



2018 CHINA PETROLEUM & CHEMICAL
INTERNATIONAL CONFERENCE

中国国际石油化工大会

2018年9月11-13日 中国·成都
September 11-13, 2018 Chengdu, China

迈入新时代 开创下一个未来
Defining the Future – 2030 & Beyond



化学品管理-应急和安全的 信息基础 Chemical Management-Substance information basement of emergency response and safety manufacturing

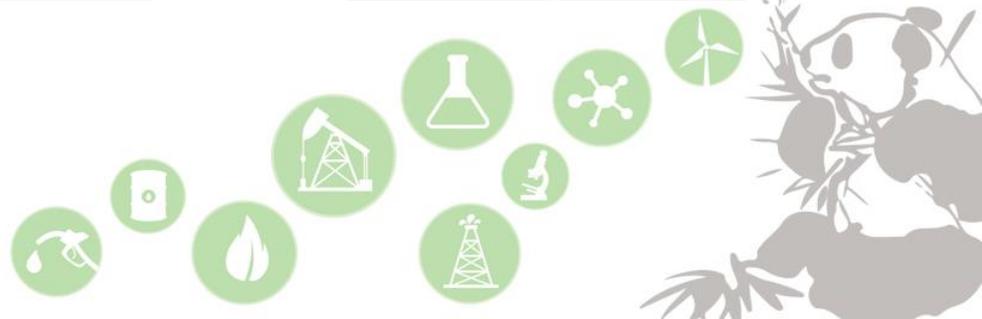
陈建 2018.9.12 成都

Nathan Chen 12th Sep. 2018 Chengdu





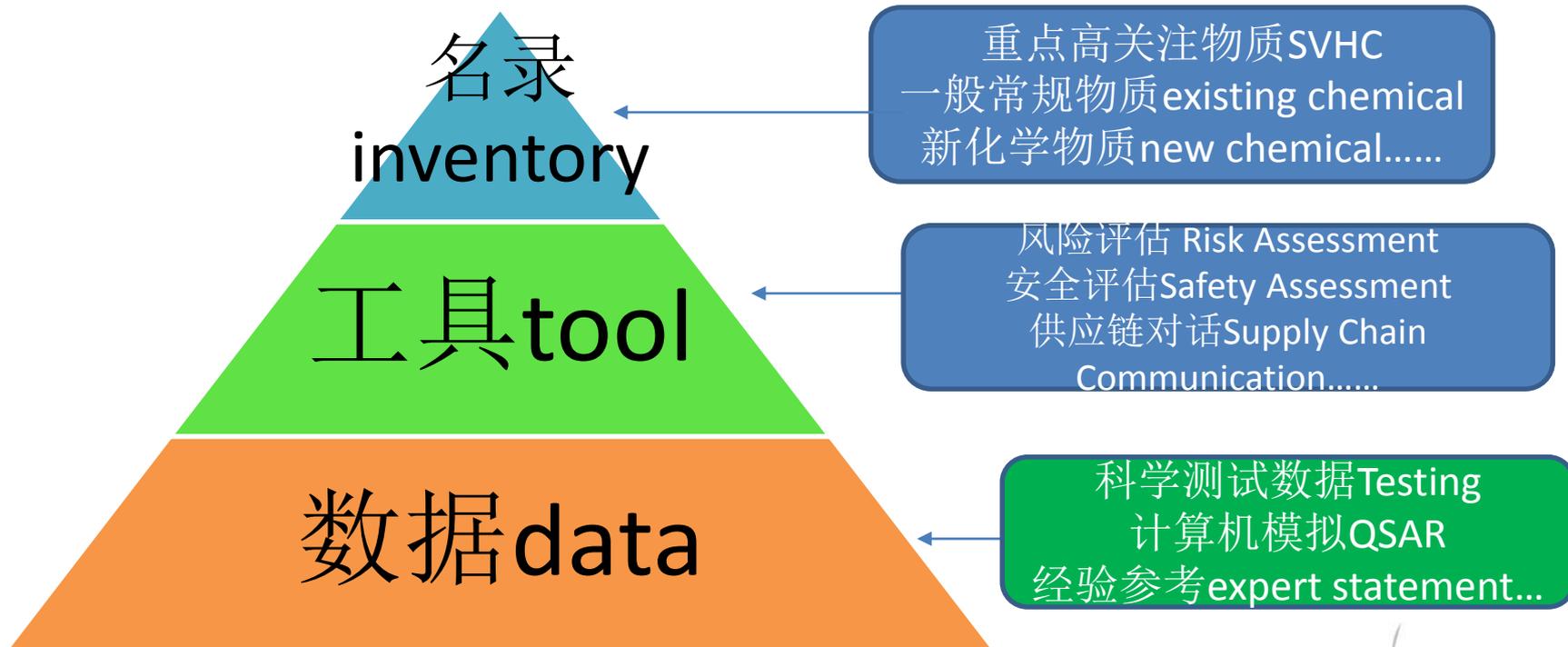
生活中的化学品
Chemical in our life



1. 化学品管理的内涵-concept of chemical management
2. 为何要进行化学品管理-why chemical management?
3. 案例介绍-case study 化学品管理在应急和安全的应用-
how to use chemical management information in the
emergency response and safety manufacture



化学品管理 Chemical management



为什么要进行化学品管理 Why chemical management

1. 预防化学品暴露-Prevent exposure
2. 将风险降至最低-Minimise risk

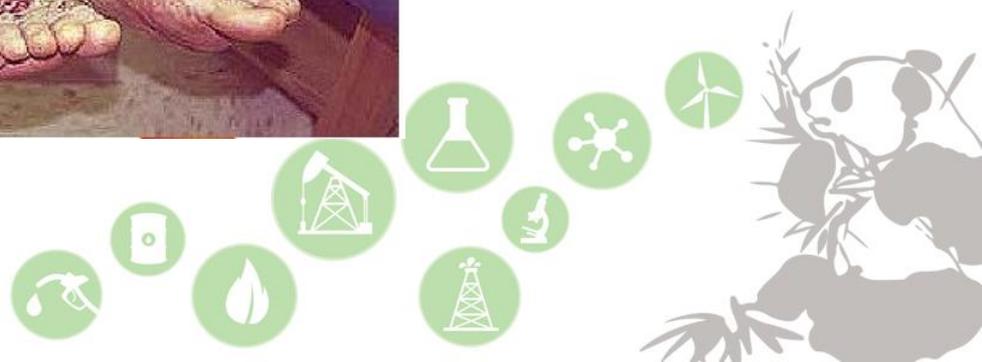
-
- **Substances presenting potential risks to health may be:** 潜在健康风险的物质
 - **single substances, e.g. sodium cyanide**
单一物质, 如: 氰化钠
 - **mixtures, e.g. waste liquors from a process** 混合物
如: 生产工艺废液
 - **impurities, e.g. benzene in petrol**
杂质, 如: 汽油中的苯
 - **by-products or decomposition products, e.g. dioxins from a poorly performing incinerator**
副产品或分解产物, 如: 焚化装置未充分燃烧产生的二氧(杂)芑
