



"Learn the advanced safety management practices, promote the use of Hazard and Operability Analysis (HAZOP) and other advanced safety management technology to improve the safety level of production equipment and the ability to control safety risks."
--Notice of Important Work Arrangement of Safety Supervision of Dangerous Chemicals in 2009 from State Administration Of Work Safety



MARTIN LINKING

Best Practices for HAZOP 2010

Shanghai, China
11th&12th January 2010

Workshop Description

Hazard and Operability (referred to as HAZOP) study is a process hazard analysis approach proposed by ICI in 1960's. It is a systematic method to examine potential process design fault and operational issues in chemical process including phases such as design, start-up, operation, maintenance and shut down. It is the most comprehensive and systematic way in all methods in safety assessment methods.

"HAZOP is not an expenditure, but an investment"

"For 20 years, I have attended a wide range of trainings, this is the best training I have ever participated."

HAZOP is the key for chemical accident prevention.

About Your Trainer

Professor Jinsong Zhao from Chemical Process and Accident Prevention Research Centre, Department of Chemical Engineering, Tsinghua University has more than ten years experience in the HAZOP study. He has provided consulting services and trainings for State Administration of Work Safety, China Association of Chemical Safety, United Nations Environment Program (UNEP), Bayer Technology and Engineering (Shanghai) Co., Ltd., China National Petroleum, Zhejiang Petrochemical Building Materials Group of Sinopec, Sinopec, Eli Lilly, G.D. Searle. When he engaged in postdoctoral study in Purdue University in the United States, he led the research team and developed the first international commercial intelligent batch process HAZOP software system PHASuite, and have been successfully applied in Eli Lilly & Company, GD Searle and other companies. After returning to China in 2005, for the petroleum, chemical and other continuous manufacturing process, he led research team and developed HAZOPSuite intelligent software platform with intellectual property rights, and for the first time in the international community to achieve successful application in large-scale petrochemical enterprises for such kind of software system.

Pre-Course Questionnaire

In order to tailor this course precisely to your needs, the course leaders would value information on your knowledge, experience and requirements.

What the Workshop Will Help You Achieve:

The course is for safety management and technical staff from petroleum, chemical, pharmaceutical and other industries, through a large number of accident cases at home and abroad, trainees will get a comprehensive understanding and knowledge of the basic methods of HAZOP and its application in process safety management (PSM). Learn how to set up HAZOP team, different roles of teams, scheduling, HAZOP report writing and implementation & tracking of recommended measures, understand risk management methods and principles, master Layers of Protection Analysis (LOPA) methodology, learn the status of application of HAZOP software at home and abroad, through case studies, get first hand experience on HAZOP.

Morning January 11, 2010

8:30 Registration and morning coffee

9:00 Workshop Introduction

9:30

- Process Safety Management(PSM)
 - History
 - Content overview
 - ◆ Case study: accident of Bhopal in India in 1984
 - ◆ Case study: accident of Beijing Oriental Chemical Plant in 1997

Morning Refreshment and Networking Break

- Why we need to carry out HAZOP?
 - Case study: explosion of Bi-benzene Plant of Jilin Petrochemical Company in 2005
 - accident prevention and emergency response capacity
 - ◆ Case study: explosion of Guangwei Group in 2008
- Video: analysis of explosion of BP refinery plant in 2005

12:45 Networking Luncheon

Afternoon January 11, 2010

13:45

- Definition of HAZOP and basic method introduction
 - basic workflow
 - Definition of deviations and list
 - node classification method
- HAZOP material preparation
- Set up HAZOP study team
- The role of members of HAZOP

15:00 Afternoon Refreshment and Networking Break

15:20

- Role of HAZOP team leader
- Role of management
- Time scheduling of HAZOP
- Report of HAZOP study results
 - Tracking the implementation of the proposed HAZOP measures
- Comparison of HAZOP and other safety analysis methods
 - Safety Checklist (Checklist) method
 - Job Hazard Analysis (JHA) method

17:00 Summing up of the first day

Morning January 12, 2010

8:00 Registration and morning coffee

8:30 Review of day one

8:45

- Risk Analysis
- Definition of possibility
- Layers of Protection Analysis (LOPA) Introduction
- Definition of level of severity
- Risk Matrix

