U.S.-China Standards and Conformity Assessment Cooperation Program

The United States Trade and Development Agency (USTDA)

美国贸易开发署(USTDA)

中国-美国标准与合格评定合作项目(SCACP)

U.S-China Inter-modal Hazardous Materials Handling Seminar

中美危险品储运安全研讨会

主办单位/Sponsors：

美国贸易发展署

The United States Trade and Development Agency

中国交通运输部

Ministry of Transport, The People's Republic of China

支持单位/In Partnership with：

美国驻华大使馆商务处

The United States Department of Commerce Commercial Service, U.S. Embassy

承办单位/Organizers：

北京物资学院

Beijing Wuzi University

美国国家标准协会

American National Standards Institute

April 26-27, 2016, Beijing

2016年4月26-27日，北京

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会议议程

U.S. – China Inter-modal Hazardous Materials Handling Seminar

中美危险品储运安全研讨会-日程

April 26-27, 2016 Beijing
2016 年 4 月 26-27 日，北京

Tuesday, April 26, 2016	**Inter-modal Hazardous Materials Handling Seminar**
会议地点/Meeting Venue	Beijing Wuzi University, No. 1 Fuhe Street, Tongzhou District, Beijing 北京物资学院，中国北京通州区富河大街 1 号 崇德楼一层报告厅/ Main Hall, Level One, Chongde Building
开幕式/Opening Remarks	主持人/Moderator to open the session: 中国交通部安全与质量司处长杜永东/ Mr. Du Yongdong, from Safety and Quality Department of China Ministry of Transportation MOT
9:30-9:40	中国交通部安全与质量司副司长黄勇致欢迎词/ Welcome remarks by Deputy Director General Huang Yong from Safety and Quality Department of Ministry of Transport
9:40-9:50	美国驻华大使馆何为商务领事致开幕词/U.S. Embassy Principal Commercial Officer Val Huston Opening remarks
9:50-10:00	北京物资学院翁心刚副院长致欢迎词 / Welcome Remarks by Mr. WengXingang, Vice President of Beijing Wuzi University
10:00-10:10	美国贸易发展署东亚区经理詹贻琛致欢迎词/ Welcome remarks by USTDA Country Manager for East Asia Ms. Susan Chan Shifflett
议题一 / SessionOne:	**危险品的运输与物流 /Hazardous Materials Transportation and Logistics**
10:10-10:15	主持人/Moderator to open the session: 李令遐教授，美国奥多明尼昂大学斯特姆商学院信息和决策科学系主任 / Professor Ling Li, PhD, Chair of the Department of Information Technology and Decision Sciences, Old Dominion University, USA
10:15-10:35	吴金中，交通运输部公路科学研究院交通物流工程研究中心 / Mr. Wu Jinzhong, Transportation and Logistics Engineering Center, Research Institute of Highway, Ministry of Transport • 中国在危险品运输与物流方面的现状与挑战 / Challenges and current situation of China Hazardous Materials Transportation and Logistics

10:35-10:55	郝咨乐总经理，SAFECHEM 公司- 陶氏化学公司全资子公司/ Manfred Holzleg, Managing Director, SAFECHEM Europe GmbH, a subsidiary of the Dow Chemical • 陶氏 SAFECHEM——安全运输、储存及装卸有害化学材料的解决方案 / The SAFECHEM solution for safe transport, storage, and handling of hazardous chemical materials
10:55-11:15	**茶歇/ Coffee Break**
11:15-11:35	李令遐教授，美国奥多明尼昂大学斯特姆商学院信息和决策科学系主任/Professor Ling Li, PhD, Chair of the Department of Information Technology and Decision Sciences, Old Dominion University, USA • 美国危险物品运输相关事故数据分析及反思 / Data Analytics on Transport Related Accidents of Dangerous Goods in the US
11:35-11:55	Panel Discussion / Q&A 小组讨论/ 问答环节
议题二 / Session Two:	**危险品的储运安全管理 / Hazardous MaterialsManagement and Storage**
11:55-12:00	主持人/ Moderator to open the session: Guy R. Colonna, 美国国家消防协会部门主任 / Guy R. Colonna, Division Director, National Fire Protection Association (NFPA)
12:00-12:20	谢天生，交通运输部水运科学研究院港航安全研究中心主任 / Mr. Xie Tiansheng, Director of Port and Shipping Safety Center, Water Transport Institute, Ministry of Transport • 中国危险品储运方面的现状与挑战 / Challenges and current situation of China Hazardous Materials Management and Storage
12:20-14:00	**自助午餐/ Lunch**
14:00-14:30	韩启明, 美国杜邦公司，危险品的安全实践顾问/Qiming Han, Consultant of DuPont Safety Management Practice for Hazardous Material • Safety Training for enterprise staffs 企业员工安全培训 • How to break down the internal safety management responsibility to implement 企业内部安全管理责任制如何分解落实 • Security Risk classification management/安全风险分级管理 • Basic management data set-up and collecting 基础管理数据的设置与收集 • Risk Control methodology implementation 风险控制

	• Driver safety behavior Changing by special program 改变驾驶员安全习惯的特殊项目 • Process Procedure re-build and Solidification 重建与巩固过程中的程序 • System self-improvement 系统自动升级
14:30-14:50	Guy R. Colonna, 美国国家消防协会部门主任 / Guy R. Colonna, Division Director, National Fire Protection Association (NFPA) 危险化学品安全管理标准的一致性 / Consensus Standards for Hazardous Chemical Materials Safety Management , NFPA • Chemical classification, chemical storage, handling, and use (illustrate by case studies, like West, TX)化学品的分级，储存，处置与使用（美国德克萨斯州案例分析） • Emergency planning and preparedness (it's part of NFPA 400 for example and could be highlighted) 应急计划与准备（美国国家消防协会 400 计划中的一部分） • Emergency response (reference 472 for different types of incidents, including multi-modal; additional response standards would include NFPA 1072, 1620, 1981, and 1994) 应急反应（根据不同事件，参考 472，包括多种形式和增加的反应机制标准）
14:50-15:05	**Coffee Break 茶歇**
议题三 / Session Three:	**危险品的检测与监控 / Hazardous Materials Detection and Supervision**
15:05-15:10	主持人/ Moderator to open the session: 段晓瑞，中国交通运输部水运科学研究院安全与应急中心水运安全评审中心主任/ DuanXiaorui, Director of Water Transportation Safety Evaluation Center, Ministry of Transport
15:10-15:30	吴金中，交通运输部公路科学研究院交通物流工程研究中心 / Mr. Wu Jinzhong, Transportation and Logistics Engineering Center, Research Institute of Highway, Ministry of Transport • 中国在危险品检测与监控方面的现状与挑战 / Challenges and current situation of China Hazardous Materials Detection and Supervision
15:30-16:00	柴小舟, 大中华区副总裁兼总经理, 霍尼韦尔传感与生产力解决方案 / Gaven Chai, VPGM Greater China, Honeywell Sensing and Productivity Solutions • 霍尼韦尔危险化学品监管解决方案/ Honeywell solutions on hazardous chemical supply chain

16:00-16:30	王肖梅, GHS 合规事务部法规技术主管, 瑞欧咨询公司美国分公司 /Sunny Wang,Technical Director and Senior Regulatory Expert, REACH24H USA 美国关于小包装危险货物运输的法规要求 / Requirements for Shipping Dangerous Goods Packed in Small Quantities in the USA • Introduction to the UN Model Regulations on LQ/EQ exemptions 联合国危货运输规章范本中有限数量和例外数量, 豁免制度介绍 • Shipping LQ/EQ in the USA 美国有限数量/例外数量运输规则 • ORM-D Consumer CommoditiesORM-D 消费品
16:30-16:50	Panel Discussion / Q&A 小组讨论/ 问答环节
17:10-18:10	**晚餐/ Dinner**
Wednesday, April 27, 2016	**Inter-modal Hazardous Materials Handling Seminar**
议题四 / Session Four:	**危险品在航空领域的运输 / Hazardous Materials Transportation through Civil Aviation**
9:00-9:05	主持人/ Moderator to open the session: 郭陶然，美国危险货物管理研究院中国代表、法规专家 / Terry Guo, China Representative, Institute of Hazardous Materials Management (IHMM)
9:05-9:25	李玉红，中国民航局民航科学技术研究院高级工程师/Ms. Li Yuhong, Senior Engineer, Science and Technology Center, Civil Aviation Administration of China 民航领域危险品运输领域当前情况与挑战 / Challenges and current situation of China Hazardous Materials Transportation through Civil Aviation
9:25-9:45	Robert Mcclelland 先生，美国联合包裹服务公司航空危险货物部门总监 / Mr. Robert Mcclelland, Director of UPS Airlines Dangerous Goods • UPS 危险货品小型包裹运输流程 / UPS Small Package Dangerous Goods Shipping Process • UPS 航空消防安全提升方案 / UPS Airlines Fire Safety Enhancements
9:45-10:05	郭陶然，美国危险货物管理研究院，法规专家，中国代表 / Terry Guo, Regulatory Specialist, China Representative, Institute of Hazardous Materials Management (IHMM) • 美国危险品查验以及危险品货物在不同运输方式间运输衔接等方面的经验和实践 / US experience and best practice when

	checking hazardous materials and how to deal with hazardous materials between different transportation modes. • 美国交运与接收危险品的法规要求/US regulatory requirement on offering and accepting Hazmat Shipment • 美国发货人如何准备危险货物/US Shipper’s practices on preparing Hazmat shipments. • 美国承运人如何接收和检查危险品/US Carrier’s Practices on Accepting and Inspecting Hazmat Shipment • 不同交通方式危险品运输的思考：空运 vs. 海运；国内 vs. 国际 /Some concerns towards Hazmat shipments in different Transportation modes: Air vs. Vessel; Domestic vs. International etc.
10:05-10:20	Coffee Break 茶歇
10:20-10:40	Panel Discussion / Q&A 小组讨论/ 问答环节
总结发言 / Closing Remarks	
10:40-10:50	中国交通部总结发言 / MOT Closing Remarks
10:50-11:00	美国贸易发展署、美国驻华大使馆商务处总结发言 / USTDA & U.S. Embassy Beijing Commercial Section Closing Remarks

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Sponsor and Organizer Overview

主办单位介绍

U.S.-China Standards and Conformance Cooperation Program

Sponsored by the U.S. Trade Development Agency (USTDA) and coordinated by the American National Standards Institute (ANSI), the **U.S.-China Standards and Conformance Cooperation Program** (SCCP) provides a forum through which U.S. and Chinese industry and government representatives can:

- Cooperate on issues relating to standards, conformity assessment, and technical regulations;
- Foster the relationships necessary to facilitate U.S.-China technical exchange on standards, conformity assessment, and technical regulations; and
- Exchange up-to-date information on the latest issues and developments relating to standards, conformity assessment, and technical regulations.

Beginning in 2013, ANSI will coordinate 20 workshops over a 3-year period in China under the SCCP. The workshops will cover a wide range of sectors, as proposed by interested U.S. private-sector organizations. Workshop topics will be chosen in coordination with relevant industry associations, ANSI, and USTDA.

To learn more about the U.S.-China SCCP or to express interest in sponsoring or participating in a workshop, please visit our website at:

www.standardsportal.org/us-chinasccp

FOR MORE INFORMATION
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美中标准与合格评定合作项目

由美国贸易发展署 (USTDA) 提供资助、美国国家标准协会 (ANSI) 负责协调的美中标准与合格评定合作项目 (SCCP) 在以下几个方面为美国和中国相关行业和政府代表提供了一个论坛：

- 在标准、合格评定以及技术法规等领域的合作；
- 为促进美中在标准、合格评定以及技术法规等领域的技术交流建立必要的联系；
- 及时交流关于标准、合格评定以及技术法规等领域的最新议题和发展情况的相关信息

根据 SCCP 项目规定，从 2013 年开始的三年内，ANSI 将在中国协调举办20场研讨会。根据美国私营业界相关组织的建议，研讨会内容将覆盖不同的行业和领域。研讨会的主题将由相关行业组织、ANSI 以及 USTDA 协调选定。

欲了解该项目的更多情况或有意赞助或参与该项目，请访问下列网站：

www.standardsportal.org/us-chinasccp

了解其他信息，请联系

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American National Standards Institute (ANSI)

As the voice of the U.S. standards and conformity assessment system, the American National Standards Institute (ANSI) empowers its members and constituents to strengthen the U.S. marketplace position in the global economy while helping to assure the safety and health of consumers and the protection of the environment.

The Institute oversees the creation, promulgation and use of thousands of norms and guidelines that directly impact businesses in nearly every sector: from acoustical devices to construction equipment, from dairy and livestock production to energy distribution, and many more. ANSI is also actively engaged in accrediting programs that assess conformance to standards – including globally-recognized cross-sector programs such as the ISO 9000 (quality) and ISO 14000 (environmental) management systems.

ANSI has served in its capacity as administrator and coordinator of the United States private sector voluntary standardization system for more than 90 years. Founded in 1918 by five engineering societies and three government agencies, the Institute remains a private, nonprofit membership organization supported by a diverse constituency of private and public sector organizations.

Throughout its history, ANSI has maintained as its primary goal the enhancement of global competitiveness of U.S. business and the American quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems and promoting their integrity. The Institute represents the interests of its nearly 1,000 companies, organization, government agency, institutional and international members through its office in New York City, and its headquarters in Washington, D.C.

美国国家标准协会（ANSI）

American National Standards Institute（ANSI——美国国家标准协会）是由公司、政府和其他成员组成的自愿组织，负责协商与标准有关的活动，审议美国国家标准，并努力提高美国在国际标准化组织中的地位。ANSI 是 IEC 和 ISO 的 5 个常任理事成员之一，也是 4 个理事局成员之一，参加 79%的 ISO/TC 的活动，参加 89%的 IEC/TC 活动。ANSI 是泛美技术标准委员会（COPANT）和太平洋地区标准会议（PASC）的成员。

美国国家标准学会（American National Standards Institute: ANSI）成立于 1918 年。当时，美国的许多企业和专业技术团体，已开始了标准化工作，但因彼此间没有协调，存在不少矛盾和问题。为了进一步提高效率，数百个科技学会、协会组织和团体，均认为有必要成立一个专门的标准化机构，并制订统一的通用标准。1918 年，美国材料试验协会（ASTM）、与美国机械工程师协会（ASME）、美国矿业与冶金工程师协会（ASMME）、美国土木工程师协会（ASCE）、美国电气工程师协会（AIEE）等组织，共同成立了美国工程标准委员会（AESC）。美国政府的三个部（商务部、陆军部、海军部）也参与了该委员会的筹备工作。1928 年，美国工程标准委员会改组为美国标准学会（ASA）。为致力于国际标准化事业和消费品方面的标准化，1966 年 8 月，又改组为美利坚合众国标准学会（USASI）。1969 年 10 月 6 日改成现名：美国国家标准学会（ANSI）。

美国国家标准学会是非赢利性质的民间标准化组织，是美国国家标准化活动的中心，许多美国标准化学协会的标准制修订都同它进行联合，ANSI 批准标准成为美国国家标准，但它本身不制定标准，标准是由相应的标准化团体和技术团体及行业协会和自愿将标准送交给 ANSI 批准的组织来制定，同时 ANSI 起到了联邦政府和民间的标准系统之间的协调作用，指导全国标准化活动，ANSI 遵循自愿性、公开性、透明性、协商一致性的原则，采用 3 种方式制定、审批 ANSI 标准。

ANSI 现有工业学、协会等团体会员约 200 个，公司（企业）会员约 1400 个。领导机构是由主席、副主席及 50 名高级业务代表组成的董事会，行使领导权。董事会闭会期间，由执行委员会行使职权，执行委员会下设标准评审委员会，由 15 人组成。总部设在纽约，卫星办公室设在华盛顿。

The Dow Chemical Company

SAFECHEM Europe GmbH was founded in 1992 and is a wholly owned subsidiary of The Dow Chemical Company. SAFECHEM is an experienced provider of services and solutions related to the safe and sustainable use of solvents for high quality dry cleaning and metal cleaning. Committed to the principles of Responsible Care®and Product Stewardship, SAFECHEM develops innovative business models and services to optimize the balance between ecology, economy and social responsibility. Therefore, the company has received several recognitions from organizations such as the United Nations Industrial Development Organization (UNIDO), the United Nations Environmental Programme (UNEP) and the German Ministry for the Environment as well as from the World Wide Fund For Nature (WWF). SAFECHEM is seen as best practice example for driving Circular Economy. With offices in Düsseldorf and Paris, SAFECHEM serves in close cooperation with a network of responsible distributors over 8,000 customers world-wide.

Trade Mission Goals:

SAFECHEM helps metal cleaning customers in China to improve the quality and efficiency of the production process as well as workers safety and the company's environmental profile by optimizing the cleaning process. The complete, innovative solution consists of high performance solvents, a full range of services and a system for active risk management including a proven transport- and storage system. This mission will help us to

- Learn more about the regulatory framework in China
- Establish new relationships
- Introduce the SAFECHEM business model as solution to the environmental and the metal cleaning industry´s challenges

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陶氏化学公司

SAFECHEM 公司由陶氏化学公司创建于 1992 年，目前是其全资子公司。SAFECHEM 以其丰富的经验为高品质干洗与金属清洗溶剂的安全和可持续应用提供相关的服务与解决方案。SAFECHEM 遵守其对于责任关怀®与产品安全监管原则的承诺，开发了创新性的业务模式与服务用以优化生态性、经济性与社会责任之间的平衡。本公司因此受到了诸多国际组织的嘉奖，诸如联合国工业发展组织（UNIDO）、联合国环境规划署（UNEP）、德国环保部以及世界自然基金会（WWF），被视为推动循环经济的最佳实例。SAFECHEM 以德国杜赛尔多夫市和法国巴黎市为业务基地，通过其有效的分销网络向全球超过 8000 家用户提供服务。

贸易代表团使命与目标:

SAFECHEM 在中国通过优化工艺来帮助金属清洗用户改进其生产工艺的质量与效率以及职业安全和企业的环保水平。其解决方案由高性能溶剂、全方位服务和成熟的风险主动管理系统（包括运输到储存）组成，独具完备性和创新性。我们的使命为：

- 加深对于中国环保法规框架的了解
- 建立物流与用户间新型合作关系
- 在中国引进 SAFECHEM 业务模式，将其作为应对环保与金属清洗行业挑战的解决方案

陶氏化学公司（The Dow Chemical Company）

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SAFECHEM 欧洲公司（SAFECHEM Europe GmbH）

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Institute of Hazardous Materials Management

Hazardous Materials Management is an increasingly important issue throughout the world. Over 16,000 homeland security, environmental protection, engineering, health sciences, transportation, and public safety professionals have earned IHMM's accredited Certified Hazardous Materials Manager (CHMM) credential. IHMM also administers a growing contingent of Certified Hazardous Materials Practitioners (CHMP) and the Certified Dangerous Goods Professionals (CDGP):

- CHMMs are professionals who provide proper controls for material handling, transportation, and security throughout the life cycle of hazardous materials, from design and production through storage, recycling, and ultimate disposal. They apply scientific knowledge, engineering technologies, and best management practices in compliance with all regulatory requirements.
- CHMPs are professionals experienced in handling hazardous materials in a wide variety of specialties, such as environmental protection, emergency response, safety, transportation, and security. CHMPs have experience in packing, shipping, tracking or securing hazardous articles; responding to spills; and/or cleaning up contaminated sites.
- CDGP are professionals who possesses the knowledge and skills appropriate for safely and efficiently dealing with the transportation and security of hazardous materials and dangerous goods. CDGPs have experience coordinating proper land, sea, or air transportation of dangerous goods, explosive ordnance disposal (EOD), or management of oil field production wastes, to name a few practice areas. The CDGP maintains familiarity with best practices as well as regulations, as established by the UN Recommendations on the Transport of Dangerous Goods, the International Civil Aviation Organization's Technical Instructions (ICAO TI), and the International Maritime Organization's Dangerous Goods Code (IMDG Code).

The Institute of Hazardous Materials Management is committed to impartiality and objectivity in every aspect of operation. IHMM implements policies and procedures in a fair manner among all applicants, candidates and certified individuals. IHMM's processes and procedures are governed by its Bylaws and Management Systems Manual.

Institute Vision and Mission

Vision Statement: IHMM competency standards, accredited credentials, and certification programs are acknowledged, accepted, and endorsed globally.

Mission Statement: IHMM develops professional standards for certification and administers and promotes accredited certification programs for individuals who practice the management of hazardous materials and dangerous goods in the environmental, safety, health and transportation fields.

危险货物管理研究院

危险货物管理是全世界日益重要的问题。超过 16,000 国土安全，环境保护、工程、健康科学、交通和公共安全专业人员获得了 IHMM 的危险货物认证经理 (CHMM)证书。IHMM 还组织管理了不断增长的危险货物从业人员认证 (CHMP) 和危险货物专业人士认证（CDGP）：

- CHMMs 是在危险货物完整周期，从设计，生产，通过存储、回收和最终处理提供正确的物料搬运、运输和安全的专业人士。他们运用科学知识、工程技术和最佳管理方法达到符合法规的监管要求。
- CHMPs 专业人士在处理危险货物过程中在更多的领域有广泛的知识，如环境保护、应急响应、安全运输和安保的经验。CHMPs 有经验在包装、运输、跟踪或确保危险物品；针对溢出和受污染场地清理。
- CDGPs 专业人士具有安全有效地处理运输危险货物和危险品安全的恰当知识和技能。CDGPs 有，例如协调陆运、海运或空运危险货物、爆炸物处理 (EOD)或管理油田生产废物，等实践领域的经验。CDGPs 人士熟悉业界的最佳实践以及相关的联合国危险品运输橙皮书法规，国际民航组织技术细则(ICAO/TI)和国际海事危险品规则(IMDG Code)。

危险材料管理研究院的运行致力于每一操作方面的公正和客观。IHMM 对所有申请人、候选人和被认证的个人之间公平地执行政策和程序。IHMM 的过程和程序受其章程和管理制度手册的制约。

研究院的愿景和使命

愿景：IHMM 能力标准、认证的凭据和认证程序受到全球的承认、接受，并赞同。

使命：IHMM开发专业标准认证和管理并促进在危险货物和环境、安全、健康和运输领域的危险货物管理个人实践的认证程序。

危险材料管理研究院
Institute of Hazardous Materials Management
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Website: www.ihmm.org

DuPont Sustainable Solutions

DuPont has been bringing world-class science and engineering to the global marketplace in the form of innovative products, materials, and services since 1802. The company believes that by collaborating with customers, governments, NGOs, and thought leaders we can help find solutions to such global challenges as providing enough healthy food for people everywhere, decreasing dependence on fossil fuels, and protecting life and the environment. For additional information about DuPont and its commitment to inclusive innovation.

DuPont is a science-based products and services company. Operating in more than 70 countries and regions, DuPont offers a wide range of innovative products and services for markets including agriculture and food; building and construction; communications; and transportation.