 - **Combined or sequential exposures may have :** 多种化学品暴露或连续化学品暴露可能导致
 - **independent effects** 单独后果
 - **additive effects** 附加后果
 - **synergistic effects** 相互作用



- Some examples why...
一些原因...



为何要风险评估
Why risk assessment



Trending →

Glyphosate >
Tattoo inks >
Bisphenol A >
Why are nanomaterials important? >
Are artificial football pitches safe? >
Infographics eurobarometer >
Combined effects of chemicals >
The problem with microplastics >
Chemicals in feminine hygiene products >

Products →

Know your electronics >
Clothes and textiles >
Chemicals in plastic products >
What about imported products? >
Chemicals in cosmetics >
Good to know about hair dyes >
Nano enhanced products >
Chemicals in cleaning products >
Food >
Finding safer products >
Nanomaterials in our life >

Health →

Chemicals that cause cancer >
Chemicals and allergies >
Endocrine disruptors and our health >
Fighting cancer using nanotechnology >
Nanomaterials and health >

Environment →

Chemicals in agriculture >
Effects on aquatic life >
Global warming and chemicals >

Work →

Read the labels >
Safety precautions and exposure >
Protect yourself >
What about safer alternatives? >
How to find out more about chemical safety at work >
Who is responsible? >
Nanomaterials at work >