10:00 Morning Refreshment and Networking Break

10:20

- HAZOP application at home and abroad
- HAZOP software introduction
 - PHAPro
 - PHASuite
 - HAZOPSuite

12:30 Networking Luncheon

Afternoon January 12, 2010

13:30

HAZOP and the relationship with other elements of PSM

- Management of Change (MOC)
- Process Safety Information (PSI)
- Pre Startup Safety Review (PSSR)
- Accident Investigation
- Trade secrets
- HAZOP case study (divide into groups)

15:00 Afternoon Refreshment and Networking Break

16:00 Group analysis and results discussion

17:00 Summed up and the end of training

Industries for this training:

- Petrochemical
- Refining
- Fine Chemicals
- Medical&Pharmaceutical Intermeditaes
- Coal Chemical Industry
- Gas processing
- General Manufacturing Enterprises

About Martin Linking

Martin Linking Business Consulting plans to produce more than 80 trainings and conferences and works with senior executives from the majority of the world's top 1000 companies to improve their business strategy and match their learning and training needs in one year. And we continue to grow.

We also invite the leading business practitioners, industry decision makers and innovators to share insights, best business practice, and new technology at our forums. **We are dedicated to give attendees cutting edge information they can use immediately.** We constantly research and listen to all industry sectors to ensure that the business intelligence we provide is timely and cutting-edge.

Trainer Introduction:

Jinsong Zhao, born in 1969, got his Bachelor and PhD degree from Tsinghua University in 1992 and 1997. After got his PhD degree, he worked in Purdue University, Day & Zimmermann company in U.S and AET company in U.S. as postdoctoral associate researcher, Senior Engineer and Project Leader. After he returned China early in 2005, he was appointed Professor and PhD supervisor of Information Institute of Beijing University of Chemical Technology. Transferred to Department of Chemical Engineering, Tsinghua University in April 2008, he worked as Professor, head of the Institute of Process Systems Engineering, director of Chemical Accident Prevention and Emergency Response Process Research Centre.

Mainly engaged in research of chemical safety systems engineering. When he engaged in postdoctoral study in Purdue University in the United States, he led the research team and developed the first international commercial intelligent batch process HAZOP software system PHASuite, and have been successfully applied in Eli Lilly & Company, Monsanto and other companies. When he worked in the AET company of United States, he led development and implementation of the company's Manufacturing Execution System (MES), and has created millions of dollars in economic benefits for the company. After 3 years returned to China, he launched chemical safety teaching and research work rapidly, and had been chairman of chemical safety branch venue of national academic meeting for several times. After transferred to Tsinghua University, he led research team and developed HAZOPSuite intelligent software platform with independent intellectual property rights, and for the first time in the international community to achieve successful application in large-scale petrochemical enterprises for such kind of software system.

For the achievements in chemical safety, he was selected the 2005 "New Century Talents Support Plan" by the Ministry of Education. He is currently Standing Committee Member of Asia Process System Engineering, Member of Technology Process Fault Diagnosis and Safety Professional Committee of Chinese Association of Automation, peer reviewer of the international journal "Computers & Chemical Engineering", published nearly 50 academic dissertation on the core journals and international conference papers at home and abroad, has responsibility for more than 10 scientific research projects, including the National Natural Science Fund Project, "863" project of Ministry of Science and Technology and National Key Technology R&D Program in the 11th Five year Plan of China.

Trainer's related consulting and training experience:

1. HAZOP consultation for State Administration of Work Safety
2. HAZOP consultation for China Association of Chemical Safety
3. Consultation for Bayer Technology and Engineering (Shanghai) Co., Ltd.
4. System optimization advanced training for China National Petroleum
5. HAZOP consultation for Dushanzi Branch of China Petroleum
6. HAZOP training for Zhejiang Petrochemical Building Materials Group of Sinopec
7. HAZOP training for Maoming Petrochemical Company of Sinopec
8. HAZOP consultation for Sinopec Engineering Construction Corp
9. HAZOP consultation for Huanqiu Designing Institute of China Petroleum
10. HAZOP consultation for Eli Lilly company of the U.S.
11. HAZOP consultation for G. D. Searle company of the U.S.