DuPont Sustainable Solutions is one of 10 DuPont businesses. Bringing customers the benefits of an integrated global consulting services and process technology enterprise, it applies DuPont's real-world experience, history of innovation, problem-solving success, and strong brands to help organizations transform their workplaces and work cultures to become safer, more efficient and more environmentally sustainable.

DuPont Sustainable Solutions
Bldg.11, 399 Keyuan Road
Zhangjiang Hi-Tech Park
Pudong, Shanghai 201203, China
Tel：021-38622747

Website：www.safety.dupont.cn

杜邦可持续解决方案事业部

杜邦公司于1802年在美国特拉华州成立，公司通过在科技方面不断的创新与飞跃，从最开始的一家专门生产黑火药的工厂转型为向全世界提供先进的高性能材料、服务和技术的全球化科学公司。两个多世纪以来，杜邦把安全健康和环保、职业操守、公正和尊重他人作为企业核心价值，创造了众多的科学奇迹。目前公司业务遍及全球70多个国家和地区。

杜邦可持续解决方案战略事业部是杜邦十大业务部门之一，致力于提供服务与技术，改善工作场所安全与企业文化，为客户带来在专业的安全风险管理、安全文化改进、节能减排、提高工程项目管理效率、提高生产运营绩效、提高整体员工能力等解决方案，从而帮助合作伙伴实现一流的安全业绩和卓越的可持续运营。

杜邦可持续解决方案事业部
上海市浦东新区张江高科技园
区科苑路399号11号楼
电话：021-38622747
网址：www.safety.dupont.cn

REACH24H Consulting Group

REACH24H Consulting Group provides global regulatory compliance solutions to facilitate the most efficient and cost-effective access to the marketplace for industrial and consumer products through utilizing strong commercial experience and technical expertise in chemical and related industries like food, agro-chemical, cosmetics, etc. Its in-house team consists of ex-governmental officials, global-regulatory experts, toxicologists, environmental risk assessors, chemical engineers and IT software developmental engineers.

REACH24H Consulting Group currently maintains a global presence. The Group includes REACH24H Consulting Group China which is based in Hangzhou, REACH Compliance Services (RCS) in Dublin, REACH24H USA Inc. in Reston Virginia and REACH24H Consulting Group Taiwan in Taoyuan. REACH24H Consulting Group was acquired by CTI (Centre Testing International Corporation) on June 21, 2011, a listed company on the Chinese Stock Exchange (300012.SZ) and China's leading product testing, inspection, certification, and consulting firm that provides comprehensive services for virtually all consumer products.

REACH24H launched an online platform named "ChemLinked" in 2012 to meet the massive and largely unanswered demand for quality and up-to-date China and Asian chemical regulatory and compliance information. ChemLinked boasts a multidisciplinary team of scientists, compliance specialists and language experts backed by the vastly experienced technical teams at REACH24H ensuring the most authoritative information and dependable consultancy from the most experienced chemical regulatory experts.

Trade Mission Goals:
REACH24H continuously focuses on deepening research on hazardous chemicals management in the US and China, and tries to deliver most valued products and services to meet demands of either company entitled with "Fortune Global 500" or an SME. This mission will allow us to advocate safe management of hazardous chemicals, exchange ideas with both the policy makers and industrial stakeholders, and identify the market for relevant training and consultancy.

REACH24H USA Inc.
11951 Freedom Drive, Suite 1300
Reston, VA 20190 USA
Telephone: +1 (703) 596-8055
Website: www.reach24h.com/en-us/

华测瑞欧

华测瑞欧是一家为企业产品进入目标市场符合政府法规法令提供技术保障的生产和贸易合规服务机构。华测瑞欧服务范围覆盖工业化学品、农药和消杀产品、化妆品、食品和食品接触材料、消费品、电子电器等多个行业，为企业提供法规资讯和新闻及预警服务、产品注册登记专家服务、专题会议培训和公开课服务，以及依托互联网技术的化学品物质表征和法规的数据库和软件服务。

公司定位于全球化学品法规专家，总部位于浙江省杭州市，在爱尔兰、美国、中国台湾均设立了分支机构，是中国国家商务部批准的境外投资企业（批准号：3300201200161，N3300201500171）。公司于2011 年6 月21 日被上市公司华测检测（股票代码：300012）收购。华测检测是国内检测行业首家上市公司，集检测、校准、检验、认证及技术服务为一体，业务范围涵盖几乎所有类别的消费品。华测瑞欧于2012 年自主开发上线了ChemLinked 资讯平台，以满足众多企业迫切希望了解中国和其他亚太地区化学品法规政策新闻和合规实务分析的需求。ChemLinked 聚集跨行跨业的专家，突破语言障碍，以瑞欧的经验和技术支撑，保障了最权威、可靠的资讯来源和咨询意见。

贸易代表团目标：
华测瑞欧一贯重视对中美危险化学品管理法规的研究，定制最具价值的产品和服务，力图满足无论是“全球五百强”还是中小企业的实际合规需求。公司希望代表团通过参与此次活动向企业倡导危险化学品安全管理，与政府决策者和行业利益相关方交流意见，探索有关培训课程和咨询服务的市场。

华测瑞欧（美国股份有限公司）
11951 Freedom Drive, Suite 1300
Reston, VA 20190 USA
Telephone: +1 (703) 596-8055
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Amazon China

Amazon entered China in 2004 and now it has four strategic business focuses in the country, including cross-border e-commerce, Amazon reading including books, Kindle and digital content, Amazon Logistics+, and Amazon Web Services (AWS).

The cross-border e-commerce is booming globally especially in China and represents the most dynamic driving force of China's e-commerce development. Our vision in China is very clear: helping China customers gain access to the high quality and authentic international brands and products at fair prices around the world and helping China-based sellers to grow their business and build their brands globally.

With the unique advantages of global vendor resources and logistic network, Amazon China today already hosts the largest international brands and products among online retailers in China and is becoming the trusted go-to-place for Chinese consumers to shop authentic international products already.Amazon Global Store (AGS), launched in 2014 and the first AGS residing in local website with localized shopping experience globally, gained great popularity among Chinese consumers and provides a selection of over 10 million from Amazon.com today.

Amazon Global Selling is a thriving platform for all size of Chinese sellers looking forward to exporting, selling their products and building their brands globally. Through the platform, tens of thousands of China-based sellers can now sell on Amazon marketplaces in 10 countries, including the U.S., Germany, U.K., France, Italy, Spain, Canada, Japan, China and Mexico.

Amazon China launched its eBook store in December, 2012. Since then, Kindle has brought its full Kindle product portfolio, fire tablet as well as Kindle Unlimited to China, and cooperated with nearly 600 Chinese publishers and book importers to offer more than 300,000 titles to Chinese readers, aiming atproviding Chinese customers an integrated reading experience and igniting their passion for reading.

Amazon Logistics+, launchedin October, 2015, provides a full range of fulfillment and logistics solutions for Chinese businesses and help them manage warehouse operations and logistics processes in a more efficient and cost-effective way.

AWS has been available to a group of customers in China under "Limited preview" since 2014. AWS has two regions in China, AWS China (Beijing) Region and AWS China (Ningxia) Region. And AWS China (Beijing) Region is the 4th AWS Region in Asia Pacific and one of 12 globally available AWS Regions.

亚马逊中国

亚马逊于 2004 年进入中国，目前在中国拥有四大核心战略，包括跨境电子商务、亚马逊阅读(图书、Kindle 电子书阅读器及相关数字内容)、亚马逊物流+和亚马逊云计算服务(AWS)。

蓬勃发展的跨境电商是中国经济发展的重要驱动力之一。亚马逊在中国的发展愿景非常明确：将 Z.cn 打造成为连接中国消费者与国际选品的纽带，让中国消费者随时随地都能够通过亚马逊中国这个平台轻松获得来自世界各地的品牌与高品质商品。任何中国企业都能借助亚马逊在全球的资源和平台走向世界、打造国际品牌。

依托亚马逊全球 14 大站点、独一无二的全球供应商资源和跨境物流体系，亚马逊中国持续推进国际品牌战略，目前已成为国内拥有最多国际品牌及选品的自营电商平台，并逐渐成为了中国消费者信赖的选购高品质国际选品的首选平台。2014 年，亚马逊中国正式推出海外购业务，同步上线亚马逊“海外购”商店，使消费者用中文即可直接浏览和购买来自亚马逊海外站点上同质同价的国际品牌及海量选品，并享受快速、便捷的亚马逊全球配送服务和本地客服支持。亚马逊“海外购”商店深受中国消费者欢迎，目前已经成功引入了来自亚马逊美国的 29 大品类、超过 1000 万的选品。

亚马逊“全球开店”是中国卖家发展出口业务、拓展全球市场、打造国际品牌的优质平台。目前数以万计的中国卖家加入了该项目。包括亚马逊美国、加拿大、德国、英国、法国、意大利、西班牙、日本、墨西哥和中国在内的 10 大国际站点已向中国卖家全面开放。

亚马逊中国致力于为中国消费者带来完善的阅读体验，点燃中国大众的阅读热情。自 2012 年 12 月上线电子书店起，亚马逊陆续在中国推出了 Kindle 全系列产品、Fire 平板电脑、以及 Kindle Unlimited 电子书包月服务，并与近 600 家中国出版商和进口书商合作，为中国读者提供了超过 30 万册电子图书。

2015 年 10 月，亚马逊物流+正式启动，为中国企业带来全方位的仓储物流解决方案，帮助中国企业以更高效的方式、更优化的成本管理其仓储物流体系。

亚马逊云计算服务（AWS）自 2014 年起以“有限预览”的方式为部分中国客户提供服务。目前 AWS 在中国有两大可用区，分别为 AWS 中国北京区域和 AWS 中国宁夏区域。AWS 中国北京区域是 AWS 在亚太地区的第 4 个区域，也是 AWS 全球 12 大区域之一。

Schneider National Inc.

Schneider National is a transportation leader with a broad portfolio of services
Privately held, founded in 1935, Schneider National, Inc. is a premier provider of transportation, logistics and related services, which made $3.6 billion in revenue in 2013. Schneider operates 9,600 tractors, 13,300 drivers and independent contractors, and 45,500 trailers and containers with 16,800 associates; hauled 11,100 loads and travels 7.6 million miles per day. In the meantime, Schneider purchases $1.4 billion in third-party transportation from 13,900 carriers. Schneider is servicing 80% of Fortune 500 MNC companies; and operating 8 million square feet cross-docking and warehouse facility.

Headquarters is based in Green Bay, Wisconsin, with international offices in China, Canada and Mexico

Company Address:
Schneider National, Inc.
3101 S. Packerland Drive
Green Bay, WI 54306

MISSION

SAFE, COURTEOUS, HUSTLING ASSOCIATS DELIVERING SUPERIOR EXPERIENCES THAT EXCITE OUR CUSTOMERS

VISION

WE ARE DRIVEN BY OUR UNCOMPROMISING VALUES TO DELIVER THE GOODS THAT ENHANCE THE LIVES OF PEOPLE EVERYWHERE

CORE VALUES

SAFETY FIRST AND ALWAYS, INTEGRITY IN EVERY ACTION, RESPECT FOR ALL, EXCELLENCE IN WHAT WE DO

世能达

世能达是领先的综合物流供应商

世能达成立于 1935 年，是北美最大的私人物流公司之一。涉及公路运输、仓储，物流、多式联运，提供一体化供应链解决方案服务，2013 年营业收入超过 36 亿美金。公司拥有 9,600 多辆牵引车头，13,300 多名司机，45,500 多个甩挂箱和集装箱；员工数量超过 16,800 名。每天运输量达 11,100 车次货物，行驶 7,600,000 英里。除了自有车辆，世能达每年还在全球 13,900 多个运输承包商采购超过 14 亿美金的运输服务。公司服务于 80%以上的世界 500 强公司，经营着 8,000,000 英尺配送及分拨中心。
公司总部设在美国维斯康星州的格林贝，同时在中国，加拿大和墨西哥设立子公司。

使命
安全、周到、高效，世能达提供让客户欣喜的非凡体验。

愿景
世能达秉承自身的价值观，坚定不移，以提高人们的生活品质为己任。

核心价值观
安全第一，永远第一；真诚守信，始终如一；海纳百川，尊重他人；追求卓越，尽善尽美
世能达是领先的综合物流供应商

ZEBRA CORPORATE FACT SHEET

WINTER 2016

ZEBRA

ABOUT ZEBRA

Zebra (NASDAQ:ZBRA) builds tracking technology and solutions that generate actionable information and insight, giving companies unprecedented visibility into their businesses by giving physical things a digital voice.

Zebra's extensive portfolio of solutions give real-time visibility into everything from products and physical assets to people, providing very precise operational data not only about where things are, but what condition they are in. This allows business leaders to use data to make better, more informed decisions, respond in real-time and ultimately, help businesses understand how they work, and how they could work better.

VISION

Together, with partners, create a smarter, more connected global business community

MISSION

Delight customers with the ability to take smarter actions through innovative products and solutions that enable visibility

VITAL STATISTICS

Global Presence:	Approximately 7,000 employees in 200+ offices across more than 40 countries, with channel partners in more than 100 countries
A Resilient Business:	Founded in 1969, Zebra has provided more than 40 years of technology expertise, leadership and innovation; traded on NASDAQ: ZBRA since 1991
Customer Base:	Thousands of customers in more than 100 countries, including more than 95 percent of all Fortune 500 companies
R&D:	Five regional innovation & design centers; more than 4,200 US and international patents issued and pending
Market Capitalization:	$4.0 billion (as of 30 October 2015)

FINANCIAL SUMMARY (AS OF 31 DECEMBER 2015)

Cash and Investments:	$ 192 million
Total Assets:	$ 5,024 million
Total Stockholders' Equity:	$ 913 million
Net Sales (TTM):	$ 3,652 million
Gross Profit (TTM):	$ 1,644 million
Gross Profit Margin (TTM):	45.0%
Adjusted EBITDA (TTM):	$ 608 million

COMPETITIVE ADVANTAGES

Zebra offers customers a complete end-to-end solution—from mobile computers and scanners to specialty printers, RFID, software and services—for identifying, tracking and managing critical assets, people and transactions. Zebra's broad range of differentiated products, deep understanding of our customers and productive R&D ensure that we offer highly relevant solutions globally that help customers take advantage of key technology trends. Zebra has the industry's most comprehensive go-to-market channel network of value-added resellers, integrators, independent software vendors, distributors, original equipment manufacturers and sales to end users.

PRODUCT AND SOLUTION OVERVIEW

Mobile Computing
Zebra's mobile computing solutions capture real-time data and increase the productivity of an on-the-go workforce. Zebra's versatile integrated voice and data mobile computing products allow organizations to capture and exchange information specific to their enterprises' demands.

Printers
Zebra is a leading global provider of rugged and reliable thermal printers. Barcode printing improves data management and accessibility, reduces costs and increases productivity for companies globally. Zebra offers a broad selection of printers, including industrial, desktop, mobile and wristband, to meet a wide variety of needs.

Data Capture
Zebra's barcode scanning solutions help organizations quickly and accurately capture data. Zebra has an extensive range of barcode scanners for a number of industries and applications—from mobile point of sale payments to inventory management to medication tracking.

Wireless LAN
Zebra's Wireless LAN solutions deliver optimal high performance in demanding environments. Wireless LAN solutions connect networks, devices and applications to make workforces most productive, engage customers with the organization, while supporting business growth.

RFID
Radio frequency identification (RFID) printer/encoders/readers by Zebra assist in the implementation of instant, measurable improvements in operating efficiency, accuracy and supply chain visibility. Zebra RFID fixed and mobile readers allow organizations to automatically identify, track and store inventory identified with RFID tags, to be always in control of your operations.

Location Solutions
Zebra's portfolio of location solution products along with our real-time locating system (RTLS) software, work together to provide a digital view of physical operations. With Zebra's Sports Solution platform, which leverages Zebra's RTLS expertise, sports organizations can capture and share real-time performance data, converting it into usable player statistics.

Supplies
Zebra's comprehensive range of specialty supplies consists of self-adhesive labels, ribbons, card supplies, batteries and software for label design and printer network management. The Supplies R&D team carefully selects materials by conducting extensive tests to ensure consistent, high-quality cards, paper, labels and ribbon.

Software
The intelligence that powers Zebra solutions is the software. Our suite of software integrates, extends, and maximizes the performance of your assets while enabling your IoT strategy.

Services
Zebra delivers a customizable suite of services, including Value Added and Professional Services – such as tailored printer and software solutions to increase throughput and simplify printer integration and operation; wireless connectivity and roll-out assistance; and technical training agreements and support.

Zatar
Zebra's Zatar platform, a cloud-based software service, is the world's first IoT platform for enterprise applications. With Zatar, businesses can connect sensors and devices embedded in their operations and gain access to accurate, real-time data. With insights into the location, movement and condition of their assets and devices, organizations can make more informed decisions from anywhere in the world.

AWARDS

2016 iF Design Award for Design Excellence – TC70 rugged handheld computer
2016 *Fast Company's* Most Innovative Companies for 2016
2015 Red Dot Award for Product Design - MC18 mobile computer following 2014 Red Dot Award for TC55 mobile computer
2015 ABI Report Ranks Zebra as a Top Company in Indoor Location Technology
2015 Best Channel Vendor Award from Business Solutions Magazine (7th consecutive year)

Honeywell

Honeywell is a Fortune 100 diversified technology and manufacturing company that provides its worldwide customer base with aerospace products and services; control technologies for buildings, homes and industry; turbochargers; and performance materials.
Honeywell's long history in China goes back to 1935 when it established its first franchise in Shanghai. Today, all of Honeywell's three strategic business groups are represented in China, each having relocated their Asia Pacific headquarters to China. Over the years Honeywell has set up subsidiaries and joint ventures in more than 20 cities across the country. And as of today it has invested $1 billion in China and employs more than 12, 000 people.

China is one of the most important markets in Honeywell's global success strategy. The company is committed to its "East for East" strategy and to driving business growth in China by providing the highest quality, delivery, value, and technology to its customers. Honeywell's strategy in China aligns well with the government's overall plan by effectively contributing to building an energy-efficient and environmentally-friendly society. Honeywell Technology Solutions China (HTSC), located in Shanghai, is dedicated to developing industry leading research and development capabilities on the local level. But at the same time leverage its global leadership in technology and innovation to support its Chinese customers' and Chinese society's specific needs in creating more energy efficient, safer, and environmentally friendly products and solutions. Doing so will contribute to the government's objective of building a sustainable economy and a harmonious society. Meanwhile, Honeywell's products and technology will also help China cope with the environmental challenges caused by China's rapid urbanization, industrialization and the robust economic growth.

Honeywell Automation and Control Solutions (ACS) offers a complete portfolio of innovative products, solutions and systems to create safer, more comfortable, more secure, and more energy efficient environments. ACS is comprised of several businesses that sell, manufacture and deliver products and services to consumers, businesses and industries in every region of the world. ACS includes Honeywell Building Solutions (HBS), Environmental and Energy Solutions (E&ES), Honeywell Industrial Safety (HIS), Honeywell Security and Fire (HSF), Sensing & Productivity Solutions (S&PS). The products, services and solutions produced by these companies help protect, control and automate 150 million homes, 10 million buildings, thousands of manufacturing and industrial plants, and major oil refineries.

For additional information, please visit www.honeywell.com.cn

霍尼韦尔

霍尼韦尔（Honeywell）是一家《财富》100 强之一的多元化、高科技的先进制造企业。在全球，其业务涉及航空产品和服务，楼宇、家庭和工业控制技术，涡轮增压器以及特性材料。

霍尼韦尔在华的历史可以追溯到 1935 年。目前，霍尼韦尔三大业务集团均已落户中国，旗下所辖的所有业务部门的亚太总部也都已迁至中国，并在中国的 20 多个城市设有多家分公司和合资企业。目前，霍尼韦尔在中国的投资总额约 10 亿美金，员工人数约 12,000 名。

中国是霍尼韦尔全球拓展战略蓝图中最重要的市场之一。霍尼韦尔在中国实施“东方服务于东方”的发展战略，紧密围绕国家整体规划，充分利用公司在节能、环保、安全、安防等相关领域的全球领先实力，有效地为中国推进新型城镇化、加快产业升级和建设安全宜居、资源节约和环境友好型社会做出贡献。霍尼韦尔在上海设立了霍尼韦尔中国研发中心，致力于积极建立一流的本地研发能力，以便更有效地利用其全球领先的技术和创新实力，创造出满足中国客户和社会需求的更安全、更节能、更环保的产品和技术解决方案。

霍尼韦尔自动化控制系统集团为客户提供整套的创新产品、解决方案和系统，从而打造更安全、更舒适、更节能的环境。自动化控制系统集团旗下包括数个不同的业务部门，为全球各地的消费者、企业和各行各业销售、制造和提供相关产品和服务。这些业务部门包括：建筑智能系统部(HBS)、环境与能效解决方案部(E&ES)、工业安全部(HIS)、安防与消防部(HSF)、传感与生产力解决方案部(S&PS)。其产品、服务和技术在全球超过 1.5 亿个家庭和一千万座楼宇，以及成千上万的制造业和工业厂房中应用。在中国，自动化控制系统集团的一系列创新技术和智能解决方案广泛应用于能源、建筑、交通、医疗、家居等领域，帮助城市提升能效、安全、生产力和舒适性，同时降低资源消耗和环境污染。

如需了解更多信息，请访问霍尼韦尔中国网站 www.honeywell.com.cn

Old Dominion University Profile

Old Dominion University is located in Norfolk, Virginia, USA and is a Research-Extensive public institution. ODU offers 42 doctoral degrees,54 master's degrees, and 69 bachelor's degrees, and has 25,000 students.ODUis Virginia's forward-focused metropolitan research university for students who want rigorous academics and an energetic residential community.

美国奥多明尼昂大学

美国奥多明尼昂大学位于弗吉尼亚州诺福克市，是一所研究型公立大学。奥多明尼昂大学有 42 个博士点，54 个硕士和 69 个学士学位。奥多明尼昂大学目前有 25,000 名在校学生。该校是弗吉尼亚州的一所都市研究型大学，适合于追求严谨学术氛围同时又希望能享受充满活力的都市生活的学者和学生。

Speaker Biographies

演讲人介绍

Yongdong Du
Director, Satety Supervision Department, China MOT

Du Yongdong has been doing management of the Maritime Search and Rescue and of the Global Maritime Distress Safety (GMDSS) for a long time. Mr.Du was involved in the work of establishing the National Maritime Search and Rescue Committee and setting up the National Maritime Search and Rescue Emergency Response Plan. He has gained many experiences in transportation safety supervision and emergency management.