Hints & Tips →

Understand the labels >
First aid in chemical exposure >
Alternatives to animal testing >
How are chemicals controlled >
Search for chemicals >
Use your right to know >
Chemicals and innovation >
Pictograms infographic >
Industry to register chemicals >



理解风险和危险-understanding Risk and Hazard
危险存在Hazards exist-产生风险risk are created

- **Hazard: 危险**
 - **the potential of a chemical to cause harm**
潜在可能导致化学品伤害
 - **relates to intrinsic properties of the chemical** 与化学品固有性质相关
 - **will always be the same** 危险总是相同
- **Risk: 风险**
 - **the likelihood of harm occurring under the actual circumstances of exposure**
在实际环境下发生化学暴露伤害的可能性
 - **function of *hazard* and *exposure*** 危险和暴露的作用
 - **The degree of risk depends on the severity and magnitude of the harm**
风险的级别取决于伤害的严重性和量级



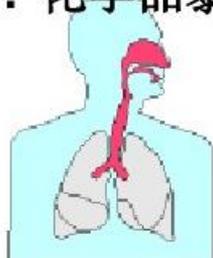
High Hazard 高危险



High Hazard – Low Risk 高危险 — 低风险



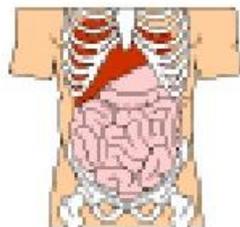
What are the main routes of exposure into the body? 化学品暴露进入体内主要途径?



A. Inhalation 吸入



B. Skin Contact 皮肤接触



C. Ingestion 摄取



D. Injection 注射



熟知化学品能够让我们处理应急和安全事件游刃有余
Acknowledge the chemical makes emergency response and safety
manufacturing more confident and stable.

化学品管理是理解化学品本质的关键
Chemical management is the key to know the nature of chemical
substance

实施基于化学品管理对应的措施和正确的处理方式
Implementing the chemical management based corresponding
measure and correct handling method.



案例介绍-Case study历史上的9月-September in history

1. 1999年9月2日，中国兵器工业集团八〇五厂TDI（甲苯二异氰酸酯）生产线光气室发生爆炸事故，造成3人死亡，8人轻伤，直接经济损失达4821.8万元。

事故的直接原因是光气室内甲苯解吸塔发生甲苯蒸气泄漏,使光气室内充满了达到爆炸极限的甲苯蒸气与空气的混合气体,由于光气室内电器线路短路或者甲苯蒸气喷射产生静电火花,将该爆炸性混合气体点燃,使光气室内发生了爆炸。



