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## CURRICULUM VITAE

Dehong Kong, Ph.D., PE (Fire Protection), CSP  
Flammability Group Manager Senior Consulting Engineer in Process Safety  
Chilworth Technology, Inc.  
Princeton, New Jersey

### SUMMARY

Dr. Dehong Kong, PE, CSP, is the **Flammability Group Manager** and **Senior Consulting Engineer in Process Safety** with 20 years experience dealing with fire and explosion hazards including gas, vapor and dust explosions, and electrostatic hazards. He is a **Professional Fire Protection Engineer (PE)**, a **Certified Safety Professional (CSP)** and is a Norwegian Chartered Engineer. He worked with Prof. Rolf K. Eckhoff, the author of the book “Dust Explosions in the Process Industries”, for eight years on dust and gas explosions. Through extensive researches on dust and gas explosions, he obtained his Ph.D. under the supervision of Prof. Eckhoff.

His job includes: (1) investigating industrial fire and explosion incidents; (2) conducting process safety reviews and audits; (3) analyzing industrial systems and processes involving fire, explosion, and electrostatic hazards; (4) presenting training courses on gas, vapor, and dust explosions, and electrostatic hazards; and (5) supervising laboratory testing. Dr. Kong has also been retained as an **expert witness in litigation cases** that involve major fire and explosion accidents that caused huge economical losses and injuries and fatalities. He has been working for various clients including chemical, pharmaceutical, petrochemical, paint, coating, metallurgical, food, and many others, as well as law firms. Dr. Kong has published a number of technical articles and has also written numerous technical reports.

## PROFESSIONAL EXPERIENCE

- **Expert Witnesses in Litigation:** Provide professional opinions and advises for legal cases involving fire and explosion hazards and electrostatic hazards

Examples:

- Investigations of the explosion incident in West Pharmaceutical Services, North Carolina, 2003.
  - Investigation of Malden Mill Fire and Explosion Incident, Massachusetts, 2000
  - 2001.
  - Investigation of Jahn Foundry Explosion, Massachusetts, 1999 – 2000.
- **Incident Investigation:** Conduct investigations of fire and explosion incidents in various industries
  - **Consulting:** Analyze and assess fire and explosion hazards and electrostatic hazards associated with various industrial processes, and suggest safety measures to prevent incidents and to protect personnel and equipment
  - **Safety Training Courses:** Present safety training courses on gas, vapor and dust explosion hazards, electrostatic hazards and electrical ignition hazards and hazardous area classifications. These courses provide both technical principles and practical solutions.
  - **Research/Testing:** Supervise and conduct research projects and laboratory testing

## PROFESSIONAL CERTIFICATION

- Certified Safety Professional (CSP), the Board of Certified Safety Professionals, USA.

## PROFESSIONAL QUALIFICATIONS

- **Gas/Vapor Explosions**
  - Flammability limits
  - Ignitibility
  - Explosion violence and damage analysis
  - Flame propagation
  - Prevention and Protection Techniques
- **Dust Explosions**
  - Flammability limits
  - Ignitibility
  - Explosion violence and damage analysis
  - Flame propagation
  - Prevention and Protection Techniques
- **Electrostatic Hazards**
  - Laboratory testing of electrostatic hazards
  - Assessment of electrostatic discharge hazards associated with industrial processes
  - Preventive and protective techniques against electrostatic hazards

- **Electrical Hazards and Hazardous Area Classification**
- **Process Hazards Analysis**
  - Conduct analysis of fire and explosion hazards and electrostatic hazards of various processes involving production, processing, storage and transportation of combustible/flammable materials including gases, liquids, solids, and slurries

## EMPLOYMENT HISTORY

- 1996 - present                      Chilworth Technology, Inc., USA
- 1989 - 1996                        Dept. of Process Safety, Christian Michelsen Research, Norway.
- 1986 – 1989                        The Industrial Explosion Protection Institute, Northeastern University of Technology, Shenyang, China

## DEGREES

- **Ph.D. in Applied Physics/Process Safety Engineering**, University of Bergen, Norway 1996. Thesis: Initiation and Turbulent Propagation of Gas Explosions - an Experimental Study of Selected Aspects, Supervised by **Prof. Rolf K. Eckhoff**.
- **M.S. in Process Safety Engineering**, Northeastern University of Technology, China, 1986 Thesis: Flame Propagation in Laminar Calcium - Silicon Alloy Dust and Coal Dust (**Dust Explosions**)
- **B.S. in Metallurgical Engineering**, Northeastern University of Technology, China, 1983.

## PUBLICATIONS

1. D. Kong: Analysis of a Dust Explosion Caused by Several Design Errors, Process Safety Progress, Vol. 25, No.1, March, 2006.
2. D. Kong: “Gas Explosion Hazard, Prevention and Protection”, *Encyclopedia of Chemical Processing* (ECHP), Marcel Dekker, 270 Madison Avenue, New York, NY 10016, 2005.
3. Dehong Kong: Dust Explosion Case Study: How a “Wrong” Material of Construction Caused a Dust Explosion, Prepared for presentation at Process Plant Safety Symposium American Institute of Chemical Engineers, 2005 Spring National Meeting, Atlanta, GA, April 10 – 14, 2005.
4. D. Kong: Flashpoints are affected by process pressures, Chemical Engineering, December 2004, pp. 50 - 53.
5. D. Kong: Investigation of a Fire in a Fluid Bed Dryer, Presented at International Powder & Bulk Solids Conference/Exhibition, May 3-6, 2004.