杜永东
交通运输部安全与质量监督管理司 处长

长期从事海上搜救和全球海上遇险与安全系统（GMDSS）的管理工作，参与了筹建国家海上搜救委员会、国家海上搜救应急预案编制等工作，长期从事交通运输安全监管和应急管理领域的工作，在交通运输安全和应急处置实践中具有丰富的经验。

Susan Chan Shifflett
USTDA Country Manager for East Asia

Susan Chan Shifflett is Country Manager for East Asia (China, Mongolia) and Europe & Eurasia at the U.S. Trade and Development Agency. From 2012-2015, she was the China Environment Forum program associate at the Woodrow Wilson Center, where she managed programs forging U.S.-China cooperation on energy, environment, and agriculture. From 2009-2010, Susan worked as a research assistant at China's Center of Disease Control and Prevention, researching high-risk HIV/AIDS populations near the border of China and Vietnam. Previously, she has worked or interned at Cummins Inc. (China), the U.S. Department of State, and The Asia Foundation.

She holds a M.A. International Economics from Johns Hopkins School of Advanced International Studies (SAIS) and a B.S. Biology from Yale University. She has been featured in news outlets such as BBC News, CCTV America, Al Jazeera, and The Guardian. Susan is professionally proficient in Mandarin.

詹贻琛
美国贸易发展署东亚区经理

詹贻琛女士负责美国贸易发展署包括中国和蒙古在内的东亚，欧洲和欧亚的业务。自 2012-2015 年，詹女士作为伍德罗·威尔逊国际学者中心的项目合伙人，管理并执行了中美在能源，环境和农业等领域的合作项目。2009-2010 期间，詹女士担任疾病控制和防御中心中国办公室的研究助理，研究中国和越南边境的艾滋病高风险人群。在此之前，她还康明斯中国公司，美国国务院和亚洲基金会工作或实习过。

詹贻琛拥有约翰.霍普金斯大学高级国际研究的硕士学位，以及耶鲁大学生物学学士学位。她曾被 BBC 新闻，CCTV 美国台，半岛电视台，和卫报等不同媒体报道过。詹女士精通汉语。

Val Huston
Principal Commercial Officer, U.S. Embassy Beijing

Mr. Val Huston is the Principal Commercial Officer at the U.S. Embassy in Beijing, China, leading a team of dedicated trade professionals increase commercial ties between the U.S. and China. Conducting U.S. commercial diplomacy to increase U.S. product and service exports to China includes: helping U.S. companies find market opportunities and Chinese trading partners; assisting Chinese firms find investment opportunities in the United States; promoting U.S. education and tourism opportunities; and advocating for U.S. national economic and trade interests.

Previously serving as the Deputy Senior Commercial Officer at the U.S. Mission to the European Union in Brussels, Belgium (2008-2012), Mr. Huston managed this unique trade policy post covering the European Union and its 27 member states and engaged EU institutions in advancing transatlantic commercial relations by identifying new commercial opportunities and removing obstacles to trade. For example, he fostered close transatlantic cooperation in green technologies such as electric vehicles, smart grids and energy efficiency and played a leading role in the formulation and launch of the Transatlantic Economic Council's e-mobility work program.

何为
美国驻华使馆商务处商务参赞

2013 年 7 月-至今 何为先生任美国驻华使馆商务处商务参赞。
率领一支专业的贸易团队，负责促进中美之间的商业联系，开展美国商务外交以促进美国产品和服务的出口：帮助美国公司寻找市场机会和中国合作伙伴；协助中国企业寻找在美国的投资机会；促进美国教育和旅游机会；倡导美国国家经济和贸易利益。

2008-2012，美国驻欧盟使团，商务参赞，比利时布鲁塞尔
负责协助欧盟和其 27 个成员国推进跨大西洋的商务关系，鉴别全新商业机会，消除贸易障碍。例如：培育并建立了诸多领域的跨大西洋环保技术合作：电动车辆，智能电网和能量效率。并且在制定和推出跨大西洋经济委员会的电动交通项目中起到了至关重要的作用。

Ling Li

Dr. Ling Li is the Chair of the Department of Information Technology and Decision Sciences, Coordinator of Maritime and Supply Chain Management disciplineat Strome College of Business, Old Dominion University, USA. She is university professor and a fellow of APICS (the Association for Operations Management).

In tribute to her research records, she was awarded the title of Eminent Scholar. She has published over 100 peer-refereed research articles in high quality journals, three

single-authored books on supply chain management and logistics, encyclopedia articles, business cases, conference proceeding papers, and book chapters. She is the winner of many awards.

She serves as the First Secretary (officer) of International Federation for Information Processing TC8 WG 8.9, an organization which is under the auspices of UNESCO. She is Area Editor of Systems Research and Behavioral Science Journal, Associate Editor of Journal of Management Analytics, and an Editorial Board Member ofInternational Journal of Integrated Supply Management.

李令遐博士

李令遐博士是美国奥多明尼昂大学斯特姆商学院信息和决策科学系主任，校级领衔教授,博士生导师，海事与物流学科负责人。她是美国运作管理学会 (APICS)院士。

根据她的学术研究成就，奥多明尼昂大学授予她杰出学者称号。她在高质量和顶尖学术期刊上发表了 100 多篇研究论文，出版了三本有关供应链管理和物流专著，撰写了百科全书文章，商业案例，会刊论文，和专著章节等。她是许多奖项得主。

她还担任联合国教科文组织下属国际信息处理联合会 TC8 WG8.9 秘书长。她是系统研究与行为科学杂志部门主编，管理分析杂志的副主编，以及集成供应链管理国际杂志编委。

Manfred Holzleg

Managing Director

SAFECHEM Europe GmbH, a subsidiary of the Dow Chemical Company

Mr. Manfred Holzleg is the Managing Director of SAFECHEM Europe GmbH, a subsidiary of the Dow Chemical Company. He has held this position since 2013, and has been with Dow Chemical since 1990. During his tenure he held several commercial and marketing leadership positions in different geographies, developing a broad understanding of the chemicals and specialty chemicals industry. His current focus is on the geographic expansion of SAFECHEM and new innovative business models to drive the sustainable use of chemicals.

郝咨乐

总经理

SAFECHEM 公司——陶氏化学公司全资子公司

郝咨乐（Manfred Holzleg）先生是陶氏化学公司的全资子公司——SAFECHEM 公司的总经理。他于 1990 年加入陶氏化学公司，并于 2013 年起担任现职。在其职业生涯中，先后在全球多地担任了商务与营销方面的领导职位，对于化工与特种化学品行业有精深见解。目前主要关注于 SAFECHEM 业务在世界各地区市场的拓展，以及通过商业模式的创新推动化工品的可持续应用。

Qiming Han

Project Manager/Process Safety Management Consultant

Qi Ming owns 15 years' intensive working experience in project management, process management and safety management in refining and chemical manufacturing fields. Having taken positions in global leading enterprises DuPont, Exxon Mobil and Dow Corning as engineer, process safety and risk management engineer, senior process hazard analyst, consultant and project manager, he has accumulated rich experience in operation and project management.

Qi Ming is an expert in process safety management. As a consulting project manager, he has helped dozens of central enterprises, super large state-owned enterprises, and industry-leading private enterprises to improve and enhance projects in process safety management. And he has insightful views in how to promote corporate culture in enterprises of different stages and corporate cultures.

韩启明

项目经理/工艺安全管理顾问

拥有 15 年石油炼化工及化学制造领域项目管理、工艺/技术管理和安全管理的工作经验。先后在杜邦、埃克森美孚和道康宁等全球领先的石油炼化企业和化工企业担任过工程师、工艺安全和风险管理工程师、工艺危害分析资深专家、咨询顾问和项目经理等职，积累了丰富的安全管理和项目管理经验。

作为杜邦可持续解决方案的咨询顾问兼项目经理，曾帮助数十家央企、超大型国企和行业领先民企进行工艺安全管理方面的改善和提高项目，对如何在处于不同发展阶段、不同企业文化的企业中推动安全文化有独到见解。

Guy Colonna

Guy Colonna is the Division Director, managing the Technical Services department for the National Fire Protection Association, where he links the needs of various stakeholders with the technical staff.

He has been with NFPA for 30 years and holds engineering degrees from the US Coast Guard Academy and Stanford University. He is also a registered professional engineer in chemical engineering in Massachusetts.

His past responsibilities at NFPA have included management of industrial and chemical fire protection standards development projects dealing with safeguards at dust hazard process locations, explosives, industrial fire brigades, explosion protection systems including venting of deflagrations, chemical classification, and pyrotechnics and special effects.

He developed and instructs NFPA's confined space safety training courses and combustible dust and explosion protection seminars. He has previously served as the Executive Secretary to the Industrial Fire Protection Section of the NFPA. He has served on Department of Transportation and Department of Labor-OSHA advisory committees representing NFPA.

He is the author of technical papers and presentations on confined space safe practices, hot work safe practices, chemical hazard identification and classification, combustible dusts fire and explosion hazard protection, and pyrotechnics and special effects. He is the editor of the NFPA Guide to Combustible Dusts.

He is a member of the American Institute of Chemical Engineers, American Chemical Society, Society of Fire Protection Engineers, and American Society of Safety Engineers.

盖伊·科隆纳
美国消防协会 技术服务部主任

盖伊·科隆纳(Guy Colonna)任美国消防协会技术服务部主任。此部门负责将利益相关者的需求与技术层面的人员做通联。

科隆纳先生在美国消防协会工作已 30 年。他拥有美国海岸警卫学院和斯坦福大学的工程学学位，也是马萨诸塞州的化学工程专业注册工程师。

他在美国消防协会还曾负责工业和化学消防标准开发项目的制定工作，此项目致力于有关粉尘危害处理过程中的位置的防护、炸药安全管理、工业消防队伍的管理、防爆系统包括爆燃过程的通风，化学分类，和烟火使用及特效技术等的安防管控。

他开发了美国消防协会的密闭场所安全培训课程和可燃粉尘爆炸防护研讨会，并于此两项活动中做指导教学。他曾担任美国消防协会工业消防部门执行秘书，并代表美国消防协会在美国交通部和职业安全与健康署的咨询委员会供职。

他还是美国消防协会密闭空间安全做法操作准则、高温作业安全做法准则、化学品危险识别和分类、可燃粉尘火灾和爆炸危险防护、烟火使用和特效技术，等方面的正式文件和演示文稿的作者， 并担任美国消防协会《可燃粉尘指南》的编辑。

盖伊·科隆纳还是美国化学工程师协会,美国化学学会、消防工程师学会、美国社会安全工程师学会的会员。

Gaven Chai
Vice President & General Manager, Greater China
Honeywell Sensing & Productivity Solutions

Mr. Gaven Chai serves as the Vice President & General Manager for Honeywell Sensing & Productivity Solutions(S&PS) in Greater China. He directs S&PS business in the key strategic markets of mainland China, Hong Kong and Taiwan, including brand strategy, sales operations, market development and new product R&D.

Having been in the AIDC industry for nearly 20 years, Gaven joined Honeywell Scanning & Mobility (predecessor of S&PS) in 2009 as General Manager for Greater China Sales, being responsible for sales in mainland China, Hong Kong and Taiwan. With rich experience in enterprise management and strategic leadership, Gaven completed the S&PS integration in six month, meanwhile archived rapid business growth which further firms Honeywell's leading position in AIDC and Sensing industries. Additionally, Gaven has been instrumental in local new product launches in China. Gaven's efforts toward building up S&PS Local PAC Evaluation Committee and leading the development, production and sales of new products, have resulted in record high sales and market recognition.

Before joining Honeywell, Gaven was General Manager for Motorola Enterprise Mobility Business. He has also held the position of Business Development Director at Symbol Technologies and Regional Sales Manager at Schmidt.

Gaven holds a bachelor's degree in Chemistry from East China Normal University.

柴小舟
霍尼韦尔传感与生产力解决方案部
大中华区副总裁兼总经理

柴小舟先生现任霍尼韦尔传感与生产力解决方案部（S&PS）大中华区副总裁兼总经理，领导 S&PS 在中国大陆、香港和台湾这些重要战略市场的全面发展，主要包括品牌战略、销售运营、市场开拓，以及中国本地新产品研发。
柴小舟先生拥有近 20 年的自动识别行业背景，于 2009 年加入霍尼韦尔扫描与移动技术部（传感与生产力解决方案部前身）时任大中华区销售总经理，主要负责推动中国大陆、香港和台湾市场的销售工作。凭借在企业管理方面的丰富经验和战略性指导，柴小舟先生在短短半年时间完成了新事业部 S&PS 整合工作并带领团队取得了快速增长，这进一步巩固了 S&PS 在自动识别和传感领域的领先地位。此外，柴小舟先生对 S&PS 中国本地新产品的推出贡献突出。他创立了 S&PS 本土产品评估委员会，领导着 S&PS 中国本地新产品的研发、生产与销售。这些新产品在中国市场广受欢迎，销量连创新高。
加入霍尼韦尔之前，柴小舟先生曾供职于摩托罗拉无线网络解决方案事业部，担任总经理。他还曾先后在耀华科技和讯宝科技分别担任区域销售经理及销售和业务发展总监。
柴小舟先生拥有上海华东师范大学化学学士学位。

Sunny Wang

Technical Director and Senior Regulatory Expert

Ms. Wang joined REACH24H 6 years ago. She is currently the Technical Director of the GHS Compliance Division and has a profound understanding of global GHS, hazardous chemical registration and notification schemes and transport of dangerous goods through years' of experience providing SDS/label preparation service, consultancy and training.

王肖梅

GHS 合规事务部法规技术主管

王肖梅女士加入华测瑞欧公司6 年，是最早跟踪研究欧盟REACH 法规的技术专家之一。目前主要负责全球各国GHS合规、危险化学品登记及危险货物运输等相关法规的跟踪开拓及深入研究，并负责危化品相关培训课程制定工作，在化学品危害确认和危害传递方面经验丰富。凭借在SDS/Label 编写、危化品管理咨询和培训方面积累的深厚经验，她多次受邀为企业提供技术培训服务，同时代表华测瑞欧参加各项化学品法规研讨会并发表演讲。

李玉红

现任中国民航危险品管理中心副处长
兼任中国民航危险品专家委员会秘书长

曾经在中国国际航空公司多年从事特种货物航空运输管理，并在中国民航局协助危险品管理工作，对于危险品航空运输在中国的法规管理体系和行业监管情况有丰富的经验和独特的见解。

Robert (Bob) McClelland

Bob joined UPS in June of 1990 and was originally hired as a service provided (delivery driver). Bob was promoted into management is 1991 and served a series of assignments in Sales, Customer Service and International Operation before joining the UPS Airlines Dangerous Goods function in 2004. Located in Louisville, Kentucky, USA, (headquarter of UPS Airlines) Bob has had overall responsibility for the UPS Airlines Dangerous Goods Program since January of 2008.

Bob has been an active observer at IATA Dangerous Goods Board meetings since 2008. Her has participated as a speaker in recent IATA Lithium Battery Workshops and the 2016 World Cargo Symposium. Has also attended and presented at several ICAO Dangerous Goods Panel meetings focusing on lithium battery risk mitigation strategies.

In 2009, he was appointed to Transportation Research Board (Hazardous Materials Cooperative Research Program) Project Panel. Bob ha a Bachelor of Business Administration from the University of Huston (1989).

Terry Guo
Regulatory Specialist

Mr. Guo is the China Representative of Institute of Hazardous Material Management (IHMM).

Mr. Guo has broad experiences in consulting, training and packaging supplying in the field of Dangerous Goods Transportation safety for more than 20 years. His consulting experiences include the area regulations and industrial practices of Lithium Battery and other Hazardous Material transportation. In several recent year US-China Transport Forums, Mr. Guo served as Hazmat Group speaker representing US Hazmat Industries. Mr. Guo also worked as a technical advisor for China's CAAC delegation in ICAO/DGP. Mr. Guo has coordinated Sino-US Dangerous Goods technical exchange programs and government hazmat training program in USA.

Mr. Terry Guo is a certified Transport Dangerous Goods trainer in China and conducted IATA, IMDG and 49CFR training throughout China, India, Malaysia, Vietnam and other Asia countries. His credentials also include IATA Dangerous Goods Instructor certification and government approved air-transport dangerous goods safety instructor from China.

Mr. Terry Guo is active in several professional associations, including IATA, CATA, COSTHA, DGAC, SINO-US TSI.Mr. Terry Guo is a Certified Dangerous Goods Professionals (CDGP) and received his MS on Industrial Engineering from the State University of New York at Buffalo and BS on Systems Engineering from China. He currently resides in Princeton New Jersey, USA.

郭陶然
法规专家

郭陶然先生是美国危险货物管理研究院(IHMM)的中国代表和法规专家。郭先生在危险货物运输安全领域的咨询、培训和包装供应方面具有超过 20 年丰富的经验。他的咨询经验包括锂电池和其他危险货物运输的地区法规和工业实践。在近几年中美交通论坛中，郭先生多次代表美国危险品运输业界在危险品小组发言。郭先生还曾担任中国民航局代表团出席国际民航组织危险品 DGP 会议的技术顾问。郭先生还多次协调组织中美危险品技术交流项目和在美国的政府间危险品运输管理培训。

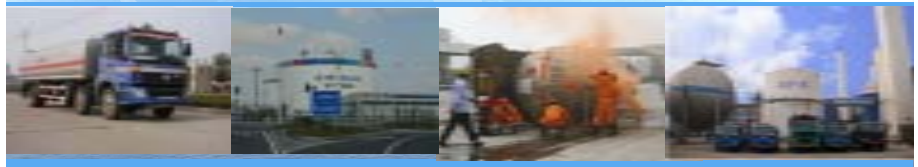
郭陶然先生是一位认证过的危险品运输培训师并在中国、印度、马来西亚、越南和其他亚洲国家和进行国际航空运输协会、国际海事危险品法规和美国的 49CFR 法规的培训。他的业务背景还包括国际航空运输协会危险品安全运输教员和中国政府批准的航空运输危险货物安全培训教员。

郭陶然先生活跃于多个专业协会，包括国际航空运输协会(IATA)、中国航空运输协会(CATA)、危险货物安全运输协会(COSTHA)、危险品顾问委员会(DGAC)、中美运输安全研究院(TSI)。郭先生是认证的危险货物专业人士员(CDGP) 。郭先生在纽约州立大学布法罗学区获得工业工程硕士并在中国取得系统工程学士学位，他目前居住在美国新泽西州普林斯顿地区。

Presentations

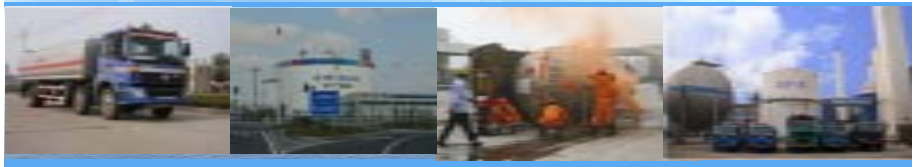
演讲文稿

危险货物道路运输现状与挑战



交通运输部公路科学研究院 吴金中
2016.4

Current Status & Challenges on the Hazardous Materials Transport by Road



RIOH Jinzhong Wu

April, 2016

汇报提纲

1. 行业总体概况
2. 面临的主要挑战
3. 近期工作情况

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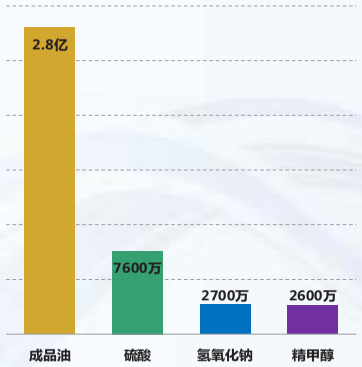
中国道路危险货物运输行业总体情况

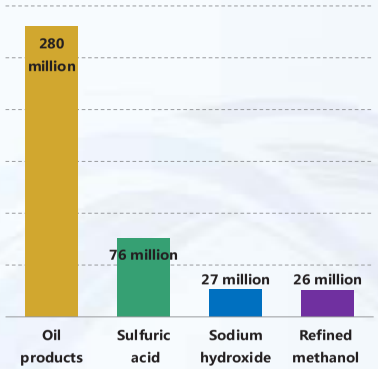
中国石油化工产品产量巨大。



由于生产区域分布不均衡，产生了大量跨区域运输需求。据估计，每年中国危险货物运输量约为16亿吨，并以10%的速度增长。

Overview of Dangerous Goods Transport by Road in China

The output of petrochemicals is huge in China.



Due to the unbalanced distribution of production sites , inter-regional transport of dangerous goods has become very common in China .

It's estimated that the freight tonnage of dangerous goods in China is about 1.6 billion, and the number is growing by 10% every year.

中国道路危险货物运输行业总体情况

截至2014年底，

危险货物运输道路业户 10965户

车辆 31.1万

驾驶员 62万

押运员 59万

装卸管理员 7.5万

据估计，道路运输完成的危险货物运输量约为10亿吨，占所有运输运输方式完成货运量的60%以上。

2014年，铁路完成危险货物运输量约1.26亿吨。

Overview of Dangerous Goods Transport by Road in China

By the end of 2014,

Enterprises 10965

Vehicles 311,000

Drivers 620,000

Supercargoes 590,000

Loading & unloading controller 75,000

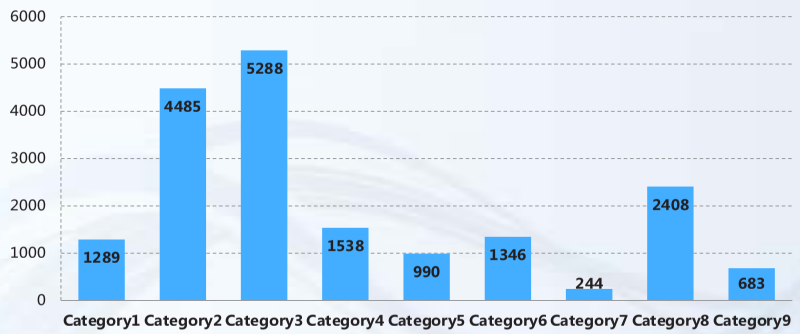
It's estimated that ,in 2014, the weight of dangerous goods transported by road is about 1 billion tons, which accounts for nearly 60% of the whole freight volume of dangerous goods in China.

Meanwhile, the weight carried by railway is only about 0.126 billion tons.