In computer-aided HAZOP software development, has led the development of the first and second generations of HAZOP expert system software platform, and successfully applied in the pharmaceutical, petrochemical industry.

Forms of training

Through a combination of seminars, groups and individuals work, interactive round-table discussions and role-playing, participants will understand the HAZOP study's role in the process safety management and accidents mining.

Trainers will use practical examples and case studies to strengthen and expand the practical application of concepts and methods of HAZOP research.

In-House Training Solutions

If you have a number of delegates with similar training needs, then you may wish to consider having an In-House Training solution delivered locally on-site. Course can be tailored to specific requirements.

Please contact **Whitney Shen** on **+86 28 65521255** or email **whitney.shen@martinlinking.net** to discuss further possibilities.



“学习借鉴先进安全管理方法，推广应用危险与可操作性分析（HAZOP）等先进安全管理技术，提高生产装置本质安全水平和控制安全风险的能力。”

-国家安全监管总局办公厅关于2009年危险化学品安全监管重点工作安排的通知



马汀令可

危险与可操作性（HAZOP）研究的最佳实践 2010

上海，中国

2010年1月11日至12日

课程简介

危险和可操作性（Hazard and Operability, 简称为HAZOP）研究是上个世纪60年代英国帝国化学公司提出来的工艺危害分析方法。它是全面挖掘化工过程内从设计、开车、运行、检维修和停车等各个阶段上存在的工艺设计隐患及可操作性问题的一个系统化方法，是所有安全评价方法中系统性、全面性最好的方法。

“HAZOP不是花费，而是投资”

“20年来，我参加过各种各样的培训，这是我参加过的最好的培训”。

HAZOP是化工事故预防能力建设的关键。

关于培训师

清华大学化学工程系化工过程事故预防与应急研究中心赵劲松教授在HAZOP研究方面具有十多年的丰富经验，先后为国家安全生产监督管理总局、中国化学品安全协会、联合国环境署（UNEP）、Bayer Technology and Engineering (Shanghai) Co., Ltd.、中国石油、中国中化集团浙江石化建材集团、中国石化、美国Eli Lilly公司、美国G.D. Searle公司等提供有关咨询和培训。他在美国普渡大学从事博士后研究期间，领导研究团队开发了国际上第一个商业化的间歇过程HAZOP智能软件系统PHASuite，并在Eli Lilly & Company、G.D. Searle等公司得到了成功应用。2005年回国以后，面向石油、化工等连续化生产过程，他又领导研究团队开发了具有自主知识产权的HAZOPSuite智能软件平台，并首次在国际上实现了该类软件系统在大型石化企业的成功应用。

课程预问卷

为了确保这一课程正是适应了您的需求，培训师将通过它来评估您的知识，经验和需要。

该培训将帮助您达到什么目标：

本课程面向石油、化工、制药等行业的安全管理与技术相关人员，通过讲述国内外大量的事故案例，比较全面地了解和掌握 HAZOP 的基本方法及其在工艺安全管理（PSM）中的作用，学习 HAZOP 团队组建方法、不同团队角色、进度安排、HAZOP 报告的撰写与建议措施的跟踪和落实，理解风险管理的方法和思想，初步掌握保护层分析（LOPA）方法，了解国内外的 HAZOP 计算机软件应用情况，并通过案例研究，对 HAZOP 进行亲身体验。

2010年1月11日上午

8: 30 签到及早茶

9: 00 培训介绍

9: 30

工艺安全管理（PSM）

- 历史
- 内容概述
 - ◆ 1984 年印度 Bhopal 事故案例
 - ◆ 1997 年北京东方化工厂事故案例

上午茶点

- 为什么要进行 HAZOP?
 - 2005 年吉化双苯厂爆炸事故案例
 - 事故预防与应急能力
 - ◆ 2008 年广维集团爆炸事故案例
- 2005 年 BP 炼油厂爆炸事故分析录像

