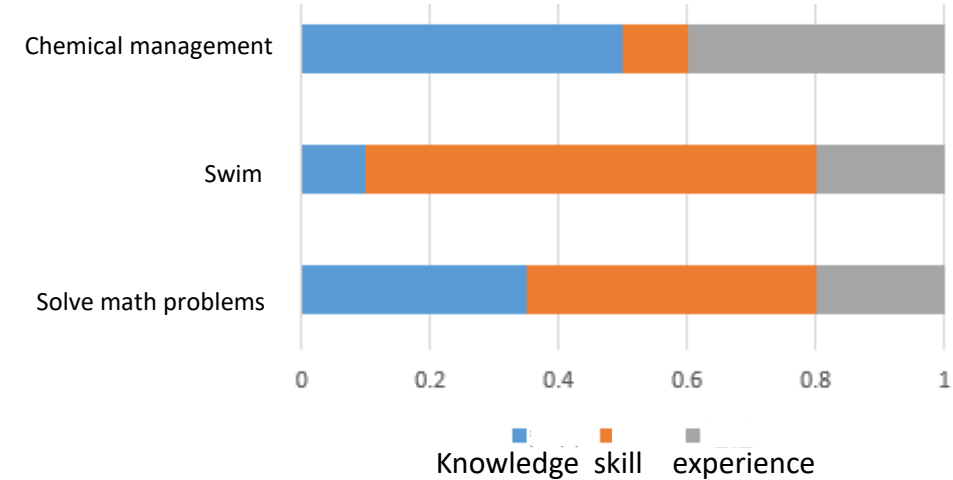
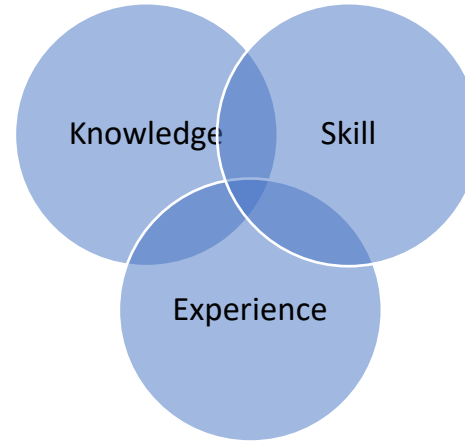
Issue training certificate to qualified trainees .

3 企业在落实化学品管理体系的常见问题

The common issues in implementation of the chemical management system

Cognitive errors

Question: what is the composition of chemical management ability?



Dynamic adaptability to quickly adapt to environmental changes

Innovation and development capabilities for transformation and upgrading

Standardized comprehensive management capabilities



Strategic planning and objective management abilities

Production and operation management abilities

Human resource management abilities

Technical quality management abilities

Market abilities

4 能力建设项目的作用和局限性

The function and limitation of the capacity building program

The role of capacity building program

- 1) Help the factory to improve the awareness of compliance for chemical management;
- 2) Help the factory establish a chemical management system;
- 3) Helped the factory train internal training lecturers;
- 4) Help the factory to better understand the chemical management and control requirements of international buyers and overseas markets;

Difficulties and limitations of capacity building program

- 1) Subjects' responsibility;
- 2) subjective activity;
- 3) Investment;
- 4) Implementation and routine management;
- 5) The changes of market environment;
- 6) The changes of regulation requirements;



Thanks and Q&A