中国道路危险货物运输行业总体情况

各类危险货物道路运输业户数量

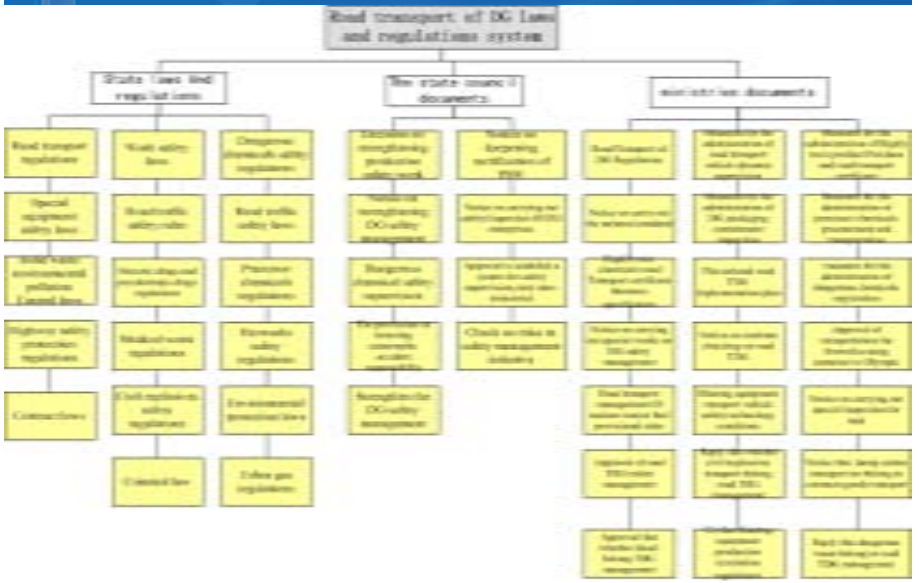
Overview of Dangerous Goods Transport by Road in China



Number of companies engaged in road transport of dangerous goods by category

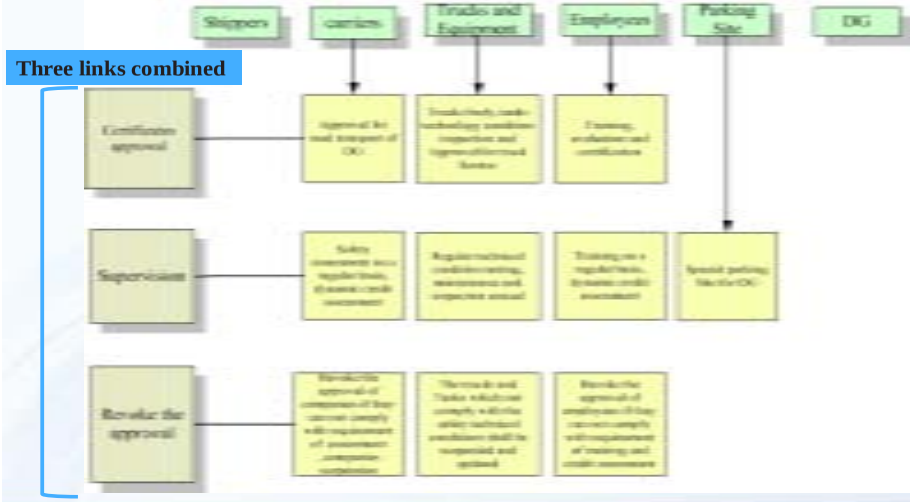
中国道路危险货物运输管理政策法规体系

Regulation & Standard System



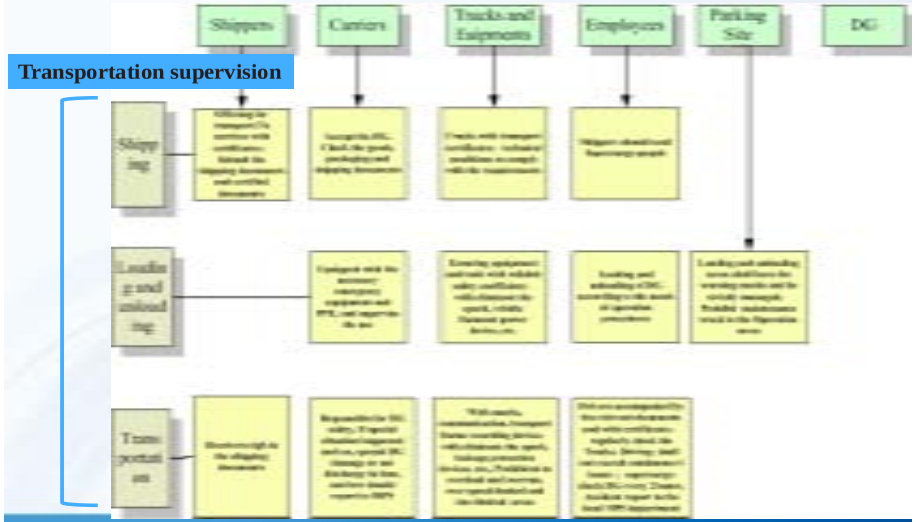
危险货物运输安全监管体系

The Safety Supervision System



危险货物运输安全监管体系

The Safety Supervision System

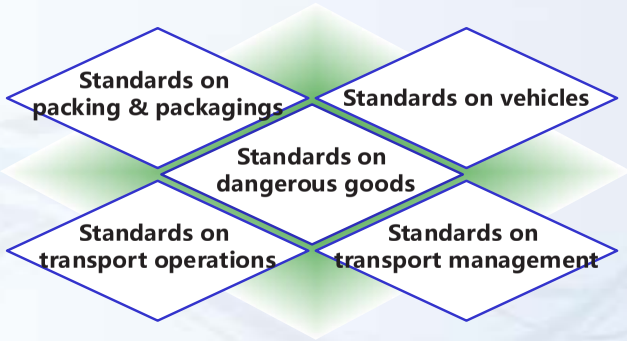


危险货物道路运输技术标准

标准规范
（100余个）

Technical Standards

Standards
（≥100）



危险货物道路运输技术标准

◆ 危险货物相关标准

① 《危险货物分类和品名编号》（GB6944）
② 《危险货物品名表》（GB12268）
③ 《危险货物运输包装通用技术条件》（GB12463）
④ 《危险货物包装标志》（GB 190）
⑤ 《危险货物及危险货物包装检验标准基本规定》（ GB/T 19459）等

Technical Standards

◆ Standards on dangerous goods

① Classification and code of dangerous goods（GB6944）
② List of dangerous goods（GB12268）
③ General specifications for transport packages of dangerous goods（GB12463）
④ Labels for Packages of dangerous goods（GB 190）
⑤ Rules of standards to the inspection of dangerous goods and dangerous goods packaging（ GB/T 19459）etc.

危险货物道路运输技术标准

◆ 危险货物运输车辆相关标准

① 《营运车辆综合性能要求和检验方法》（GB18565）

② 《营运车辆技术等级划分和评定要求》（JT/T198）

③ 《道路车辆外廓尺寸、轴荷和质量限值》（GB1589）

④ 《道路运输液体危险货物罐式车辆技术要求》(GB18564）

⑤ 《道路运输危险货物车辆标志》（GB13392）

⑥ 《汽车导静电橡胶拖地带》（ JT/T 230)

⑦ 《道路运输爆炸品和剧毒化学品车辆安全技术条件》（ GB 20300）

⑧ 《移动式压力容器安全技术监察规程》（TSG R0005）等

Technical Standards

◆ Standards on vehicles

① Multiple performance requirement and detecting methods for commercial vehicles (GB18565)

② Dividing and rating requirements for technical classification of commercial vehicle (JT/T198)

③ Road vehicles outside the profile size, axial load and quality threshold (GB1589)

④ General specification for normal pressure tank body of transportation Liquid dangerous goods(GB18564)

⑤ The vehicle mark for road transportation dangerous goods (GB13392)

⑥ Rubber belt of electrostatic conductivity for motor vehicle (JT/T 230)

⑦ Safety specification for road transportation vehicle of explosive substance and chemical toxic substance (GB 20300)

⑧ Supervision Regulation on Safety Technology for Transportable Pressure Vessel (TSG R0005) etc.

危险货物道路运输技术标准

◆ 危险货物运输操作管理相关标准

① 《汽车运输危险货物规则》（JT617）

② 《汽车运输、装卸危险货物作业规程》（JT618）

③ 《危险货物道路运输企业运输事故事件应急预案编制要求》（JT/T911）

④ 《危险货物道路运输企业安全生产管理制度编写要求》（JT/T912）

⑤ 《危险货物道路运输企业安全生产责任制编写要求》（JT/T913）

⑥ 《危险货物道路运输企业安全生产档案管理技术要求》（JT/T914）等

Technical Standards

◆ Standards on operation management

① The regulation of automobile transportation of dangerous goods （JT617）

② Rules of transportation, loading and unloading of dangerous goods by automobile (JT618)

③ The Requirements to draw up an emergency plan for transport accidents of road transportation enterprise of dangerous goods （JT/T911）

④ Compiled guidelines for dangerous goods road transportation enterprise safety production management system (JT/T912)

⑤ Compiled guidelines for dangerous goods road transportation enterprise safety production responsibility system （JT/T913）

⑥ Compiled guidelines for dangerous goods road transportation enterprise safety production archive system （JT/T914) etc.

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1. 行业总体概况
2. 面临的主要挑战
3. 近期工作情况

Outline

1. Industry Overview
2. Main Challenges
3. Recent Work

面临的主要挑战

自2005以来，共发生10余起危险货物道路运输重特大事故：

1. **2005年3.29事故**：京沪高速淮安段一辆载有35吨液氯的罐车与大货车导致液氯泄漏，造成28人中毒死亡和350多人住院治疗
2. **2008年2.18事故**：京珠高速大客车与一辆装载纯苯的罐车追尾相撞并起火爆炸，导致15人死亡、25人受伤
3. **2008年10.21事故**，陕西S212一辆载有22.34吨液化石油气的罐车侧翻发生泄漏、爆炸，导致5人死亡、宝成铁路中断近12小时
4. **2011年9.6事故**，常州市一辆运煤车与一辆罐车发生追尾事故，罐体爆裂造成苯乙烯泄漏，火势蔓延到路边的一家木业厂
5. **2011年7.22事故**，京珠高速大客车因司机非法携带、运输易燃化工产品偶氮二异庚腈引发大火，事故造成41人死亡、6人受伤

Main Challenges

Since 2005，a total of more than 10 cases of dangerous goods road transport extremely severe accidents occurs.

1. **Mar. 29, 2005**： Beijing-Shanghai expressway, A tank truck carrying 35 tons of liquid chlorine tank truck involved in an accident, chlorine leaks , 28 people died of poisoning and 350 people end up in hospital.
2. **Feb. 18, 2008**：Beijing-Zhuhai expressway, a bus rear-ended a tank truck loaded with benzene, the tanker caught fire and exploded , 15 people died, 25 injured.
3. **Oct. 21, 2008**：Shanxi RoadS212, a tank truck carrying 22.34 tons of liquefied petroleum gas rolled over and leaked , 15 people died, Baocheng Railway was cut off for 12 hours .
4. **Sep. 6, 2011**：In Changzhou , a coal car rear-ended a tank truck , Styrene leak, and the fire spread a wood factory on the road side.
5. **Jul. 22, 2011**： Beijing-Zhuhai expressway, a bus was caught on fire because the driver carry inflammable chemical containing 2,2'-Azobisisoheptonitrile products against the law , 41 people died, 6 injured.

面临的主要挑战

6. **2011年6.14事故**，广西G324国道旁停车场内发生危险化学品转载过程中引发火灾事故，造成8人当场死亡、6人受伤
7. **2012年8.26事故**，包茂高速大客车与一辆运送甲醇的重型罐车发生追尾碰撞，继而泄露起火，导致客车上36人死亡、3人受伤
8. **2013年2.1事故**，连霍高速义昌大桥因运输烟花爆竹车辆爆炸引起桥面垮塌，事故造成8辆车坠落、9人死亡和11人受伤
9. **2014年3.1事故**，晋济高速岩后隧道，两货车追尾，造成前车装载的甲醇泄漏、引爆，造成40人死亡、12人受伤和42辆车烧毁
10. **2014年7.19事故**，沪昆高速一辆装载乙醇的小货车与大客车追尾后爆炸燃烧，造成5辆车烧毁、43人遇难
11. **2015年1.16事故**：荣乌高速因车辆追尾导致油罐车爆燃，导致12人死亡，6人受伤

Main Challenges

6. **Jun. 14, 2011 :** Guangxi Road G324, a fire accident happened because of the transshipment of dangerous goods in the parking lot , 8 people died, 6 injured.
7. **Aug. 26, 2012 :** Baomao Expressway, a bus rear-ended a heavy tank truck carrying methano, the chemical leaked and the truck caught on fire, 36 people died, 3 injured.
8. **Feb. 1, 2013 :** Yichang Bridge of the Lianhuo Expressway, the truck loaded with fireworks exploded , part of the bridge collapsed, 8 cars fall into the river, 9 people died, 11 injured.
9. **Mar. 1, 2014 :** Tunnels on the Jinji Expressway, two trucks rear-ended, the methanos in the tank leaked and caused an explosion, 40 people died, 12 injured, and 42 cars destroyed.
10. **Jul. 19, 2014 :** Hukun Expressway, a truck loaded with ethanol rear-ended a bus and exploded, 5 cars destroyed and 43 people died.
11. **Jan. 16, 2015 :** Rongwu Expressway, a truck loaded with ethanol was rear-ended by a car and exploded, 12 people died, 6 injured.

面临的主要挑战

2014年3月1日，晋济高速岩后隧道危险货物道路运输事故

Main Challenges

Accident happened on Mar. 1, 2014, in the tunnels on Jinji Expressway

面临的主要挑战

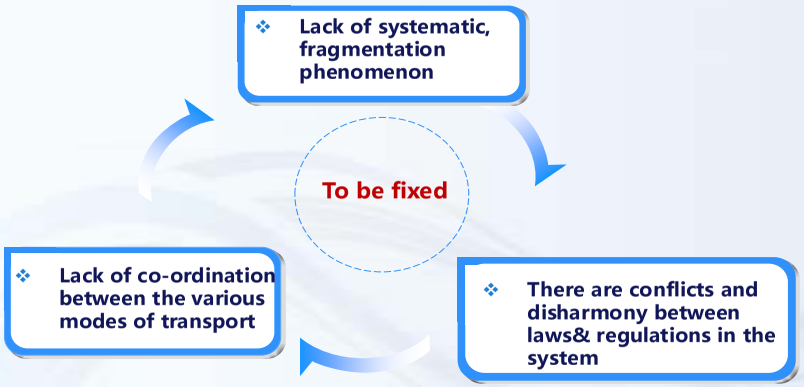
2015年1月16日，荣乌高速危险货物道路运输事故

Main Challenges

Accident happened on Jan. 16, 2015 on Rongwu Expressway

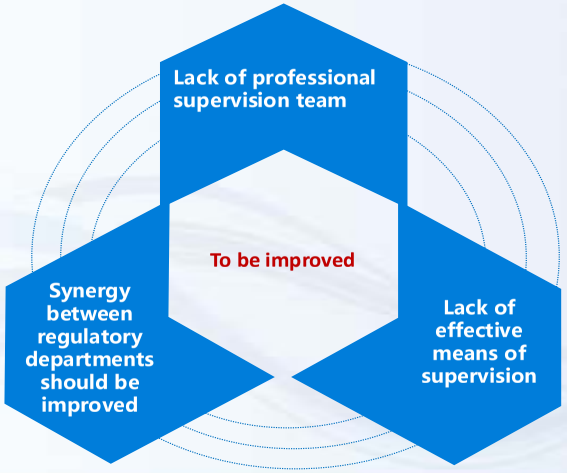
法规标准体系不完善

Regulations and standards system need to be promoted

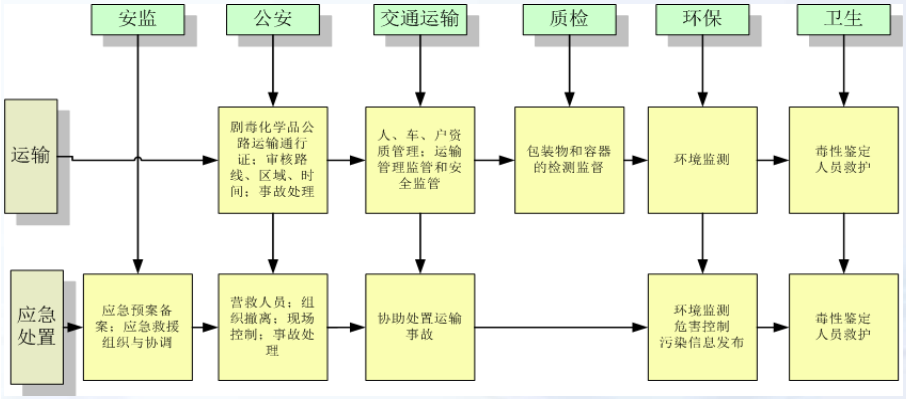


监管能力有待提升

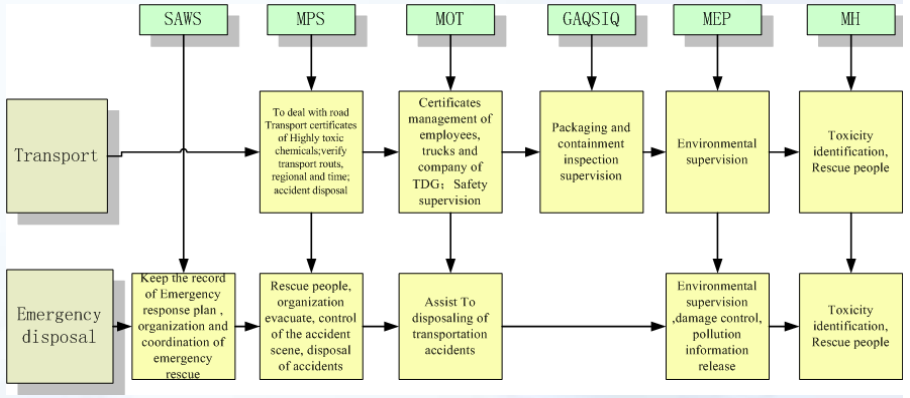
Regulatory capacity needs to be improved



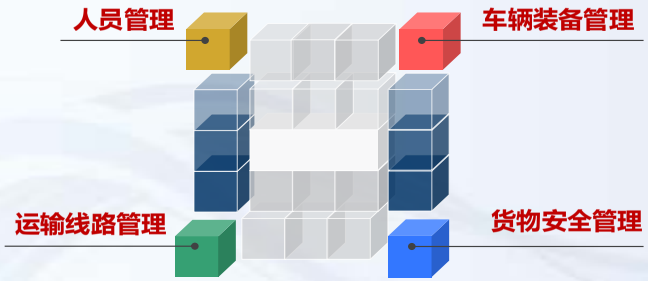
监管能力有待提升



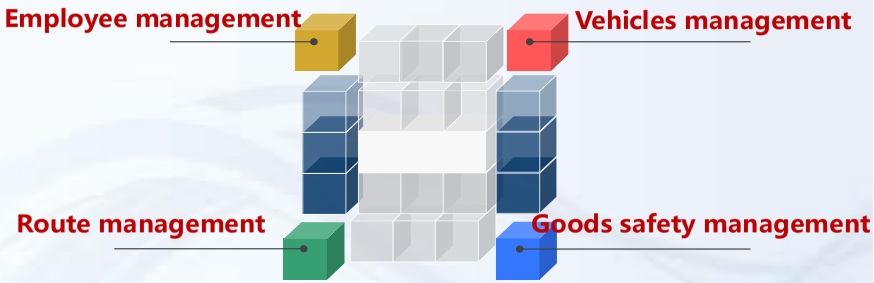
Regulatory capacity needs to be improved



部分运输企业安全管理能力较弱



Some enterprises are weak in safety management



应急救援能力有待提升

据不完全统计，从2008至2012年每年发生近万起、每天27起危险化学品事故，其中76%以上是运输事故

Emergency Response capability needs to be improved

According to incomplete statistics, from 2008 to 2012, nearly 10000 DG accidents happens every year , that is every day, more than 76% of which happen during transportation.

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近期主要工作

1

危险货物道路运输安全管理办法

（六部门联合制定）

主要内容

- ✓ 完善道路运输豁免制度；
- ✓ 实施例外及有限数量制度；
- ✓ 实行托运清单及运单制度；
- ✓ 建立罐车强制检验制度；
- ✓ 改进道路运输通行管理。

Recent Work

1

Rules on the Safety Control over the Transport of Dangerous Goods by Road

(Jointly developed by 6 departments)

Outline

- ✓ Improve exemption policy system;
- ✓ Implement excepted and limited quantities policies;
- ✓ Implement waybill policies;
- ✓ Implement compulsory inspection for tankers;
- ✓ Improve road traffic management.

近期主要工作

2

修订危险货物道路运输规则

（JT617，参照TDG/ADR）


前　言

JT 617《危险货物道路运输规则》分为九个部分：

——第1部分：通则；

——第2部分：分类和分项；

——第3部分：道路运输危险货物品名表；

——第4部分：包装容器及罐体使用；

——第5部分：托运程序；

——第6部分：包装容器及罐体的制造与试验；

——第7部分：装卸条件及作业要求；

——第8部分：运输条件及作业要求；

——第9部分：车辆技术要求。

本部分为JT/T 617的第1部分。

本部分按照GB/T 1.1—2009给出的规则起草。

本部分由交通运输部运输服务司提出。

本部分由全国道路运输标准化技术委员会（SAC/TC 521）归口。

Recent Work

2

Revision of the regulation of automobile transportation of dangerous goods

（JT617，refer to TDG/ADR）


前　言

JT 617《危险货物道路运输规则》分为九个部分：

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近期主要工作

3 提升应急救援能力

推动企业成立全国危险货物道路运输服务联盟，实现跨区域应急救援互助

Recent Work

3 *Improve emergency response capacity*

Promote the establishment of Dangerous Goods Transportation Alliance of China, as to realize interregional emergency response mutual aid.