12: 45 午餐

2010年1月11日下午

13: 45

- HAZOP 定义及基本方法介绍
 - 基本工作流程
 - 偏差定义及列表
 - 节点划分方法
 - HAZOP 资料准备
 - 组建 HAZOP 研究团队
 - HAZOP 成员的角色
- 15: 00 下午茶点
- 15: 20
- HAZOP 组长的角色
 - 管理层的角色
 - HAZOP 时间进度安排
 - HAZOP 研究结果报告
 - HAZOP 建议措施跟踪落实
 - HAZOP 与其他安全分析方法的比较
 - 安全检查表（Checklist）法
 - 工作安全分析（JHA）法

17: 00 第一天总结

2010年1月12日上午

- 8: 00 签到及早茶
- 8: 30 回顾第一天内容
- 8: 45
 - 风险分析
 - 可能性定义
 - 保护层分析 (LOPA) 简介
 - 严重程度定义
 - 风险矩阵
- 10:00 上午茶点
- 10:20
 - HAZOP 在国内外的应用情况
 - HAZOP 计算机软件介绍
 - PHAPro
 - PHASuite
 - HAZOPSuite
- 12: 30 午餐

2010年1月12日下午

- 13: 30
- HAZOP 与其他 PSM 要素的关系
 - 变更管理 (MOC)
 - 过程安全信息 (PSI)
 - 开车前安全审查 (PSSR)
 - 事故调查
 - 商业秘密
- HAZOP 案例研究 (分组)
- 15: 00 下午茶点
- 16: 00 小组分析结果讨论
- 17: 00 培训总结及结束

关于马汀令可

马汀令可商务咨询计划每年组织超过 80 场的培训和会议，与全球 1000 强公司的高层经理一起提高他们的商务战略，满足他们的学习和培训需求。并且我们在不断成长。

我们邀请领先企业的管理者，决策者和创新者在我们的活动中分享他们的思想观念，最佳商业实践和新技术。我们致力于为我们的客户提供即刻可用的前沿信息。我们不断地研究和聆听所有行业的声音来保证我们提供商业信息是及时和前沿的。

上海，中国
2010年1月11日至12日



培训师介绍:

赵劲松，1969年生，分别于1992年、1997年获清华大学本科、博士学位。博士毕业后，先后就职于美国普度大学、美国Day&Zimmermann公司和美国AET公司，任博士后副研究员、Senior Engineer、Project Leader等职。2005年初回国，任北京化工大学信息学院教授、博士生导师。2008年4月调入清华大学化学工程系，任教授、过程系统工程研究所所长、化工过程事故预防与应急研究中心主任。

主要从事化工安全系统工程方面的研究工作。在美国普度大学化工系从事博士后研究工作期间，领导开发了世界首个商业化的复杂间歇化工过程危险及可操作性(HAZOP)分析专家系统，在美国Monsanto公司和Eli Lilly公司得到应用；在美国AET公司工作期间，领导开发和实施了该公司的制造执行系统(MES)，为公司创造了数百万美元的经济效益。回国3年来，迅速展开化工安全的教学和科研工作，多次在全国性学术会议上担任化工安全分会场主席。调入清华后，主持开发了具有自主知识产权的新一代HAZOP专家系统软件平台HA-ZOPSuite，在国际上首次实现了在大型石化企业的成功应用。

由于在化工安全方面的成就，入选2005年度教育部“新世纪优秀人才支持计划”。现任亚洲过程系统工程国际委员会常务委员、中国自动化学会技术过程的故障诊断与安全性专业委员会委员、国际期刊“Computers & Chemical Engineering”特约审稿人，在国内外核心期刊及国际会议上发表学术论文近50篇，先后负责科研项目10余项，其中包括国家自然科学基金项目、科技部“863”项目和国家“十一五”科技支撑计划等。

讲师的相关咨询和培训经历:

- 1、国家安全生产监督管理总局 HAZOP 咨询
- 2、中国化学品安全协会 HAZOP 咨询
- 3、Bayer Technology and Engineering (Shanghai) Co., Ltd. 咨询
- 4、中国石油系统优化高级培训
- 5、中国石油独山子分公司 HAZOP 咨询
- 6、中国中化集团浙江石化建材集团 HAZOP 培训
- 7、中国石化茂名石化分公司 HAZOP 培训
- 8、中国石化工程建设公司 HAZOP 咨询
- 9、中国石油寰球设计院 HAZOP 咨询
- 10、美国 Eli Lilly 公司 HAZOP 咨询
- 11、美国 G. D. Searle 公司 HAZOP 咨询