6. D. Kong: How to prevent self-heating (self-ignition) in drying operations, *Fire & Arson Investigator*, October 2003.
7. D. Kong et al.: Determination of flash point in air and pure oxygen using an equilibrium closed bomb apparatus, *Journal of Hazardous Materials*, Vol. 102, Issue 2-3, pp. 155 – 165, Sept., 2003.
8. D. Kong and M. Carneiro: Limiting Flammability on the Chemical Plant Floor – Account for pressure, temperature and other effects, *Chemical Processing*, January 2002.
9. D. Kong: Initiation and Turbulent Propagation of Gas Explosions - an Experimental Study of Selected Aspects. The thesis for the Doctor of Science degree, December 1995, University of Bergen.
10. D. Kong: Estimation of flow parameters of turbulent and vortex motions based on randomly sampled velocity data in the near wake of a circular cylinder in a steady flow, the Conference on Optical Techniques in Fluid, Thermal, and Combustion Flow, part of SPIE's 1995 International Symposium on Optical Science, Engineering and Instrumentation, 9-14 July, 1995, San Diego, California, USA.
11. D. Kong and I.Ø. Sand: Experimental investigation of gas explosion-driven transient flow in the near wake of bluff bodies. Presented at the International Symposium on Hazards, Prevention and Mitigation of Industrial Explosions incorporating the Seventh International Colloquium on Dust Explosion (CoOrganized by the Warsaw University of Technology) and the Second International Specialist Meeting on Fuel-Air Explosions, Bergen, Norway, June 23-28, 1996, Organized by the University of Bergen and Christian Michelsen Research.
12. D. Kong and Rolf K. Eckhoff and Fraz Alfert: Auto-ignition of CH<sub>4</sub>/air, C<sub>3</sub>H<sub>8</sub>/air, CH<sub>4</sub>/C<sub>3</sub>H<sub>8</sub>/air and CH<sub>4</sub>/CO<sub>2</sub>/air using a 1-liter ignition bomb, *Journal of Hazardous Materials* 40 (1995) 69-84.
13. D. Kong: Experimental Study of Turbulent Flows Behind Bluff Bodies, a technical report on GSP93-96 and EMERGE, Report of Christian Michelsen Research, December, 1995.
14. D. Kong and I. Ø. Sand: Experimental Study of Gas Explosion-Driven Transient Flows, a technical report on GSP93-96 and EMERGE, February, 1996.
15. D. Kong, I.Ø. Sand and K. van Wingerden: Measurements of Turbulent Flow Parameters in the Near-Wake Behind Cylinders Using Laser-Doppler Anemometry (LDA), GSP90-92, Ref. No. CMR-93-F25053, Bergen, 1994.
16. D. Kong and F. Alfert: Experimental Study of Spontaneous Ignition Temperatures (SITs) of CH<sub>4</sub>/air, C<sub>3</sub>H<sub>8</sub>/air and CH<sub>4</sub>/air/CO<sub>2</sub> Mixtures in a 1-liter Ignition Bomb, GSP90-92, Ref. No. CMI-91-F25016, No. 1991, Bergen.

17. D. Kong and F. Alfert: Experimental Investigation of Flame Propagation and Pressure Development in Gas Explosions in a Sector-Shaped Vessel of 1 m Radius, GSP90-92, Ref. No. CMI-90-F25067, Bergen, Dec. 1990.
18. I.Ø. Sand, D. Kong, J. Petrie, B. Wilkins, G.H. Pedersen & K.van Wingerden: Measurement of Flow Velocity and Loading in Flow Accelerated by a Plane Turbulent Flame, GSP90-92, CMR, 1994.
19. I.Ø. Sand, J. E. Petrie, D. Kong and K. van Wingerden: Measurement of Drag Forces in Steady Flow, GSP90-92, Ref. No. CMR-93F25054, Dec. 1993.
20. I.Ø. Sand, D. Kong, B. A. Wilkins, G. H. Pedersen and K. van Wingerden: Preliminary Experimental Work, Design of Experimental Facilities, Pipe Arrays / Complex Obstacles, GSP90-92, Ref. No., CMI-92-F25014.
21. Kong, D. H., Deng, X. F., and Liang, N.Y.: Flame Propagation in Laminar Flow of Dust, J. of Northeast University of Technology, Sum No.50,1987, No.1.
22. Deng, X. F., Kong, D. H., Jan, J.C. and Liao, Q.: Ignitibilities and Explosibilities of Ca-Si Dust Clouds and Some of Their Predictions, archivum combustionis, Vol.7, 1987, No.1-2.
23. Deng, X.F., Li, H. B., Kong, D. H. and Liao, Q.: Flame Propagation and the Explosibility of Linen Dust Clouds, the 3rd International Colloquium on Dust Explosions, Oct. 23-28, 1988, Szozyrk, Poland.
24. Kong, D. H., Deng, X F.and Wang, Z. S.: Measurement of Minimum Explosible Dust Concentration of Flax Dust Clouds in a 15 liter Apparatus by Direct Gravimetric Method, Shenyang International Sump. on Dust Explosions, Northeast University of Technology, Sept. 14-16, 1987.
25. Li, X. Q, Deng, X.F, Liao, Q and Kong, D. H.: A Study on the Test System of Ignition Energy and Minimum Ignition Energy of Flax, Lycopodium, Aluminum, and Ca-Si Dust Clouds, Shenyang International Symp. on Dust Explosions, Northeast University of Technology, Sept. 14-16, 1987.
26. Liao, Q. and Kong, D.: The minimum ignition temperature of some grain and fiber dusts. Presented in the Second Meeting of the Second Session of the National Committee for Standardization of Explosion-Proof Electrical Equipment, August 1991.
27. Lin, B. B., He, W. and Kong, D.: The minimum ignition energy of some grain and fiber dusts. Presented in the Second Meeting of the Second Session of the National Committee for Standardization of Explosion-Proof Electrical Equipment, August 1991.

### **Confidential Reports**

Most of the reports are confidential.