近期主要工作

3 提升应急救援能力

安运通（手机APP软件）：

- 借鉴美国、加拿大ERG软件经验
- 包括近3000种危险货物分类分项、标签、应急处置信息
- 用户免费使用

Recent Work

3 *Improve emergency response capacity*

Safe carriage of dangerous goods (App)

- Learn from the experience of the USA. and Canada
- A database of more than 3000 items of dangerous goods , including information like classification、marks and labels ,emergency response guide , etc..
- Free access

The SAFECHEM solution for safe transport, storage, and handling of hazardous chemical materials

陶氏SAFECHEM——安全运输、储存及装卸有害化学材料的解决方案

U.S. – China Inter-modal Hazardous Materials Handling Seminar

Manfred Holzleg, Managing Director
郝咨乐总经理
Beijing, April 26, 2016

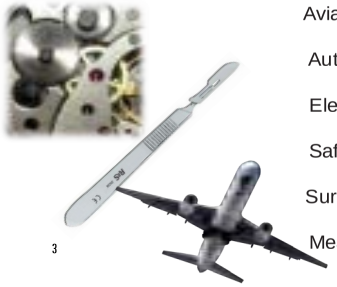
DOW | SAFECHEM be responsible

使命与服务对象
Mission & Customers

SAFECHEM be responsible

We are The Service Company responsible for the sustainable and innovative use of chemicals
我们是服务型公司，致力于化学品的可持续与创新性使用。

8000 customers rely on our high quality surface cleaning solutions
8000家用户采用我们高品质表面清洗的解决方案



Aviation Industry 航空航天工业
*
Automotive Industry 汽车工业
*
Electronics Industry 电子工业
*
Safety Components 安全配件
*
Surgical Instruments 外科仪器
*
Measuring Systems 测量系统

DOW | SAFECHEM be responsible

公司
Company

SAFECHEM Europe GmbH
SAFECHEM欧洲公司

- **Subsidiary of The Dow Chemical Company 陶氏化学公司的全资子公司**

  Headquarters in Duesseldorf, Germany 总部位于德国杜赛尔多夫

  Founded in 1992 in Germany 1992年创立于德国

  Expanded across Europe 业务已遍及欧洲

  China as next step of geographic expansion 服务将延伸至中国

- **Committed to the Principles of Responsible Care**

  遵循责任关怀原则的承诺

Responsible Care® OUR COMMITMENT TO SUSTAINABILITY

DOW | SAFECHEM be responsible

SAFE-TAINER™系统
SAFE-TAINER™ system

SQAS Safety and Quality Assessment System
安全与质量评估系统
ESAD compliant

DOW | SAFECHEM be responsible

SAFE-TAINER™系统
SAFE-TAINER™ system

The SAFE-TAINER™ system for fresh solvent
新鲜溶剂所用的SAFE-TAINER™系统

The SAFE-TAINER™ system for used solvent
回收溶剂所用的SAFE-TAINER™系统

DOW | SAFECHEM be responsible

风险管理
Risk Management

Product specific risks of solvents
溶剂的特殊产品风险

Short-sighted towards progress
关注短期效果的考虑

Acceptance of the second best alternative
可接受次一级的选项

Challenge 挑战

Risk Management to profit from the best solution
通过最佳方案的风险管理获益

Main drivers:
- Responsible Care® and Product Stewardship
- EU VOC directive
- REACH

Sustainable Development 可持续发展

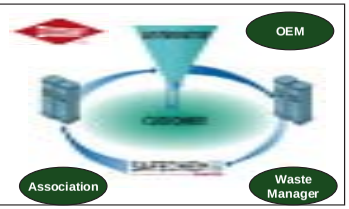
Environmental Responsibility 环境责任

SAFE-TAINER™ System: SAFE-TAINER™系统
- Unique and state-of-the-art closed loop delivery system
  独特且最先进封闭运送系统

Service Elements: 服务元素
- Wide range of service elements for customized solutions
  基于广泛服务元素的定制解决方案

Service Alliance: 服务联盟
- Close cooperation with all stakeholders along the supply chain
  在整个供应链上与所有相关方紧密合作

Continuous development: 不断发展
- Start-up of innovative business models like Chemical Leasing
  开始创新业务模式，例如化学品租赁



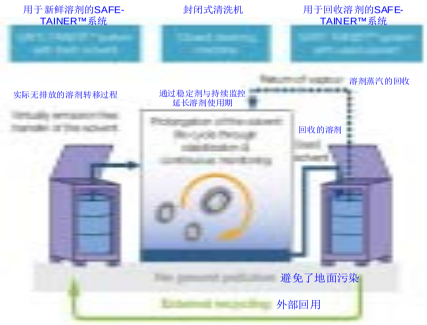
DOW | SAFECHEM be responsible

有利于环保
Environmental Benefits

DOW | SAFECHEM be responsible

清洗应用
Cleaning Application

The Cleaning Process
清洗工艺



The SAFECHEM Solution
SAFECHEM的解决方案

DOW | SAFECHEM be responsible

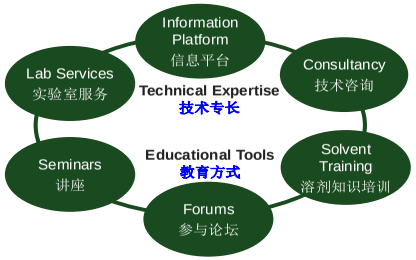
知识分享
Knowledge Sharing

CHEMAWARE™ Knowledge Service
CHEMAWARE™ 知识分享服务

Mission 使命	CHEMAWARE™ Knowledge Services provide knowledge and raise awareness for the responsible and sustainable use of solvents to enable first class industrial surface cleaning CHEMAWARE™ 知识分享服务为溶剂的负责地和可持续使用提供相关知识、加深理解，以实现一流的工业表面清洗。

1400+

End-users have been trained to sustainable use of chemicals
1400多家用户
为化学品的可持续使用
接受了培训



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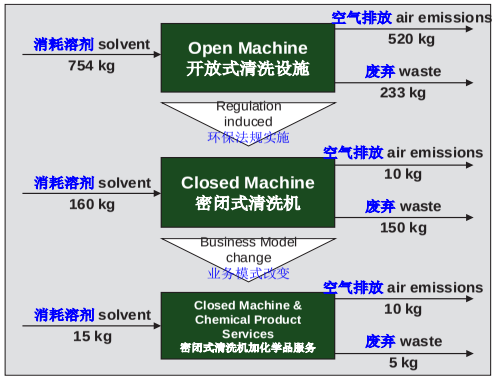
DOW SAFECHEM be responsible

降低化学品消耗
Reducing Consumption

Chemical Product Services increase solvent efficiency
化学品的服务提高了溶剂使用的效率

Amounts per 100 kg oil removed
清洗每100公斤油污所消耗的清洗溶剂量
——欧盟委员会联合研究中心



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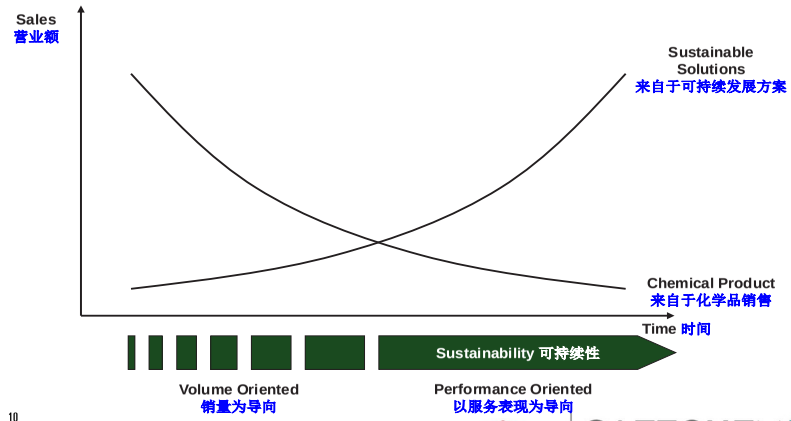
DOW SAFECHEM be responsible

推动可持续发展
Driving Sustainability

Paradigm Shift 模式的转变



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DOW SAFECHEM be responsible

受到的表彰
Awards & Recognition

Recognized as sustainable and innovative Business Model
被誉为可持续与创新性业务模式

2011
WWF
世界自然基金会

2012
UNIDO/BMU
联合国工业发展组织
德国联邦环境部

2013
BMU/BDI
德国联邦环境部
德国工业联合会

2014
VDI
德国工程师协会

2014
UNEP
联合国环境规划署

12

DOW SAFECHEM be responsible

Thank you!
感谢交流

Data Analytics on Transport Related Accidents of Dangerous Goods in the US

美国危险物品运输相关事故数据分析及反思

U.S. – China Inter-modal Hazardous Materials Handling Seminar

中美危险物品储运安全研讨峰会

April 26 – 27, 2016

Professor Ling Li, PhD, Chair, Dept. of IT & Decision Sciences, ODU

李令遐教授，美国奥多明尼昂大学斯特姆商学院信息和决策科学系主任

Introduction

简介

- Two important technological innovations that have made supply chain virtual integration possible:
  - **information technology**
  - **container boxes**

  二十世纪后期的两项重要的技术创新:

  信息技术和**集装箱运作**

- **Information technology** shortened the geographic distance by providing a virtual information highway

  信息技术通过提供一条虚拟的信息高速公路来缩短地理距离

- **Container boxes** have lowered the cost of transportation which has helped to justify shipping a large volume of goods from the eastern hemisphere to the western hemisphere.

  集装箱运作降低了远程运输成本，使得大量的货物能够从东半球运到西半球

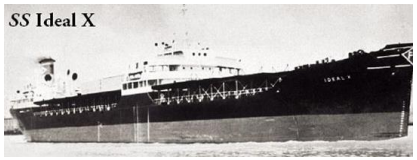
Larger Vessels Reshaping Supply Routes

大型集装箱轮船重塑供应链路线

- Introduction of large container ships

  大型集装箱船简介

  - 1958: "Ideal-X" (first container vessel) carried 58 35-ft containers from New Jersey, US to Texas, US in 5 days
  - 2006: 12,000 to 13,600 TEUs
  - 2008: 16,000 TEU vessel announced, 1,320-ft x 55-ft beam
  - 2015: 19,000 TEU vessel was introduced



SS Ideal X - 526-ft long, 16-knot speed

World's Biggest Container Ship – CSCL Ordered Five Of A Kind 19,000 TEU Vessels

Intermodal Becomes a Mode of Transport

联运成为一种交通方式

- Intermodal becomes an accepted mode of transport and has allowed rails to move back up the value chain.

  多式联运成为一个公认的模式，也使铁路运输成为价值链的一部分。

- The intermodal industry is a central player in the defining business activity of the late 20th and early 21st century

  联运在20世纪末和21世纪初成为供应链中的核心部分。

- Without a double-stacked network across the continent there would be no industrial outsourcing, no global sourcing, no big box retailers, no JIT, and more.

  如果没有双层货车纵横美国大陆就不会有产业外包，不会有全球采购，不会有超大的零售商，不会有JIT等。

Benefits of Intermodal
联运的优势

- Benefits of using intermodal
  联运的优势 -
  - Improved productivity;提高生产力
  - Improved operations;改进操作
  - Reduced cost;降低了成本
  - Reliable;可靠
  - Efficient;高效
  - Safe;安全
  - Environmental Friendly;环保

Potential Problems of Intermodal
多式联运的潜在问题

- Congestion in Southern California
  南加洲交通拥挤
  - Ports and rail terminals are operating close to full capacity
  - Surface transportation is congested
  - Land constraints limit expansion
  - Environmental impact

- Labor Issues in Southern California
  南加州劳工问题
- PNW and Canada
  西北太平洋和加拿大港口
  - Pacific Northwest port and rail infrastructure - Southern California
  - Vancouver has labor/service disruptions
  - Prince Rupert's CN service is new and unproven

http://www.unikron.com/tools/play/play_display.cgi?speed=hi&id=cn2

Intermodal Loadings 2000-2012
2000 – 2012 年联运载荷

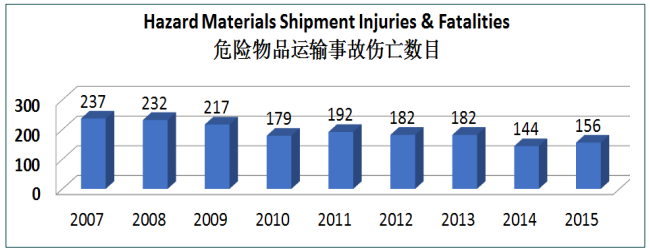
Hazardous Material Shipment Value by Modes 2007–2012
2007 – 2012年各联运模式所载危险物品价值

Multiple modes 联运	Value 价值 2012 (million $)	2007 (million $)	Percent change
Parcel, U.S. P. S., or courier 美国邮政服务,快递	10,294	7,675	**34.1%**
Truck and rail 卡车和铁路	13,338	7,052	**89.1%**
Truck and water 卡车和水路	S	23,451	S
Rail and water 铁路和水路	2,474	5,153	**–52.0%**

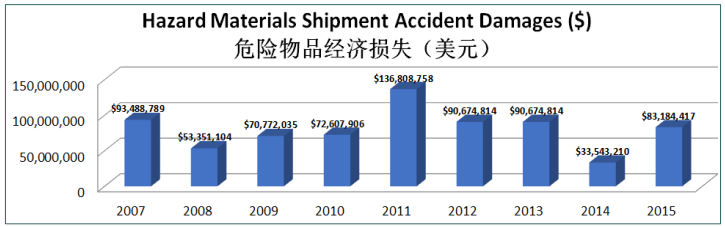
Hazardous Material Shipment Weight by Modes 2007–2012
2007 – 2012年各联运模式所载危险物品重量

Multiple modes 联运	Ton 重量 2012 (thousands)	2007 (thousands)	Percent change
Parcel, U.S. P. S., or courier 美国邮政服务,快递	305	236	29.2%
Truck and rail 卡车和铁路	16,992	11,706	45.2%
Truck and water 卡车和水路	S	36,588	S
Rail and water 铁路和水路	4,589	5,742	–20.1%

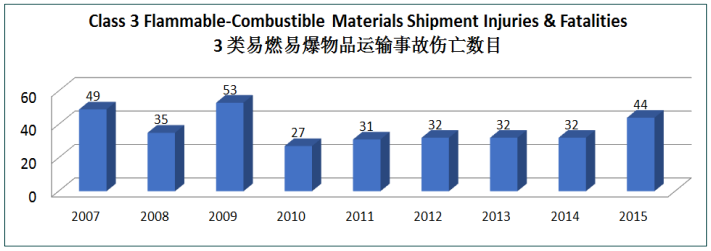
Hazardous Material Shipment Incident 2007 – 2015
危险物品事故 2007 - 2015



Hazardous Material Shipment Accident Damages
危险物品经济损失



Class 3: Flammable-Combustible Materials Shipment Incident
3类: 易燃易爆物品事故数目



National Freight Strategic Plan
国家货运战略计划

- Six key trends and challenges; 六个关键趋势和挑战
  - Expected growth in freight traffic;
    预期货运交通增长
  - Governance-related barriers to planning and implementing freight projects;
    排除有关障碍，以规划和实施运输项目;
  - Safety and security problems related to the movement of freight;
    解决有关货物运输安全和安全问题;
  - Increased global economic competition;
    增加了全球经济竞争;
  - Application and deployment of new technologies;
    应用和开发新技术;
  - Underinvestment in the freight system.
    解决货运系统投资不足的情况

Reflection From A Policy Point of View:
从决策制定方面得到的反思与启示

- Create an integrated plan 制订一个综合计划
  - Develop a national freight transportation policy that takes both rail and rail intermodal strategy into just consideration.
    制定国家货物运输政策时需要考虑铁路和公铁联运战略
  - Some connecting “parts” such as chassis pools, etc., also remain unresolved.
    一些连接“部件”，如底盘等还没得到解决。
- Co-invest wisely 明智的合作投资
  - make the country run at its best or encourage private side financial investment.
    使国家运行处于最佳状态并鼓励私企金融投资

Reflection from a Rail Point of View:
从铁路运输方面得到的启示

- Achieve pricing power
  实现定价权
- Mega-Projects
  大型项目
- Constant Projects
  长期项目
- Maintain trade lane flexibility
  保持贸易通道的灵活性
- Simplify complicated supply chain
  简化复杂的供应链
- Add speed
  加快速度
- Consider strategy changes as needed
  根据需要考虑策略的变化
- Look at new markets
  探索新市场

Thank You Very Much

非常感谢

NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

危险化学品

安全储存、运送及使用标准

美国消防协会 技术服务部主任 盖伊·科隆纳

NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

Hazardous Chemicals

Standards for Safe Storage, Handling, and Use

Guy R. Colonna, PE, NFPA Division Director

议程

- 关于美国消防协会（NFPA）
- 美国消防协会（NFPA）危险化学品仓储、运输和使用的标准
- 美国消防协会（NFPA）应急响应的标准
- 案例分析—2013年4月德克萨斯州西部化肥厂事件
- 总结和提问

Agenda

- Who is NFPA?
- NFPA standards for hazardous chemicals storage, handling, and use
- NFPA standards for emergency response
- West, TX fertilizer plant incident, April 2013 – case study
- Closing and questions

关于美国消防协会（NFPA）

- 1896年成立
- 总部：美国马萨诸塞州昆西
- 区域办公室覆盖北美，另在全世界设有联络处（例如北京）
- 美国消防协会（NFPA）会员：
  - 约6万会员
  - 超过80个商业和专业组织

Who is the NFPA?

- Organized in 1896
- Headquarters: Quincy, MA, USA
- Regional Offices throughout the North America and also representatives throughout the World (Beijing for example)
- NFPA Membership:
  - Approximately 60,000 members
  - More than 80 trade and professional organizations

关于美国消防协会（NFPA）

- 美国消防协会（NFPA）的使命是通过我们的信息、知识与热情帮助挽救生命
- 美国消防协会（NFPA）的工作人员和成员都致力于减少死亡、伤害、财产以及火灾、电气及相关危害造成的经济损失
- 我们的信息和知识有很多形式：推行超过300多条规范和标准、开展研究和数据分析、培训和认证、公共教育和宣传

Who is the NFPA?

- NFPA's mission is to help save lives through information, knowledge and passion
- NFPA staff and members are devoted to eliminating death, injury, property, and economic loss due to fire, electrical and related hazards
- Our information and knowledge comes in many forms: over 300 codes and standards, research and data analysis, training and certification, public education, outreach and advocacy

美国消防协会（NFPA）标准制定过程

- **志愿共识标准开发组织（SDO）**
  - 通过州或地方消防及建筑法规
  - 参考联邦法规
- **由超过5000名志愿者组成的技术委员会制定**
  - 过程完全开放，任何人都可以参加会议并提出更改
  - 至少每5年修订

NFPA Standards Making Process

- Voluntary consensus standards developing organization (SDO)
  - Adoption through state or local fire and building codes
  - Incorporation by reference into federal regulations
- Developed by technical committees served by over 5000 volunteers
  - Process is open – anyone can attend meetings and propose changes
  - Revised at least every 5 years

访问美国消防协会（NFPA）信息页

- 主页
  - www.nfpa.org
  - 规范标准页码
  - 文件列表
- 网页浏览器
  - www.nfpa.org/400
- 下一版本

Accessing NFPA Document Information Pages

- Home page
  - www.nfpa.org
  - Codes and Standards tab
  - List of documents
- From web browser
  - www.nfpa.org/400
- Next edition tab

美国消防协会（NFPA）文件的支持资源

- 统计资料
- 活动分析
- 火灾调查
- 消防研究基金会
  - 阐明研究需要
  - 建立资金来源
  - 促进研究项目
  - 传播结果

Resources to Help Support NFPA Documents

- Statistical data
- Event analysis
- Fire investigation
- Fire Protection Research Foundation
  - Clarifies need for research
  - Establishes funding sources
  - Facilitates research project
  - Disseminates results

危险品化学品/材料

Hazardous Chemicals/Materials

对危险化学物质的关注度在提高

1984年12月印度中部城市博帕尔－释放4吨甲基二异氰酸酯（MIC）杀死数千人，丧生人数至今仍有**争议**

官方公布的死亡人数超过2万，但事件发生至今仍以每天增加一位生亡者的速度持续着。

Hazardous Material Concerns Emerge

December 1984 Bhopal –release of 4 tons of methyl isocyanate (MIC) killed thousands, the exact number of people killed remains in debate

The official government death toll to date stands at more than 20,000 and even now today, at least one person per day dies from the injuries they sustained on that night

美国消防协会（NFPA） 400 危险化学品规范范围

储存、处理和使用

- 硝酸铵
- 腐蚀性材料
- 易燃固体
- 有机过氧化物质
- 固态和液态氧化剂
- 引火材料
- 有毒和剧毒
- 不稳定（反应）固态和液态
- 与水反应的固态和液态
- NFPA 55：压缩气体和冷却剂规程标准

NFPA 400 Scope

Storage, handling, use

- Ammonium nitrate
- Corrosive materials
- Flammable solids
- Organic peroxide formulations
- Solid and liquid oxidizers
- Pyrophoric materials
- Toxic and highly toxic
- Unstable (reactive) solids and liquids
- Water-reactive solids and liquids
- Compressed gases and cryogenic fluids as defined by NFPA 55, *Compressed Gases and Cryogenic Fluids Code*

多重危险性

- 当物质具有多重危险性，有必要对每种类别的危险性进行防护说明

液态硝酸

氧化剂

+

腐蚀性物品

Multiple Hazards

- Where a material has multiple hazards, all hazards to be addressed with protection for each category

Liquid Nitric Acid

Oxidizer

+

Corrosive

美国消防协会（NFPA） 704 化学品危害四色图

NFPA 704 Labeling System

美国消防协会（NFPA）704 危险品紧急处理系统鉴别标准

- 该标准根据在短时间、火灾、泄漏条件下材料的急性暴露或类似的突发事件中涉及的健康危害性、可燃性、反应活性以及特殊危害性简单判断危险品的危害程度

NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response

- This standard shall address the health, flammability, instability, and related hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies.

风险评估因素

- 物质的危险特性
- 物质的形态（固态、液态或气态）
- 物质（储存或使用）的情况
- 物质的保护— 建筑类型、火灾探测和灭火系统
- 区域内物质的数量

Risk Evaluation Factors

- Hazard characteristics of the material
- State of the material (solid, liquid or gas)
- Situation of the material (storage or use)
- Protection of the material – type of construction, fire detection and suppression systems
- Quantity of the material in an area

多重危险性

- 当物质具有多重危险性，有必要对每种类别的危险性进行防护说明

液态硝酸

氧化剂

+

腐蚀性物品

Multiple Hazards

- Where a material has multiple hazards, all hazards to be addressed with protection for each category

Liquid Nitric Acid

Oxidizer

+

Corrosive

美国消防协会（NFPA） 704 化学品危害四色图

NFPA 704 Labeling System

美国消防协会（NFPA）704 危险品紧急处理系统鉴别标准

- 该标准根据在短时间、火灾、泄漏条件下材料的急性暴露或类似的突发事件中涉及的健康危害性、可燃性、反应活性以及特殊危害性简单判断危险品的危害程度

NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response

- This standard shall address the health, flammability, instability, and related hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies.