在HAZOP计算机辅助软件开发方面，先后领导开发了第一代、第二代HAZOP专家系统软件平台，并在制药、石化行业成功实施应用。

培训形式

通过结合研讨会，团体和个人的工作，互动圆桌讨论和角色扮演，学员将了解HAZOP研究的在工艺安全管理和事故隐患挖掘中的作用。

培训师将使用的实际例子和个案研究，以加强和扩大可实际应用的HAZOP研究概念和方法。

内训方案

如果公司有很多人有着类似的培训需要，那么您不妨考虑内部培训的解决方案。

培训将在贵公司现场举行。并且培训可以根据您具体的要求来进行。

请联系Whitney Shen来讨论合作的可能：

电话：+86 28 6552 1255

电邮：whitney.shen@martinlinking.net

需要此次培训的行业:

- 石油化工
- 炼油
- 精细化工
- 医药中间体化工
- 煤化工
- 天然气处理
- 一般制造型企业

Best Practices for HAZOP 2010

SH 09024-Sales Contract-Please Complete in Capital Letters and Black Ink

Sales Contract

Please complete this form immediately and fax back to

Whitney Shen

Fax No: +86 28 6552 1233

Fee Per Delegate

Two Day Training Fee RMB 6995 per person

All the registered delegates are entitled for a set of documentation free of charge

DOCUMENTATION RMB 1000

If you are unable to attend the conference/training but wish to receive copies of the conference/training documentation, please complete the sales contract, tick this box and return the contract with payment details.

Full Payment is required within 5 working days

Name: _____

Position: _____

Email: _____

Name: _____

Position: _____

Email: _____

Name: _____

Position: _____

Email: _____

Organisation: _____

Address: _____

Town: _____ State: _____ Postcode: _____

Tel: _____ Fax: _____

Nature of Business: _____

Company Size: 1-99 100-249 250-499

500-999 1000+

Authorization

(Signatory must be authorized to sign on behalf of contracting organization.)

Name: _____

Position: _____

Signature: _____ Date: _____

This booking is invalid without a signature.



Register Now

Contact: Whitney Shen

Tel:+86 28 6552 1255

Fax:+86 28 6552 1233

Email: whitney.shen@martinlinking.net

Business Opportunities

An exhibition space is available at the conference. Sponsorship opportunities covering lunch, evening receptions and advertising in documentation packs are also available. Please contact Ms. Whitney Shen at +86 28 6552 1255.

Payment Method

Our payment terms are 5 working days on receipt of invoice and full payments can be made by bank transfer.

开户名: 成都马汀令可商务咨询有限公司

开户行: 中国工商银行成都市暑袜南街支行

账号: **4402928009022523952**

CONFIRMATION DETAILS: After receiving payment, a receipt will be issued. If you do not receive a letter outlining the conference details two weeks prior to the event, please contact the Conference Coordinator at Martin Linking.

Terms & Conditions:

1. Fees are inclusive of program materials and refreshments.
2. Payment Terms - Following completion and return of the registration form, full payment is required within five (5) working days upon the issuance of invoice. Payment must be received prior to the conference/training date. A receipt will be issued on payment. Due to limited conference/training seats, we advise early registration to avoid disappointment. We reserve the right to refuse admission if payment is not received on time.
3. Client's Cancellation/substitution - Provided the total fee has been paid, client's cancellation must be received in writing by MAIL or FAX four (4) weeks prior to the event in order to obtain an 85% credit to attend for any future **Martin Linking** Events. Under such circumstances, **Martin Linking** will retain the other 15% service fee to cover expenses for prior cost that has already been incurred upon the acceptance of registration. All bookings carry a 50% cancellation liability immediately after a signed sales contract has been received by **Martin Linking**.
4. If, for any unexpected circumstances or reasons that **Martin Linking** decides to postpone this event, the client hereby indemnifies and holds **Martin Linking** harmless from any cost incurred in by the client. The event fee will not be refunded, but can be credited to future **Martin Linking**' s events. **Martin Linking** reserves the right to change the content without notice.
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