2. 2011年9月13日，江西江维高科股份有限公司有机分厂醇解工段四楼发生爆炸，造成3人死亡、3人受伤，经济损失230余万元。

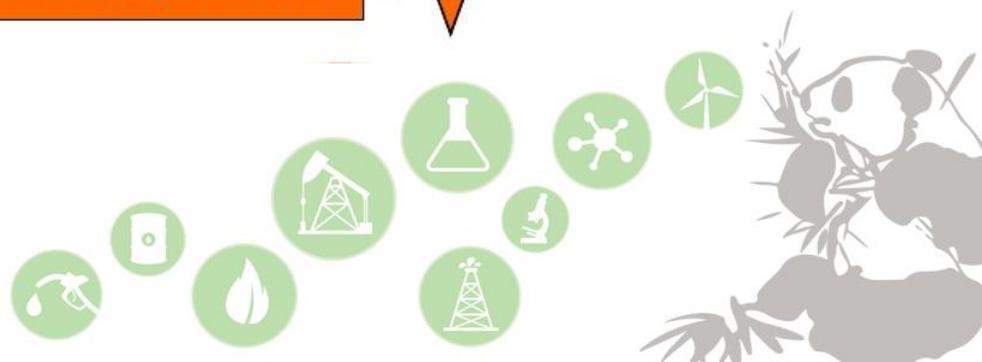
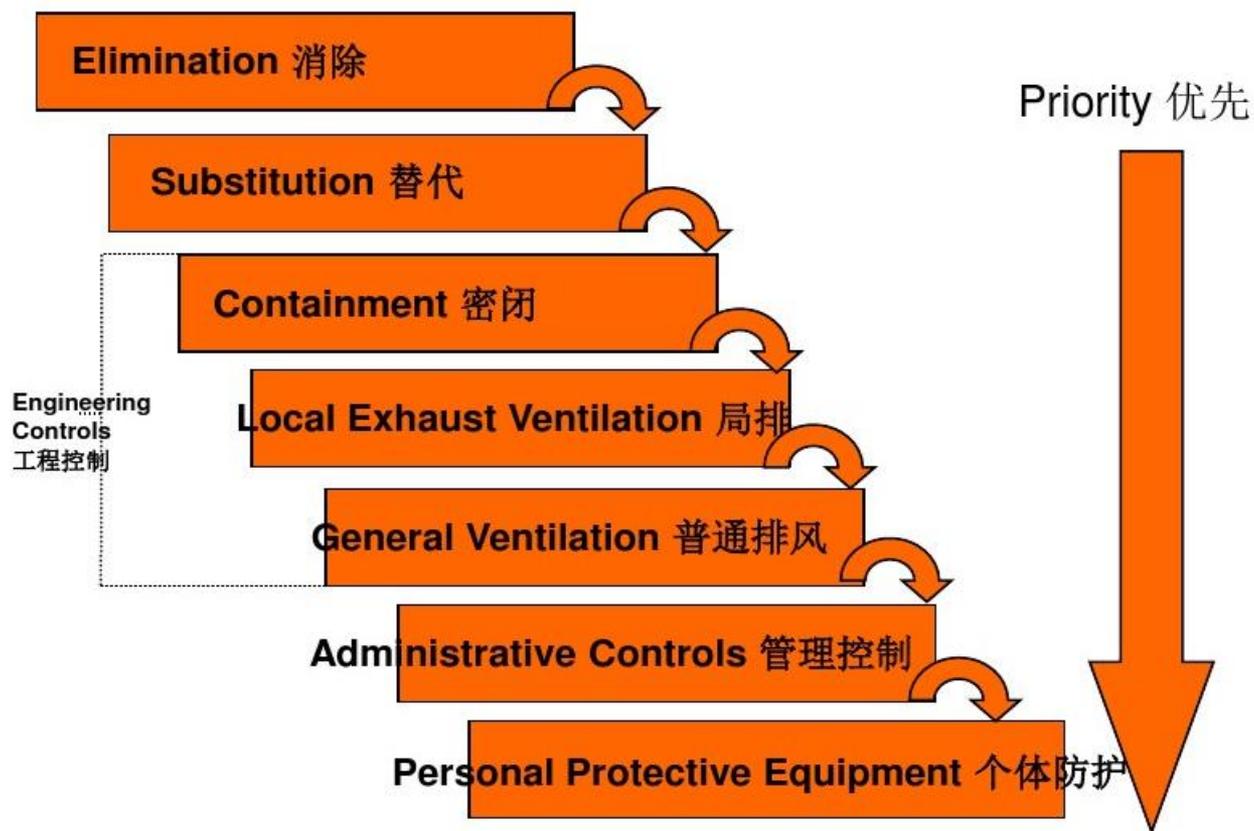
事故的直接原因是甲醇和聚醋酸乙烯等原料没有经过充分搅拌和充分反应，甲醇在醇解机内挥发，与打开人孔而进入的空气混合，形成爆炸性混合气体。操作工为清空醇解机内反应不好的废料，打开人孔，用铁钩将料钩出并用铁锯割开，铁钩、铁锯与醇解机人孔壁碰撞产生火花，点燃爆炸性混合气体，发生爆炸。



3. 2016年9月20日，万华化学集团股份有限公司烟台工业园二苯基甲烷二异氰酸酯(MDI)生产装置一容积为12m³的粗MDI缓冲罐发生爆裂，造成4人死亡，4人受伤。

事故的直接原因是：在停车退料过程中用氯苯对系统进行洗涤时，由于二氨基二苯基甲烷（DAM）泵出口管线上的手阀未关严，导致约8吨DAM进入MDI缓冲罐。DAM和MDI反应生成缩二脲和多缩脲，同时放出大量热量，反应生成物堵塞缓冲罐出料泵入口过滤器致使事故储罐液位上升至满罐并堵塞罐上方的收液管道及压力平衡管。反应放出的热量使事故储罐内温度不断升高，致MDI自聚并产生大量二氧化碳，事故储罐内压力不断升高，最终超压爆裂。





谢谢聆听！

Thank you for your attention!

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