风险评估因素

- 物质的危险特性
- 物质的形态（固态、液态或气态）
- 物质（储存或使用）的情况
- 物质的保护— 建筑类型、火灾探测和灭火系统
- 区域内物质的数量

Risk Evaluation Factors

- Hazard characteristics of the material
- State of the material (solid, liquid or gas)
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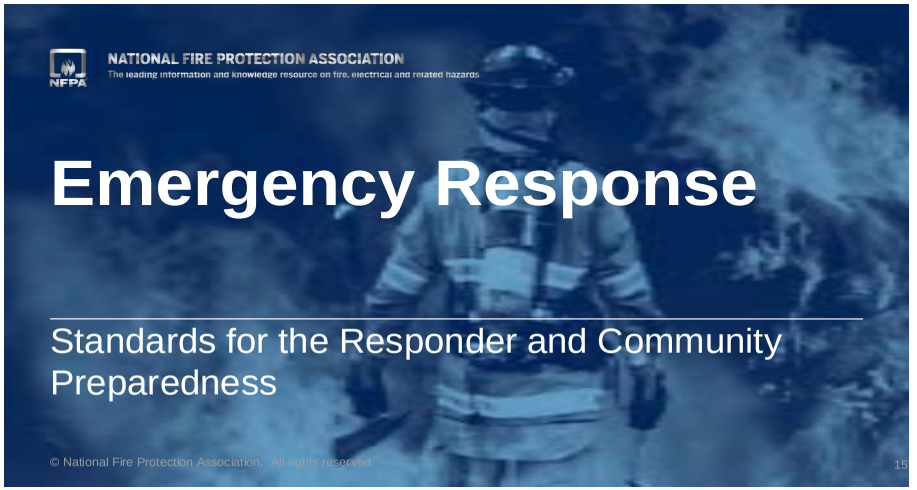

美国消防协会（NFPA） 1620预防计划的推荐标准

- 制定计划过程
- 场地考虑
- 居住者考虑
- 供水和消防系统
- 特殊危害
- 急救操作
- 预防计划测试和维护

NFPA 1620 Standard for Pre-incident Planning

- Planning Process
- Site Considerations
- Occupant Consideration
- Water Supplies and Fire Protection Systems
- Special Hazards
- Emergency Operations
- Pre-Incident Plan Testing and Maintenance

美国消防协会（NFPA） 1026 事故管理人员资格标准

- 在所有危险应对突发性事件管理系统中，确定人员的工作绩效要求
- 包括－指挥者、安全员、公共信息官（PIO）、联络官以及操作员

NFPA 1026 – Standard for Incident Management Personnel Professional Qualifications

- Identifies the Job Performance Requirements (JPR) for personnel performing roles within an all-hazards incident management system
- Includes – incident commander, safety officer, public information officer (PIO), liaison officer, operations

美国消防协会（NFPA） 472

- 应对危险材料和大规模毁灭性武器事故的专业技能标准
- 核心竞争力
  - 察觉能力
  - 处理能力
  - 技术能力
- 对专业人员、 油槽车技术人员和易燃气体散装仓储的技术人员的附加能力要求

NFPA 472

- Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents
- Core competencies
  - Awareness level
  - Operations level
  - Technician level
- Additional competencies for specialist employees, technician with tank car specialty, technician with flammable gases bulk storage specialty

德克萨斯州西部的化肥厂爆炸

2013年4月17日，晚上7:29分。德克萨斯州西部的一家化肥厂发生火灾，大约22分钟后发生了大爆炸。最后爆炸形成了一个30米（93英尺）宽的深坑。

15人死亡，包括12急救人员。

政府机构— 由美国化学安全委员会调查

West, TX Fertilizer Plant Explosion

On April 17, 2013, at approximately 7:29 p.m. a fire was reported at the West Fertilizer Plant in West, Texas. Approximately 22 minutes later a large explosion occurred. In the end, a crater 30 m (93 ft) wide was created at the seat of blast.

15 fatalities, including 12 emergency responders.

Government agency – US Chemical Safety Board investigated

化肥厂西面及附近

West Fertilizer Plant and Immediate Vicinity

硝酸铵性能-已知的

- 纯硝酸铵不会燃烧
- 纯硝酸铵不会爆炸
- 纯硝酸铵火中不会爆炸
- 纯硝酸铵对冲击不敏感, 不会因摩擦及正常的撞击和操作发生爆炸
- 硝酸铵在165 ° C(华氏330° F)融化而且在遇热/火时分解
- 硝酸铵在遇热/火时分解并产生有毒气体
- 硝酸铵是一种氧化剂，所以即使在缺氧的情况下亦增强可燃材料的燃烧

Properties of Ammonium Nitrate – what do we know?

- Pure AN will not burn.
- Pure AN will not explode.
- Pure AN will not explode in a fire.
- Pure AN is not shock sensitive and will not explode due to friction and normal impact and handling.
- AN will melt ~165° C(~330° F) and decompose when exposed to heat/fire.
- AN will decompose when exposed to heat/fire and form toxic gases.
- AN is an oxidizer so even in the absence of oxygen it increases the burning of combustible materials

未知的

- 引爆的条件尚不明确.
- 可燃材料的污染似乎是增加爆炸危险的共同点
  - 一些污染导致不稳定
  - 并非所有的不稳定会导致爆炸
- 以下情况合并发生时发生爆炸的危险增加
  - 加热（暴露于火）直至融化
  - 密闭
  - 污染

What do we NOT know?

- Conditions that lead to explosions not precisely known.
- **Contamination** by combustible materials seems to be the common denominator for increasing risk of explosion.
  - Some contamination leads to instability
  - Not all instability leads to explosions
- Risk of explosion increases when COMBINATION of the following occurs
  - Heating (exposure to fire) until it becomes molten
  - Confinement
  - Contamination

硝酸铵事故应急响应

- 不会爆炸，但会融化并分解成有毒氧化物－硝酸铵化肥是一种氧化剂，无爆炸性，分解为一氧化二氮
- 在温度超过245°C时，熔融硝酸铵具有危险的冲击敏感性
- 污染会增加材料的敏感性
- 消防队员佩戴呼吸器穿防护服

Emergency Response to AN Incidents

- Will not explode, however, will begin to melt and decompose into toxic oxides
  - AN fertilizer is an oxidizer, not an explosive and decomposes into nitrous oxide
- Shock sensitivity of molten AN is a hazard at temperatures above 245°C
- Contamination increases sensitivity of material
- Firefighters wear SCBA and protective clothing

硝酸铵事故应急响应

- 在通风建筑或其他处所存储硝酸铵
- 疏散顺风口居民
- 逆风接近火点
- 消防员–扑灭周围火势，用水给硝酸铵堆降温、脱敏
  - 不要使用蒸汽、二氧化碳、干化学物质或其他灭火剂

Emergency Response to AN Incidents

- Ventilate building or other enclosure where AN stored
- Evacuate downwind residents
- Approach fire from upwind
- Firefighters – extinguish the surrounding fire and cool and desensitize the AN piles with water
  - Do not use steam, CO_2, dry chemicals or other smothering agents

硝酸铵事故应急响应

- 不要将硝酸盐存放在密闭空间内
- 如果火势失控，从建筑物和区域疏散，防止爆炸
- 控制和管理径流水
- 恰当的清理，净化和处理

Emergency Response to AN Incidents

- Keep nitrate out of confined spaces
- If fire is out-of-control, evacuate the building and area and protect against explosion
- Contain and manage run-off water
- Proper cleanup, decontamination, and disposal

如何降低爆炸风险？

- 避免硝酸铵融化
- 避免受限－通风、倾斜、施工
- 防止受污染－不兼容材料的单独储存（例如可燃物）
- 改变配方？混合惰性？

How do you reduce risk of explosion?

- Prevent AN from becoming molten
- Prevent from becoming confined – ventilation, sloping, construction
- Prevent from becoming contaminated – separate storage for incompatible materials (combustibles for example)
- Change formulation? Mix with inert?

结论 – 共同主题

- 德州西部对硝酸铵的性能缺乏风险意识
- 具有挑战性的突发事件
- 土地使用问题–附近社区的潜在危险
- 防火间距–2014年消防保护研究基金会报告
- 吸取经验教训，以改善规范和标准

Summary – Common Themes

- Lack of hazard awareness – properties of AN at West, TX
- Challenging emergency response events
- Land-use issues – proximity of community to potential hazards
- Separation distances – Fire Protection Research Foundation report published in 2014
- Lessons learned applied to improve codes and standards

NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

提问

NATIONAL FIRE PROTECTION ASSOCIATION
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Questions

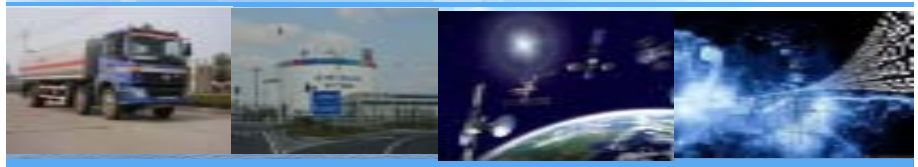
NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

谢谢

NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

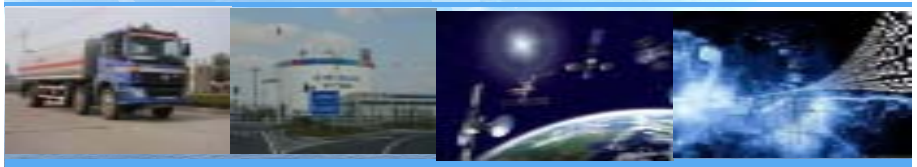
Thank You

危险货物检测与监控



交通运输部公路科学研究院 吴金中
2016.4

Hazardous Materials Detection and Supervision



RIOH Jinzhong Wu

April, 2016

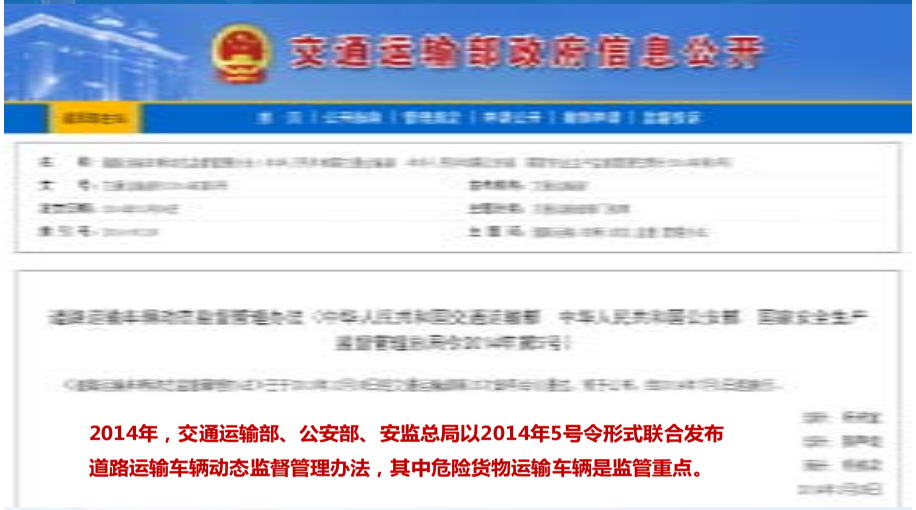
汇报提纲

1. 危险货物运输车辆动态监控
2. 危险货物电子运单试点
3. 危险化学品包装电子标签试点

Outline

1. Dangerous Goods Vehicle Dynamic Monitoring
2. The electronic transport documents of DG pilot
3. The electronic label used on DG packing pilot

危险货物运输车辆动态监控

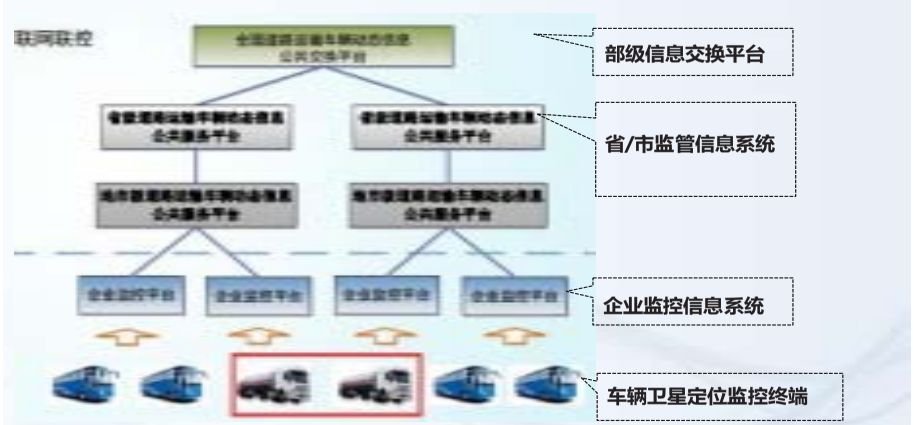


2014年，交通运输部、公安部、安监总局以2014年5号令形式联合发布道路运输车辆动态监督管理办法，其中危险货物运输车辆是监管重点。

Dangerous Goods Vehicle Dynamic Monitoring

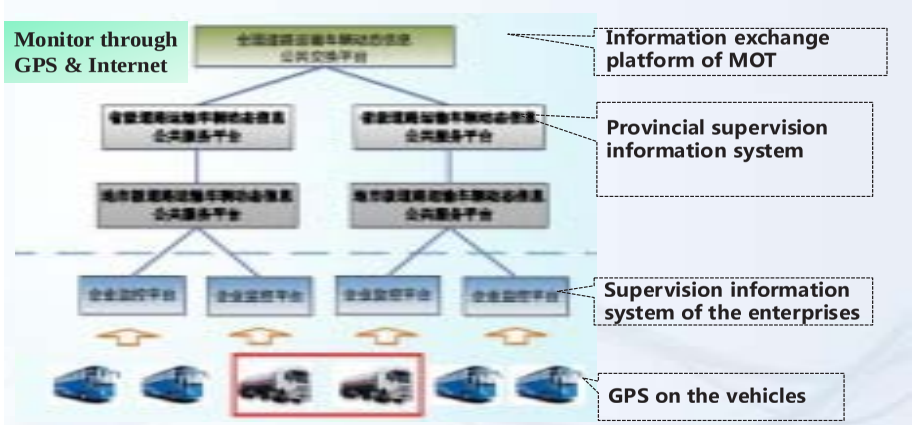
In 2014，Ministry of Transportation, Ministry of Public Service and State Administration of Work Safety jointly published a department rule called "Measures for the Dynamic Supervision and Administration of Road Transport Vehicles" (Rule Nov.5 of 2014), and the supervision of DG vehicle is a obviously a very important part of it.

危险货物运输车辆动态监控



实现车辆超速、超时驾驶、不按规定线路行驶（剧毒及爆炸品运输）等违规行为监管

Dangerous Goods Vehicle Dynamic Monitoring



Promote the supervision on illegal activities like speeding, overtime driving, non-compliance with travel route (toxic and explosive transport) etc..

危险货物运输车辆动态监控

危险货物运输车辆车载终端主要包括卫星定位、无线数据传输、显示、打印等功能，示例：

Dangerous Goods Vehicle Dynamic Monitoring

Dangerous Goods Vehicle should be equipped with devices which contain functions like satellite positioning, wireless data transmission, display, print, for example :

危险货物运输车辆动态监控

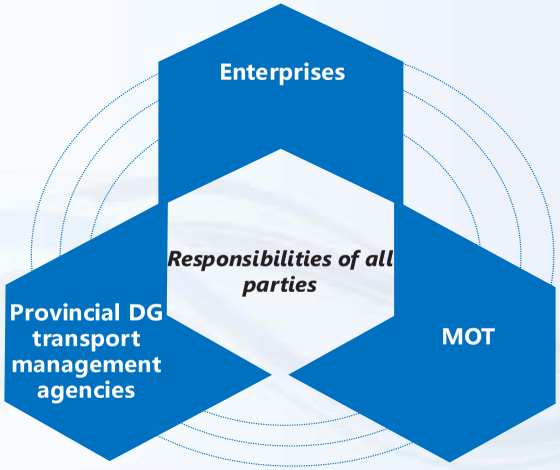
运输企业监控人对在途危险货物运输车辆进行动态监控，及时纠正驾驶员不规范驾驶行为

Dangerous Goods Vehicle Dynamic Monitoring

Safety supervisor of a transportation company is monitoring DG vehicles on the way on real-time base , in order to correct driver's behavior in a timely manner.

危险货物运输车辆动态监控

Dangerous Goods Vehicle Dynamic Monitoring



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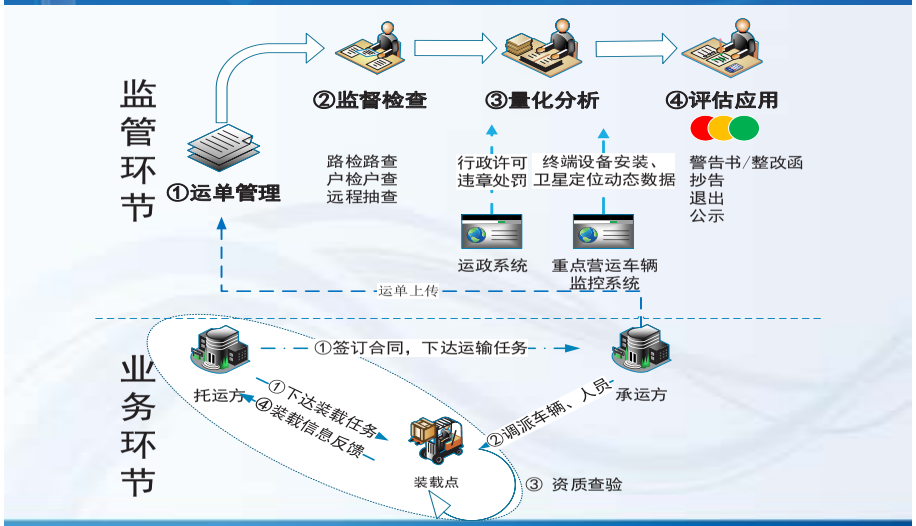
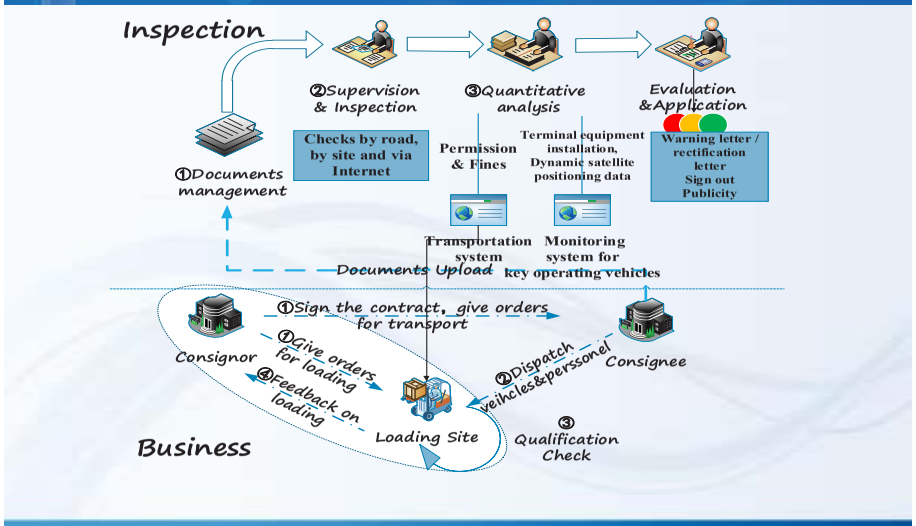
危险货物电子运单试点

The electronic transport documents of DG pilot

危险货物电子运单试点



The electronic transport documents of DG pilot



危险货物电子运单试点

- 从2015年1月开始，北京、江苏、浙江、四川、重庆、陕西省（市）开展了危险货物道路运输电子运单试点工作，试点范围涉及25个市（区），743家企业

The electronic transport documents of DG pilot

- Since Jan.2015，Beijing, Jiangsu, Zhejiang, Sichuan, Chongqing , Shaanxi started the electronic transport documents of DG pilot ,

  which means 25 cities(districts) and 743 enterprises are included

危险货物电子运单试点

2016年起在全国范围开展危险货物道路电子运单试点应用

The electronic transport documents of DG pilot

Since 2016, the electronic transport documents of DG pilot project was promoted around China.

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危险化学品包装电子标签试点

上海市从2010年开始对危险化学品气瓶全面推行电子标签

The electronic label used on DG packing pilot

In 2010, Shanghai made the use of electronic labels on dangerous chemical cylinders compulsory.

危险化学品包装电子标签试点

- 液氯
- 液氨
- 溶解乙炔气
- 氧气
- 氢气
- 液化石油气等

实现对危险气体气瓶及气体质量全过程动态跟踪管理

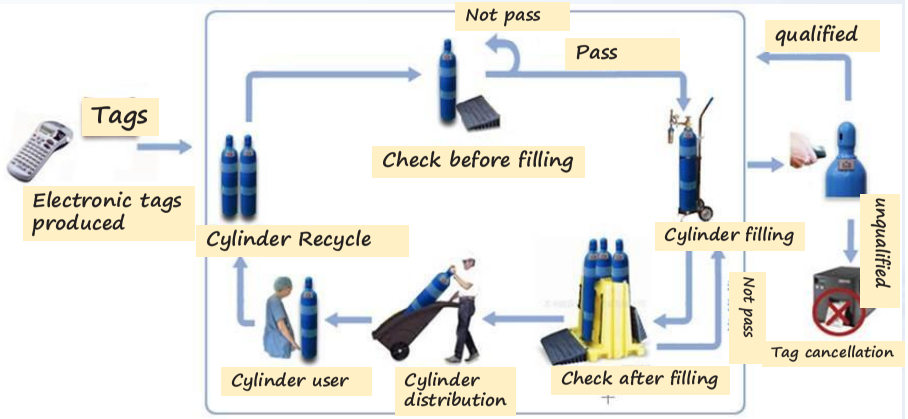
The electronic label used on DG packing pilot

- Liquid chlorine
- Liquid ammonia
- Dissolved acetylene gas
- Oxygen
- Hydrogen
- Liquefied petroleum gas, etc.

Realize dynamic tracking and monitoring of gas cylinders and gas in the whole process.

危险化学品包装电子标签试点

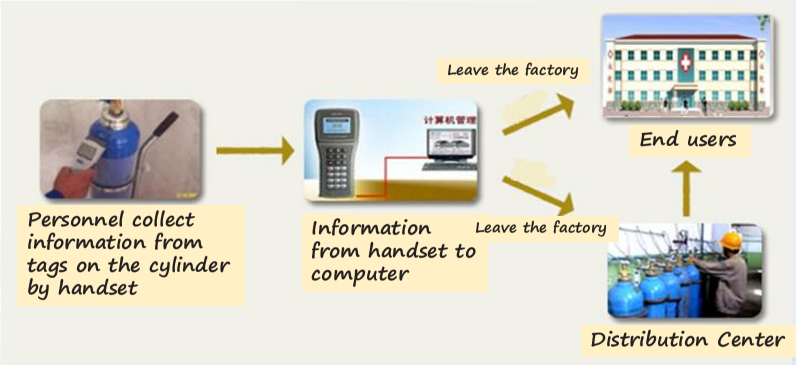
The electronic label used on DG packing pilot



危险化学品包装电子标签试点

电子标签主要包括：气瓶钢号、制造日期、检验信息、充装信息等

The electronic label used on DG packing pilot



Information on the electronic tags： grade of steel 、date of manufacture, inspection information, filling information etc.

危险化学品包装电子标签试点

重庆市危险化学品全过程动态监管信息系统

The electronic label used on DG packing pilot

Dynamic monitoring information system for the whole production process of hazardous chemicals in Chongqing

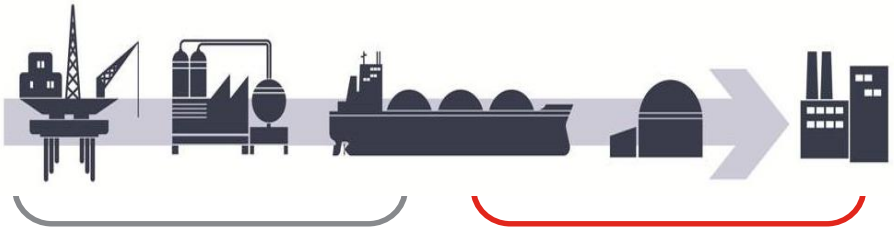

谢 谢！


Thank You！

Emergency Response Solution- AE 定制化方案

- Full charged cylinders mode: support 4 fire fighters320mins
- 满气瓶组供气模式可同时供4个消防员使用320分钟 (avg. 30mins)
- Compressor + cylinder mode: no limitation
- 压缩机+气瓶模式：无使用时间限制
- RIC UAC mode: quick fill 1 cylinder within 1 min
- 快充模式：可1分钟内充满一个呼吸器气瓶

Chemical Product Cycle 化学品产业链



discovery、production /开采、加工

Load and unload、transportation、storage/ 装卸、运输、仓储

Honeywell

Honeywell Corporate Profile 霍尼韦尔公司简介

Honeywell

Aerospace 航空航天集团

Leader in revolutionary aerospace technology 革新性航空航天技术的领导者：

- **1914:** First autopilot flight controller 首个自动巡航飞控系统
- **1954:** First commercial weather radar system 首个商用气象雷达系统
- **1975:** First business jet turbofan engine 首个商用机涡轮发动机

Automation and Control Solutions 自动化控制系统集团

Industry Leader in 是以下领域的行业领导者：

- Home comfort and security 家居舒适与安全
- Building control systems 楼宇控制系统
- Smart Grid/Demand response technology 智能电网/需求响应技术
- Sensing & Productivity Solutions 传感与生产力解决方案
- Fire alarm systems and gas detection 火灾报警系统和燃气检测
- Personal protective equipment 个人防护设备

Performance Materials and Technologies 特性材料和技术集团

Honeywell' s Technology is producing more than 霍尼韦尔技术为全世界生产了超过：

- 60% of the world's gasoline 60%的汽油
- 67% of the world's paraxylene 67%的对二甲苯
- 85% of the world's biodegradable detergents 85%的生物降解洗涤剂

CORPORATE OVERVIEW 公司概述

$40.3B 403亿美元 *in Sales* 销售额*	$3.9B 39亿美元 *in Free-Cash-Flow* 自由现金流*
55% 其中55%来自 *Sales outside U.S.* 美国以外市场的销售额*	$5.56 5. 56美元 *Earnings Per Share* 每股收益*

- 1,300 Sites, 70 Countries 遍布70个国家，近1,300个办公及生产基地
- 127,000 Employees 127,000名员工
- 22,000 Technologists worldwide 22,000名技术专家遍布全球
- 37,000 Patents granted/pending 37,000项专利授权/审批中
- Fortune 100 财富100强

•FY 2014 •2014年的数据

Highly Diversified, Technology-Driven Industrial Company
高度多样化的技术驱动型工业企业

Honeywell

Work classifications--- AR 作业分类---危险源探测

Storage/ 仓储

Transportation/ 运输

Emergency/ 应急抢险

Honeywell

Gas Detection For Storage 气体检测用于仓储

Worker Health
职业卫生

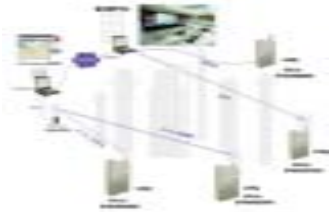
Confined Space
密闭空间

Leak Detection
泄露检测

Fence Line Monitoring
警戒线检测

Fixed/固定式

Portable/便携式



Environment gas detection
环境气体检测

Gas Detection For Transportation 运输中气体检测

- Gas detection system on chemicals vehicles
  车载气体检测系统
- Wireless communication with command center
  与指挥中心无线通信
- Multi Gas detection
  多气体检测
- Real time detection
  实时检测
- AIDC Mobile Computer with GPS 自动识别数据采集移动终端(带卫星定位功能

Emergency Response 应急响应

Work Classification--- PPE 作业分类--- 个人防护

General/
一般作业

High Risk/
高风险作业

Emergency/
应急抢险

Honeywell

PPE Solution for General Works 一般作业防护方案

8

Limitation/作业条件限制：

1.No Toxic gas or vapor, O2 concentration > 19.5%无有毒有害气体，氧气浓度大于啊19.5%

2.No direct contact to chemical liquid不直接接触液态化学品

3.No high risk application as work on height无登高作业风险

Honeywell

Solution for High Risk Works 高风险作业防护方案

9

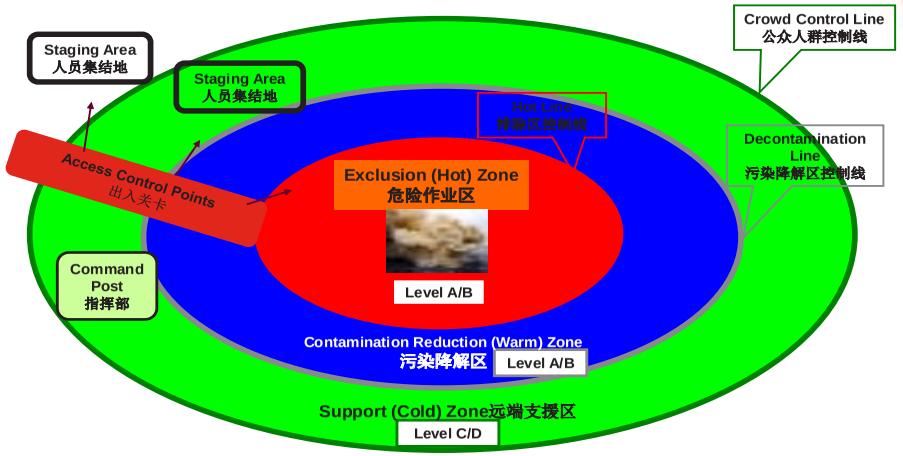
- Respiratory Production/呼吸防护

- Fall Protection/坠落防护

Honeywell

Emergency Response Plan 应急预案

10



OSHA 29 CFR 1910.120 & NFPA 471

Honeywell

Emergency Response solutions- PPE
应急预案个体防护方案

11

- Level A（最高等级防护）

Offers the highest available level of respiratory, skin and eye protection.

- Level B（次高等级防护）

Offers the same level of respiratory protection, but less skin protection than Level A.

- Level C（中级防护）

The level of air purifying respiratory Protection Offers limited skin protection.

- Level D（轻防护）
- No respiratory protection; minimal skin protection.

12

Emergency Response Solution- AE 定制化方案

- Full charged cylinders mode: support 4 fire fighters320mins
- 满气瓶组供气模式可同时供4个消防员使用320分钟 (avg. 30mins)
- Compressor + cylinder mode: no limitation
- 压缩机+气瓶模式：无使用时间限制
- RIC UAC mode: quick fill 1 cylinder within 1 min
- 快充模式：可1分钟内充满一个呼吸器气瓶

13

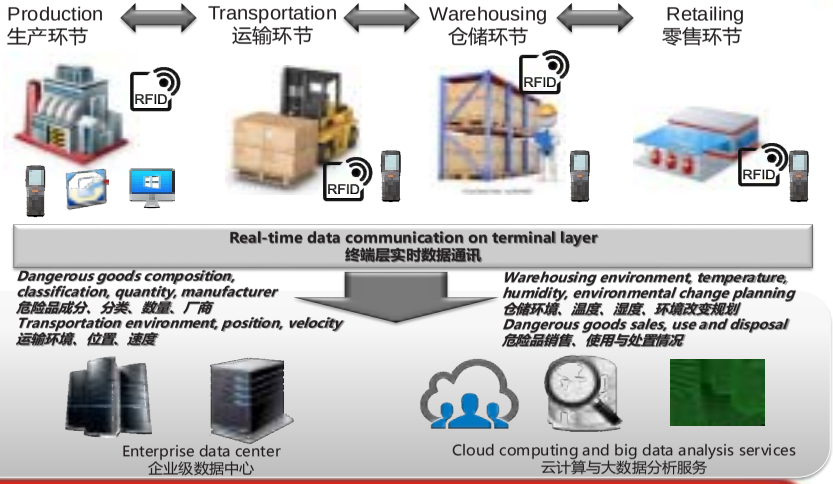
Emergency Response Solution- Shelter 庇护舱

- For the toxic gas leakage, positive pressure protection for groups of people– 60 min

- 针对已知气体泄漏风险，提供多人数的正压防护，防护时间可达60分钟

14

Work Classification--- Information & Assets Management 作业分类---信息化& 资产管理

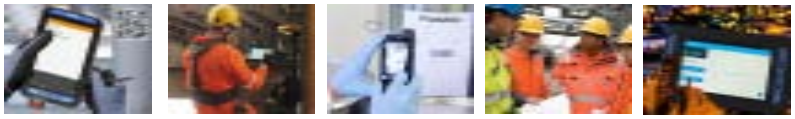


Establish a complete, traceable information system 建立完整、可追溯的信息化系统

Work Classification--- Information & Assets Management 作业分类---信息化& 资产管理

CK71移动终端	CN70移动终端	Centralized Management Software 中心化管理软件	Workflow Effectiveness Software 流程效率软件

Honeywell AIDC (NI) Solution
霍尼韦尔自动化与控制（NI）解决方案



Data Capturing 数据采集 | Inspection & Maintenance 检查与维护 | Photo & Video Capturing 照片与视频采集 | Collaborative Working 协同作业 | Process Automation 流程自动化

Honeywell Win Case
霍尼韦尔成功案例

中国石化 | 中国石化江汉油田 SINOPEC JIANGHAN OILFIELD | 中国石油大庆油田 PETROCHINA DAQING OILFIELD

Honeywell

谢谢 Thank You

美国小包装危险货物运输的法规要求

杭州华测瑞欧科技有限公司
王肖梅 Sunny Wang
Apr 2016，Beijing

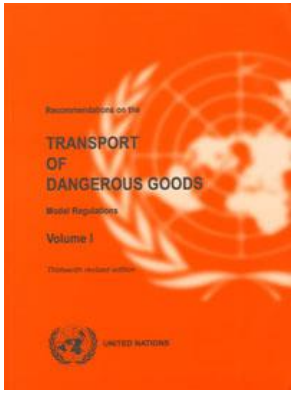
主要内容

1. 简介：联合国小包装危货运输
2. 美国小包装危货运输要求
   - ✓有限数量Limited Quantities (LQ)
   - ✓例外数量Excepted Quantities (EQ)
   - ✓ORM-D Consumer Commodities
   - ✓案例分享Case study
3. 结束语

1 简介：
关于危险货物运输的建议书 – 规章范本

“在某些情况下，如认为一件危险货物的危险性较小，或者货物是按有限数量包装时，可不贴标签。在这种情况下，包件可能需要标明所属的类或项，以及包装类别号。”

第3.4章 有限数量包装的危险货物
第3.5章 例外数量包装的危险货物



- **第3部分：危险货物一览表、特殊规定和例外**

7a – 对照第3.4章的有限数量（LQ），每个容器或物品所装的最大数量
7b – 根据第3.5章准许的例外数量（EQ），每件内容器和外容器的最大数量

UN No.	Name and description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
								Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
1022	CHLOROTRIFLUORO-METHANE (REFRIGERANT GAS R 13)	2.2				120 ml	E1	P200			
1023	COAL GAS, COMPRESSED	2.3	2.1			0	E0	P200			
1026	CYANOGEN	2.3	2.1			0	E0	P200			
1027	CYCLOPROPANE	2.1				0	E0	P200		T50	
1028	DICHLORODIFLUORO-METHANE (REFRIGERANT GAS R 12)	2.2				120 ml	E1	P200		T50	
1029	DICHLOROFLUOROMETHANE (REFRIGERANT GAS R 21)	2.2				120 ml	E1	P200		T50	
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2.1				0	E0	P200		T50	

- **3.5.1.2 例外数量的字母数字编码对照表**

Code	Maximum net quantity per inner packaging (in grams for solids and ml for liquids and gases)	Maximum net quantity per outer packaging (in grams for solids and ml for liquids and gases, or sum of grams and ml in the case of mixed packing)
E0	Not permitted as Excepted Quantity	
E1	30	1000
E2	30	500
E3	30	300
E4	1	500
E5	1	300

2 美国危货运输：LQ/EQ

- 法规依据：
  - Code of Federal Regulations Title 49 (**49 CFR**)
  - Parts 100~185: The Hazardous Materials Regulations (**HMR**)
- Regulatory entity：
  美国交通部 (**DOT**)
- 适用范围：
  - 全美，少数地方略有区别
  - 所有运输方式：管道、空运、铁路、水运、道路
  - 所有运输企业，包括小的快递服务公司

- **标记**

有限数量（LQ）		例外数量（EQ）
		
内装有限数量危险货物包件的标记（除空运外）	空运用有限数量危险货物包件标记	* 分类或项目编号 ** 如包件其他位置未显示发货人或收货人信息，应在此处显示

- **金字塔结构**

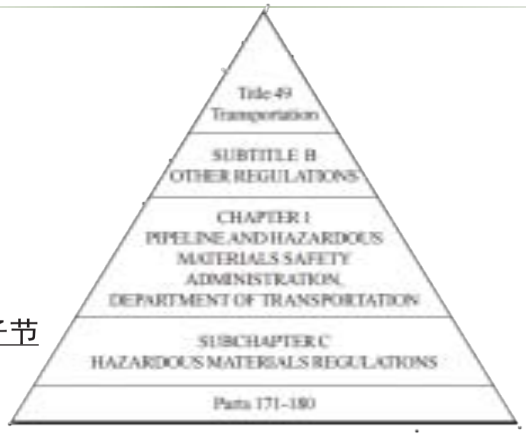
Title 篇

Subtitle 子篇

Chapter 章节

Subchapter 子节

Parts 部分



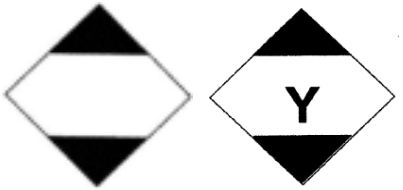
Subparts > sections > paragraphs > subparagraphs > …

- **HMR下托运人的主要义务**
  - ☐ 判断货物是否是“危险品”
  - ☐ 确定正式运输名称
  - ☐ 危货分类（类别、项目）
  - ☐ 赋予识别号/联合国编号
  - ☐ 警示标签
  - ☐ 包装
  - ☐ 标记
  - ☐ 职工培训
  - ☐ 运输单证
  - ☐ 应急信息
  - ☐ 应急电话
  - ☐ 资质
  - ☐ 配装
  - ☐ 包件阻隔和支撑
  - ☐ 悬挂铭牌/揭示牌
  - ☐ 安全计划
  - ☐ 事故报告
- **HMR下承运人的主要义务**
  - ☐ 运输单证
  - ☐ 车辆悬挂铭牌/揭示牌
  - ☐ 装载、卸载
  - ☐ 配装
  - ☐ 包件阻隔和支撑
  - ☐ 事故报告
  - ☐ 安全计划
  - ☐ 职工培训

2.1 有限数量（LQ）

LQ: 可豁免特定标签和包装要求的货物数量

- 标记 - § 172.315
- LQ 包装规定 - § 173.XXX（见危货品名表第8A栏）
- 特殊规定 - § 172.102
- 运输单证 - § 172.200 （适用范围）， § 172.202(6)(vii) （空运）
- 针对空运的LQ规定 - § 173.27



- **§ 172.101 - Hazardous Materials Table （危货品名表）**

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	PG	Label Codes	Special provisions (§172.102)	(8) Packaging (§173.***) Exceptions	(8) Non-bulk	(8) Bulk	(9) Quantity limitations (see §§173.27 and 175.75) Passenger aircraft/rail	(9) Cargo aircraft only	(10) Vessel stowage Location	(10) Vessel stowage Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Accellerene, see p-Nitrosodimethylaniline												
	Accumulators, electric, see Batteries, wet *etc*												
	Accumulators, pressurized, pneumatic or hydraulic (containing non-flamable gas), see Articles pressurized, pneumatic or hydraulic (containing non-flamable gas)												
	Acetal	3	UN1088	II	3	IB2, T4 TP	150	202	242	5 L	60 L	E	
	Acetaldehyde	3	UN1089	I	3	A3, B16 T11, TP2 TP	None	201	243	Forbidden	30 L	E	
A	Acetaldehyde ammonia	9	UN1841	III	9	IB8, IP3 IP7, T1 TP3	155	204	240	200 kg	200 kg	A	34

- **§ 172.102 特殊规定**

G	Alcoholates solution, n.o.s., *in alcohol*	3	UN3274	II	3, 8	IB2	150	202	243	1 L	5 L	B	
	Alcoholic beverages	3	UN3065	II	3	24, 149 B1, IB2, T4, TP1	150	202	242	5 L	60 L	A	

§ 173.150 (b)(2) For flammable liquids in Packing Group II, inner packagings not over 1.0 L (0.3 gallons) net capacity each, packed in a strong outer packaging.

◆ 149: When transported as a LQ or a consumer commodity, the maximum net capacity specified in § 173.150(b)(2) of this subchapter for inner packagings may be increased to 5 L

- **§ 172.202　运输单证**

(a) … Except as otherwise provided in this subpart, each person who offers a hazardous material for transportation shall describe the hazardous material on the shipping paper in the manner required by this subpart.

(b) This subpart does not apply to any material, other than a hazardous substance, hazardous waste or marine pollutant, that is—

… …

(3) A limited quantity package unless the material is offered for transportation by aircraft or vessel …

… …

- **§ 173.27 针对空运的LQ规定**

Table 3 - Maximum Net Quantity of Each Inner and Outer Packaging for Materials Authorized for Transportation as Limited Quantity by Aircraft

§ 172.101 - Table 1 to Appendix A – Hazardous Substances Other Than Radionuclides （危货品名表附录A表1）

Hazardous substance	Reportable quantity (RQ) pounds (kilograms)
A2213	5000 (2270)
Acenaphthene	100 (45.4)
Acenaphthylene	5000 (2270)
Acetaldehyde	1000 (454)
Acetaldehyde, chloro-	1000 (454)
Acetaldehyde, trichloro-	5000 (2270)
Acetamide	100 (45.4)
Acetamide, N-(aminothioxomethyl)-	1000 (454)
Acetamide, N-(4-ethoxyphenyl)-	100 (45.4)
Acetamide, N-9H-fluoren-2-yl-	1 (0.454)
Acetamide, 2-fluoro-	100 (45.4)
Acetic acid	5000 (2270)
Acetic acid, (2,4-dichlorophenoxy)-, salts & esters	100 (45.4)
Acetic acid, ethyl ester	5000 (2270)
Acetic acid, fluoro-, sodium salt	10 (4.54)
Acetic acid, lead(2 +) salt	10 (4.54)
Acetic acid, thallium(1 +) salt	100 (45.4)
Acetic acid, (2,4,5-trichlorophenoxy)-	1000 (454)
Acetic anhydride	5000 (2270)
Acetone	5000 (2270)

2.2 例外数量（EQ）(§ 173.4a)

a. **EQ豁免项不包括:**
   - 危货分类
   - 事故报告
   - 对Class 7 (放射性) 物品EQ包装的要求
   - （空运）包装中需要保留一定液体的要求
b. 授权适用EQ的危险品
c. 内包装限量
d. 外包装限量
e. 包装材料
f. 包装测试
g. 标记
h. 文件材料
i. 培训
j. 限制

- **b.授权适用EQ的危险品**

只有当局批准可通过客机运并且满足以下危险性分类要求的危险品可以以EQ形式运输：

- ✓ Division 2.2 且无次要危险性（气溶胶除外）
- ✓ Class 3
- ✓ Class 4 (PG II & III)，除自反应物质
- ✓ Division 5.1 (PG II & III)
- ✓ Division 5.2，仅当存放于以试剂盒、急救箱、聚酯树脂试剂盒时
- ✓ Division 6.1, 除了PG I的危害分类A 或 B的物质
- ✓ Class 7，按例外数量包装的放射性材料
- ✓ Class 8 (PG II & III), 除了UN2803 （镓）和UN2809 （汞）
- ✓ Class 9, 除了UN1845 （固态二氧化碳（干冰））和锂电池

- **c. 内包装限量**

Hazardous Material	Inner Packaging Quantity Limit
Toxic material with a Division 6.1 primary or subsidiary hazard, PG I or II	1 g / 1 mL
Other solids or liquids	30 g / 30 mL
Gases	30 mL water capacity

- **d. 外包装限量**

Hazardous Material		Outer Package Aggregate Quantity Limit
Division 2.2		1 L
Division 5.2		500 g / 500 mL
Other	PG I	300 g / 300 mL
	PG II	500 g / 500mL
	PG III	1 kg / 1L

h. 文件资料

- ✓ 道路或铁路：不要求运输单证
- ✓ 空运： 不要求运输单证；如果随箱附有文件资料（例如空运货运单），要求必须注明“Dangerous Goods in Excepted Quantities” 以及包件数量
- ✓ 水运：要运输单证，且必须注明 “Dangerous Goods in Excepted Quantities” 以及包件数量

i. 培训 Each person who offers or transports excepted quantities of hazardous materials must know about the requirements of this section

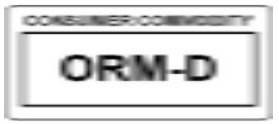
j. 限制 Hazardous material packaged in accordance with this section may not be carried in checked or carry-on baggage

2.3 ORM-D (§ 172.316)

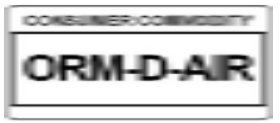
ORM-D: Other Regulated Material, Category D (only recognized in the US)
是按照LQ要求包装的并满足HMR下消费品定义的危险品。

Consumer commodity: Material that is packaged and distributed in a form intended or suitable for sale through retail sales agencies or instrumentalities for consumption by individuals for purposes of personal care or household use, including medicines and drugs (49 CFR § 171.8)

- **§ 173.156 Exceptions for limited quantity and ORM**



截止2020年12月31日



截止 2012年12月31日

2.4 案例分享：LQ

- **需求：铬酸溶液，通过道路运输**
- Class 8, UN1755, PG II

Column (8a)

	Chromic acid solution	8	UN1755	II	8	B2, IB2, T8, TP2	154	202	242	1 L	30 L	C	40, 44, 89, 100, 141

49 CFR § 173.154 （解读）：

- 内包装不超过1L时可使用非标准规格外包装
- 可不贴危险性公示标签
- 不要求运输单证；如果提供则必须注明“Limited Quantity” 或 “LTD QTY”字样，以表示包件豁免包装和标签要求
- 不需要UN包装性能测试，但是包装需符合49 CFR 173.24 和173.24(a)中提出的通用要求
- 车辆不要求悬挂铭牌

2.4 案例分享：EQ

- **需求：铬酸溶液，通过道路运输**
- Class 8, UN1755, PG II

	Chromic acid solution	8	UN1755	II	8	B2, IB2, T8, TP2	154	202	242	1 L	30 L	C	40, 44, 89, 100, 141

49 CFR § 173. 4a （解读）：

- 若内包装容量不超过30mL且外包装不超过500mL则可使用非标准规格外包装
- 可不贴危险性公示标签
- 不要求运输单证
- 包装需满足 § 173.4a (e) & (f)的要求
- 禁止放入经过安检的或随身行李

49CFR下道路运输豁免项目一览表

49CFR 道路/铁路运输豁免项	例外数量 (EQ)	有限数量 (LQ)	ORM-D 消费品 (截止2020年底)
外包装	不要求UN标记包装；必须经过跌落和堆码测试 (173.4)	不要求UN标记包装；牢固度必须能保证一般运输要求 (173.24)	不要求UN标记包装；牢固度必须能保证一般运输要求 (173.24)
包件标记	(173.4a)	or (172.315)	(172.316)
车辆悬挂铭牌	不要求 (172.500)		
运输单证	不要求 (173.4a)	不要求 (173.150~173.155)	不要求 (173.150~173.155)
驾驶员执照 危险品培训证书	*不要求，除非车辆悬挂铭牌 (383.5)		

“*” – 因为不要求车辆/车厢悬挂铭牌，因此驾驶员危险品执照及相应的大量培训也不作要求，运输公司也不需要具备DOT颁发的危货运输许可证。

3 结束语

- 美国DOT 49CFR法规与联合国危货运输规章范本大体保持一致，从很大程度上为国际贸易、合规提供便利。
  - ✓ DOT关于空运、海运法规分别与IATA、IMDG紧密联合
  - ✓ DOT在橙皮书的基础上制定了道路、铁路运输法规
- 例外数量/有限数量减少了运输成本，在保证低安全风险的前提下尽可能简化合规要求。

Thanks for your attention!

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CAST
Center of Aviation Safety Technology,CAAC

中国民航危险品管理情况介绍
Instruction on Air Transport of Management Situation of DG in China

中国民航危险品管理中心
DG Management Center of CAAC

法规体系 Regulations

《中华人民共和国民用航空法》
Law of the People's Republic of China on Civil Aviation

《中国民用航空危险品运输管理规定》（CCAR-276-R1)
Regulation on the Transport of Dangerous Goods by Air（CCAR-276-R1)

CAST
Center of Aviation Safety Technology,CAAC

内容 Contents

法规与技术标准
Regulations & standards

政府监管概况
Government oversight

国际交流
International communication

锂电池航空运输
Air transport of lithium batteries

276规章的管理文件 MD to CCAR-276-R1

《中国民航危险品监察员培训管理办法》
Training for government DG inspectors

《危险品航空运输违规行为举报管理办法》
Report of irregularities

《货物航空运输条件鉴定机构管理办法》
Management of third party test center

《危险品航空运输培训管理办法》
Management of training institutions and instructors

采纳国际标准 Adopt ICAO/IATA Standards

国际民航组织：附件18《技术细则》《红皮书》
ICAO: *Annex 18/ Technical Instructions/ Red book*

国际航空运输协会：《危险品规则》
IATA: *Dangerous Goods Regulations*

政府监管工作概况 Oversight Profile

资质：《危险品监察员培训管理办法》
Qualification: *Training program for government DG inspectors*

依据：《危险品监察员手册》
Basis: *Manual for DG inspectors*

计划：《危险品年度监察大纲》
Plan: *Annual inspection syllabus of DG*

内容：许可审定、现场检查、事故调查等
Contents: License authorization, on-sight inspection/ incident investigation, etc

平台：危险品航空运输信息管理系统
E-platform: Information management system of DG transport by air

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政府监管 Government Oversight

民航局
CAAC

民航局危险品专家组
CAAC DGP 13

地区管理局
Regional Administration 7

危险品管理中心
DG Center

安全监督管理局
Domestic Administration 40

危险品监察员
DG Inspector 100

研究室
3 Divisions

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锂电池航空运输 Air Transport of Lithium Battery

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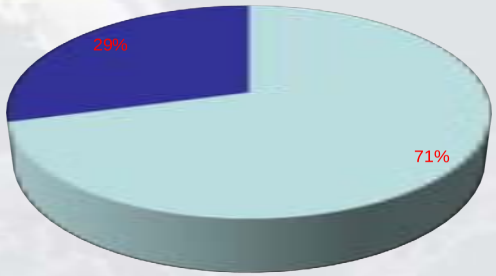
锂电池航空运输 Air Transport of Lithium Battery

2015年危险品不安全事件统计
DG incidents statistics in 2015

由锂电池引起的 12起　由其他危险品引起的 5起

29% by lithium batteries, 71% by other DG



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国际交流 International Communication

参与国际标准的制定
UNTDG、ICAO DGP member

联合监察
Joint inspections: USA、Canada、Netherland

联合事故调查
Joint investigations

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锂电池航空运输 Air Transport of Lithium Battery

2015年工信部发布：

《锂离子电池行业规范条件》

Specification conditions for lithium ion battery manufactures

Issued by MIIT in 2015

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欢迎指正！

Thanks

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中国民航危险品运输管理中心

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Center of Aviation Safety Technology, CAAC

April, 2016

UPS

- Dangerous Goods Process
  危险品流程
- UPS Airlines
  Fire Safety Enhancements
  UPS航空防火安全措施提升

UPS Today 今日UPS

2015 REVENUE US$58.4 billion
2015年全球营业收入584万美元
Founded in 1907
成立于1907年
444,000 employees
全球44.4万员工
About 100,000 vehicles
约有 10万车辆
18.3 million packages and documents per day
日投递包裹和文件量达1830万件
220 countries and territories
服务220个国家和地区

UPS Air Dangerous Goods Program
UPS空运危险品项目

Service Offering 服务提供

- Developed DG air service in 1993, working closely with U.S. FAA
  UPS于1993年发展空运危险品服务，并与美国联邦航空局（FAA）紧密合作
  - UPS had Ground DG service in U.S. for decades
    UPS拥有数十年美国国内陆运危险品服务经验
- Started as U.S. service only
  空运危险品服务起步时，仅限于美国国内服务
- Expanded to other countries as UPS international service expanded
  继而随着UPS国际服务的拓展，空运危险品服务拓展到其他国家和区域
- Now implemented in 36 countries around the world
  空运危险品服务现今发展到全球36个国家
  - Continuing to explore opportunities to expand safely and in compliance
    UPS正在继续寻求安全合规的新机会

UPS Air Dangerous Goods Program
UPS空运危险品项目

Program Support 项目支持

- Monitor and work with U.S. DOT, ICAO, IATA, ADR, other national authorities
  UPS同美国交通部（DOT）、国际民航组织（ICAO）、国际航空运输协会 （IATA）等国家部门合作
- Voting member of IATA Dangerous Goods Board – UPS representative is DGB Vice Chairman
  UPS是IATA危险品委员会表决权会员，UPS代表是危险品委员会副主席）
- Active in many other industry associations involving DG
  UPS活跃于其他危险品相关行业协会

Typical Dangerous Goods Process
典型的危险品运输流程

UPS Ground Company
UPS陆运服务公司

Shipper 托运人

Driver 司机

Auditor 检查

UPS Airlines or Service Partner
UPS航空公司或服务合作商

Airport Gateway 航空公司

Loader 装箱

Drivers 司机

- Trained to recognize and properly load dangerous goods – general DG understanding
  UPS司机接受危险品常规培训，负责识别和安全装载危险品货物
- Validate customer is authorized to offer fully regulated DG
  验证客户获得授权托运完全受限的危险品
- Leave DG at designated areas for expert inspection
  确保危险品存放在指定区域待专人检查

Shipper
托运人

- Fully regulated dangerous goods are allowed by contract only
  仅收运持有危险品合同托运人的完全受限制的危险品
- An approved system must be used to submit DG shipment information electronically
  托运人必须上传危险品电子信息到批准的系统
- Shippers are subject to UPS compliance policy if discrepancies are detected
  如果发现差异，托运人将受限于UPS合规政策

Acceptance Auditor
收运检查

HMMS 危险品系统

DGD 危险品申报单

- Determine the shipment service eligibility (HMMS)
  危险品系统确定货物是否适合运输
- Inspect the package (Six-Sided Check)
  检查包裹六面
- Inspect the shipping document (DGD)
  检查运输文件，如危险品申报单（DGD）
- Communicate acceptance or rejection (HMMS and 'Dangerous Goods UPS Accepted' sticker)
  沟通接收或者拒收 （体现在危险品系统和UPS危险品检查标签）

UPS Airlines DG Functions – All personnel trained under U.S. FAA approval
UPS航空公司危险品部门 – 所有人员完成符合美国FAA批准的危险品培训

Loader 装载

- Inspect packages for indications of dangerous goods (Six-Sided Check)
  检查危险品包裹的六面
- Validate DG packages are approved
  验证危险品包裹已经被批准收运
- Load packages securely
  安全装载包裹
- Communicate DG information physically and electronically
  书面和电子沟通危险品信息

UPS is multimodal
UPS多式联运

- Offer varying levels of service
  提供多种多样的服务
- Use road, rail, sea and air transport
  使用公路运输，铁路运输，海运和空运

- Where modal DG regulations are harmonized, they improve UPS's ability to use most efficient mode of transport
  如果危险品运输规范统一则有助于UPS使用最有效的方式运输危险品。
- Air packages may move completely in road transport
  空运包裹可通过陆运完成运输。

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UPS Airlines DG Functions – All personnel trained under U.S. FAA approval
UPS航空公司危险品部门 -所有人员完成符合美国FAA批准的危险品培训

NOTOC机长通知单

Airport Operations
机坪操作

Load Planner 飞机配载

- Creates Load Plan
  制作装载计划
- Coordinates with Ramp Supervisor on ULD load positions
  协调机坪监装将航空箱放置于指定位置
- Produces Documents (NOTOC)
  制作机长通知单

Ramp Supervisor 机坪监装

- Inspects packages and ULDs for damage or leakage
  检查包裹和航空箱是否有破损或者溢漏
- Checks load for accuracy
  检查装载正确
- Checks NOTOC
  检查机长通知单
- Notify pilot of DG on aircraft and obtain signed copy of NOTOC
  通知机组危险品装载并得到机长签字的机长通知单

1700 航段
700 目的地
220 国家和区域

UPS Airlines Culture of Safety
UPS航空公司空运安全文化

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Fire resistant containers （FRC）
防火集装器

- Fiber-reinforced plastic
  加固纤维塑料板
- Withstand intense fires for at least four hours
  耐火时长为至少四小时
- 40 tests
  40次测试

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FRC Facts 防火集装器简介
Continuous Improvement 持续改进中

- UPS tests demonstrate that FRCs can mitigate gas buildup and contain a lithium battery fire
  UPS测试验证防火集装器可以减轻气体生成并且对锂电池造成的火灾有耐火性。
- FRCs already enhance safety and we continue to improve:
  防火集装器对于提高安全已经起到了作用，但是UPS仍在持续改进。
  - Venting 通气
  - Durability 耐久性
  - Fiberglass strands 玻璃纤维绳

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Fire resistant containers
防火集装器

- Lighter - Reduced fuel burn
  更轻盈 -减少耗油
- Stronger
  强硬
- More durable - Cost savings
  更持久耐用 -节约成本

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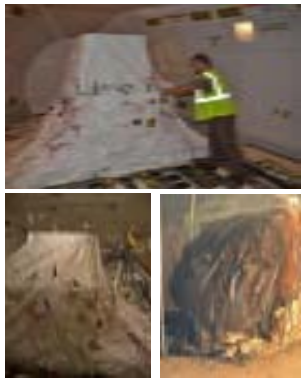
Fire Containment Covers
防火罩

- Fiberglass blankets
  玻璃纤维覆盖层
- Palletized cargo
  集装板普货
- Withstand fires for at least four hours
  耐火时长为至少四小时
- Implemented on routes with significant electronics, lithium battery shipments
  适用于重要的电子设备和锂电池货物



FCC fire test

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Thank you

谢谢

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CERTIFIED DANGEROUS GOODS PROFESSIONAL

美国交运、接收危险品实践

How to Accept and Inspect Hazmat in US for Multi Modal Shipments

Terry Guo, CDGP

APRIL 27, 2016 BEIJING, CHINA

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CERTIFIED DANGEROUS GOODS PROFESSIONAL

IHMM认证：

“认证的危险品专业人士” Certified Dangerous Goods Professionals (CDGP) 是指那些使用依据专业运输法规，具备处理危险品运输和安全方面知识技能的专业人士。

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IATA Certified

IATA DANGEROUS GOODS ACCREDITED SCHOOL

Princeton, NJ 08540, USA
www.IHMM.org

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CDGP认证管理

- 从属于国际标准化组织的17024 认证体系，由美国ANSI认证管理 (under ISO17024 system, ministered by ANSI/USA)
- 候选人需要五年以上危险品从业经验 (5 year working experience in DG related industry fields)
- 两封危险品业内人士推荐信 (2 Recommendation Letters)
- 通过CDGP笔试 (pass written test with 80% up)

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国际法规: United Nations Regulatory

UN Orange Book (18)

ICAO (2015-16)

IMDG (37-2014)

UNITED STATES
DEPARTMENT OF TRANSPORTATION

- OST — Office of the Secretary of Transportation (OST)
- NHTSA — National Highway Traffic Safety Administration (NHTSA)
- FAA — Federal Aviation Administration (FAA)
- OIG — Office of Inspector General (OIG)
- FHWA — Federal Highway Administration (FHWA)
- PHMSA — Pipeline and Hazardous Materials Safety Administration (PHMSA)
- FMCSA — Federal Motor Carrier Safety Administration (FMCSA)
- RITA — Research and Innovative Technology Administration (RITA)
- FRA — Federal Railroad Administration (FRA)
- SLSDC — Saint Lawrence Seaway Development Corporation (SLSDC)
- FTA — Federal Transit Administration (FTA)
- STB — Surface Transportation Board (STB)
- MARAD — Maritime Administration (MARAD)

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美国对于交运、接收危险货物的法规要求

US regulatory requirement on
offering and accepting Hazmat Shipment

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Hazardous….

- Chemicals (29 CFR / OSHA) 危险化学品
  - Worker Safety, SDS, Employee Right to Know
- Substances (40 CFR / CERCLA)危险物质
- Wastes (40 CFR / EPA)危险废弃物
- Materials (49 CFR / DOT)危险货物

OSHA

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美国联邦法规49部(100-185)

Code of Federal Regulations 49

Part 100 to 185 are Dangerous Goods Transport Regulation. Early edition will be published on Oct. 1st of the year. Final edition will published in late Feb. of next year.

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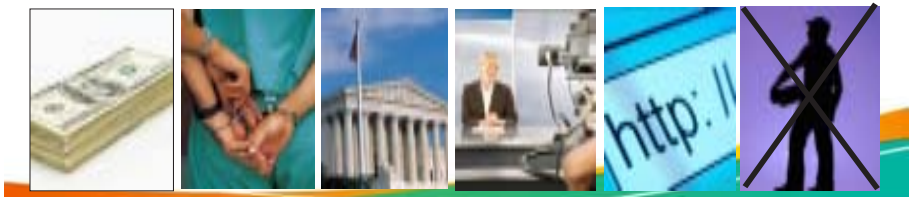
未遵守法规的后果

Consequences of Non-Compliance(§173.329)

- 每项违规可至$175,000美元罚款
- 有意犯罪可导致5年监禁
- 巨额的诉讼成本和紧张的资源
- 负面公关影响和媒体曝光的后果
- 竞争者得到获取我方信息的自由便利
- 如果危险品事故发生，承运人不再提供服务



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美国联邦法规49部

Code of Federal Regulations 49

- 法规49部共9卷(Volume)
- 第II、III卷，由PHMSA撰写
- 有关危险品的章节：100-185章
  - 172.101 危险品名表(Hazardous Material Table)
  - 172.102 特殊规定Special Provisions (A54,A55...)
  - 173 托运人要求 (Shipper side requirements)
  - 175 航空运输 (carriage by air)
  - 180 运输危险品的包装

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物流运输的环节

法规主要关注：

- 托运人(货主)
- 承运人
- 收货人

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美国托运人准备危险货物运输的实践

US Shipper's practices on preparing Hazmat shipments

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M.S.D.S.

SAFETY DATA SHEET

KIMTECH PURE(TM) CL3 Pre-Saturated Alcohol Wipes, Containing 70% IPA

14. TRANSPORT INFORMATION

US DOT Shipping Description: Solids containing flammable liquids, n.o.s. (isopropanol), 4.1, UN3175, PGII

A limited quantity may be renamed "consumer commodity" and reclassed as ORM-D. Please consult 49CFR 173.151(c) for additional information.

IATA Shipping Description (Air): Solids containing flammable liquids, n.o.s. (isopropanol), 4.1, UN3175, PGII

IMDG Shipping Description (Vessel): Solids containing flammable liquids, n.o.s. (isopropanol), 4.1, UN3175, PGII

ADR Shipping Description: Solids containing flammable liquids, n.o.s. (isopropanol), 4.1, UN3175, PGII

This product does not contain marine pollutants.

15. REGULATORY INFORMATION

US Regulations

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Shipper Preparing Hazmat shipments

托运人责任(Shipper Responsibility):

符合法规，托运人可以交运危险品货物。

- DETERMINE WHETHER A MATERIAL MEETS THE DEFINITION OF A "HAZARDOUS MATERIAL"
- PROPER SHIPPING NAME
- CLASS/DIVISION
- IDENTIFICATION NUMBER
- HAZARD WARNING LABEL
- PACKAGING
- MARKING
- EMPLOYEE TRAINING

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中国航空运输危险品所需文件

- 托运授权书
- 危险品申报单(DGD)
- 航空货运单（AIR WAYBILL）
- MSDS/危险品分类性能鉴定
- 危险品包装测试性能单/危险品包装使用结果单/内包装说明（组合包装时）
- 报关文件（报关委托书/报关单/核销单/发票/装箱单）
- 情况说明/产品说明

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美国承运人接收及检查危险货物的一些作法

US Carrier's Practices on Accepting and Inspecting Hazmat Shipment

承运人接收危险货物：

- CHECK LIST
- TRAINING
- COMMUNICATE WITH SHIPPERS
  - Reach out
  - Non-Compliance Penalties

承运人的责任(Carrier Responsibility):
符合法规，承运人可以接收危险品货物。

- SHIPPING PAPER
- PLACARD AND MARK VEHICLE
- LOADING AND UNLOADING
- COMPATIBILITY
- BLOCKING AND BRACING
- INCIDENT REPORTING
- SECURITY PLAN

不同运输模式中的危险货物运输

Concerns towards Hazmat shipments in different Transportation modes

Case Study: "对环境有危害物质"

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Transportation of Hazardous Material

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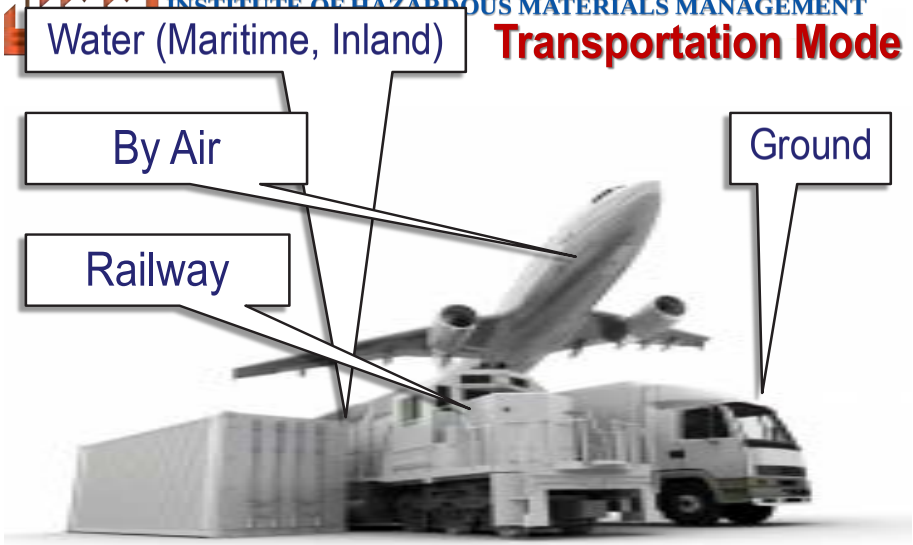
Transportation Mode



• PIPELINE • POST

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USG Variations

- **USG-01**
  - Transport of DG to, from or within the US must be in compliance with the 49 CFR and ICAO TI's
  - Shipping papers must be maintained for 2 years
- **USG-02**
  - Toxic gases and liquids or solids assigned to division 6.1 PG I are forbidden on aircraft
  - Primary lithium metal batteries are not allowed on passenger carrying aircraft and special marking is required to communicate this restriction
  - Primary lithium metal batteries contained in equipment are forbidden on passenger aircraft in certain situations

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USG Variations

- **USG-03**
  - When special provision A1 or A2 appears in the IATA list of dangerous goods (column M) approval from DOT is required
  - Prototype lithium batteries also require DOT approval
- **USG-04**
  - Hazardous substances (those at or above the RQ) must have RQ noted on the Shipper's Declaration and on the package
  - RCRA Hazardous wastes must include the word "waste" immediately before the PSN on the Shipper's Declaration and the hazardous waste manifest
  - Materials that are not regulated under IATA but are regulated under 49 CFR must be shipped as DG

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Appendix A

- **Appendix A - Hazardous Substances**

Table 1 – Begins page 399 of the 49 CFR Code of Regulations(2014)
Other Than Radionuclides

Table 2 - Begins page 430 of the 49 CFR Code of Regulations (2014)
Radionuclides

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Example: Reportable Quantity

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TABLE 1 TO APPENDIX A.—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES

Hazardous substance	Reportable quantity (RQ) pounds (kilograms)
Acenaphthene	100 (45.4)
Acenaphthylene	5000 (2270)
Acetaldehyde	1000 (454)
Acetaldehyde, chloro-	1000 (454)
Acetaldehyde, trichloro-	5000 (2270)
Acetamide	100 (45.4)

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INSTITUTE OF H

DOT HAZMAT INCIDENT REPORT


Hazardous Materials Incident Report

PART I - REPORT TYPE

PART II - GENERAL INCIDENT INFORMATION

Certified Dangerous Goo

QUESTIONS ?

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Registered Attendee List

注册参会人员名单

U.S. Participants List
美方参会单位名单

No.	Organization 单位名称	Name 姓名	Title 职务	Contact 联络方式
1	U.S. Embassy Beijing 美国驻华使馆	Val Huston 何为	Principal Commercial Officer 商务参赞	Val.Huston@trade.gov
2	U.S. Trade and Development Agency 美国贸易发展署	Susan Chan Shifflett	Country Manager for East Asia 东亚区经理	
3	U.S. Trade and Development Agency 美国贸易发展署	Xiaolei Wan 万小磊	USTDA China Representative 中国代表	Xiaolei.Wan@trade.gov
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