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EDUCATION

PhD Degree in Applied Chemistry, September 2007 to October 2013, Department of Applied Chemistry, Faculty of Chemistry, Bu-Ali Sina University, Hamedan, Iran.

PhD project title:

Investigation on application of hydrodynamic cavitation and impinging streams in advanced oxidation processes for degradation of organic pollutants

Master of Science Degree in Applied Chemistry, September 2002 to October 2005, Department of Applied Chemistry, Faculty of Chemistry, Bu-Ali Sina University, Hamedan, Iran.

MSc project title:

Study of application of impinging streams and its influencing factors on the liquid-liquid Extraction process

B.S. Degree in Pure Chemistry, September 1994 to February 1999, Faculty of Chemistry, University of Tabriz, Tabriz, Iran.

PROFESSIONAL EXPERIENCE

Employer: Tehran Water Supply and Water and Wastewater Treatment Company
Date Commenced: 22 July 2006
Position: Head of Tehran Water Treatment Plants Process and Installations Supervision Group
Unit: Department for supervision on water installations
Last Position & Unit: Head of Disinfection Systems Maintenance & Repair Division, Tehran's South Affairs of Water Supply (for more than 10 years)

KEY TECHNICAL SKILLS

Extensive expertise in drinking water chlorination and hypochlorination including:

- Design, installation, startup and operation of water chlorination and hypochlorination systems.
- Consultations on the selection of all technical equipment of chlorination systems and supervising installation, startup and operation of them.
- Consultations on the selection of all safety equipment of chlorination systems including the emergency chlorine gas scrubbers, chlorine sensors, emergency shut-off valves, emergency kits A & B etc. and supervising installation, startup and operation of them.
- Design and execution of specific chlorine emergency plans (CHLOREPs) for each specific water chlorination plant.
- Risk assessment of water chlorination plants.
- Dispersion modeling of chlorine gas release by dnv-PHAST software.
- Water chlorination and hypochlorination plants operation, maintenance, safety and emergency response training of emergency responders and other employees of the chlorination plants.

Expert in other aspects of drinking water disinfection including selecting an appropriate disinfection option, disinfection byproducts (DBPs) assessment, consultations on the selection of on-site electrochlorination systems etc.

Familiar with industrial wastewater treatment by hydrodynamic cavitation method, as indicated in title of my PhD project.

MEMBERSHIPS

1. The member of the “Iranian Chemical Society”.
2. The member of the “Disinfection Systems Committee” of Iran’s National Water & Wastewater Engineering Company.
3. The member of the “National Committee of Water Disinfection Plants Assessment” in Iran’s National Water & Wastewater Engineering Company.
4. The member and secretary of the “Chlorine Gas and Safety Committee” of Tehran Water Supply and Water and Wastewater Treatment Company.
5. The member of “Technical Working Group on Reservoirs” of Tehran province’s Water Safety Plan (WSP).
6. The member of “Technical Working Group on Water Treatment Plants” of Tehran province’s Water Safety Plan (WSP).

PUBLICATIONS

Books (in Farsi)

1. “Operation of chlorination systems and response to related incidents”, Avaye Ghalam, July 2016.
2. “Specifications for Technical and Safety Equipment of Chlorination System” (Co-Author), Avaye Ghalam, 2015.
3. “A Guideline for Chlorination Systems of Water and Wastewater Treatment Plants” (Co-Author), Management and Planning Organization of Islamic Republic of Iran, Rule No. 673, 2015.
4. Technical requirements and evaluation indices of On-site Sodium Hypochlorite Generation Systems, Iran’s National Water & Wastewater Engineering Company, 2018 (Technical Publication).

Peer-reviewed articles

1. [“Optimization of a heterogeneous catalytic hydrodynamic cavitation reactor performance in decolorization of Rhodamine B: Application of scrap iron sheets”](#), [Ultrasonics Sonochemistry](#), Volume 20, Issue 6, November 2013, Pages 1442-1449.
2. [“Optimization of a Multiple Impinging Jets Cavitation Reactor Using Zero-Valent Iron Powder as Catalyst”](#), [Chemical Engineering & Technology](#), Volume 36, Issue 9, September 2013, pages 1585-1592.
3. [“Investigation of a Two Impinging Jets Contacting Device in Liquid-Liquid Extraction”](#), [Chemical Engineering Science](#), Volume 61, Issue 12, June 2006, Pages 3942-3950.

Some Conference Presentations

1. [“Chlorine Emergency Response Plan in Tehran Water and Wastewater Company”, IWA World Water Congress & Exhibition, October 2016, Brisbane, Australia.](#)
2. [“Artificial Neural Networks Modeling of Decolorization of Rhodamine B Dye in a Multiple Impinging Jets Cavitation Reactor”, IWA World Water Congress & Exhibition, October 2016, Brisbane, Australia.](#)
3. [“Application of Hydrodynamic Cavitation Based Reactors in organic wastewater treatment and prediction the results by artificial neural network”, 17th Iranian Chemistry Congress, Vali-e-Asr University of Rafsanjan, Iran, September 2014 \(in Farsi\).](#)
4. “Degradation of Rhodamine B Using Submerged Cavitating Jets at Pilot Scale Operation”, 15th Iranian Chemistry Congress, Bu-Ali Sina University Hamedan, Iran, September 2011 (in Farsi).
5. [“Application of a Contacting Device with Two Impinging Streams in Liquid-Liquid Extraction”, 10th Iranian Chemical Engineering Congress, University of Sistan and Baluchestan, November 2005 \(in Farsi\).](#)

Translation (English to Persian)

1. “First Aid, Medical Management/Surveillance and Occupational Hygiene Monitoring Practices for Chlorine”, Pamphlet 63, Chlorine Institute Inc.
2. “AWWA Manual of Water Supply Practices M65, On-Site Generation of Hypochlorite”, Sotoudeh Publications, 2017 (Translation Editor).

TEACHING EXPERIENCE

Professional theoretical and practical training of emergency responders, operators, and disinfection experts of water chlorination and hypochlorination plants includes more than 700 hours short-term occupational courses and workshops in various universities, Water and Wastewater Companies and Fire Departments. Some of these are listed as below:

1. Bu-Ali Sina university of Hamedan
2. Shahid Abbaspour University
3. Institute of Higher Education of Applied Science of Water and Power Industry (Tehran, Shiraz and Isfahan branches)
4. Tehran Province Water and Wastewater Company
5. Hamedan Province Water and Wastewater Company
6. East Azerbaijan Province Water and Wastewater Company (Zarrineh Roud water treatment plants)
7. Isfahan Province Water and Wastewater Company
8. Tehran Water Supply and Water and Wastewater Treatment Company
9. Persian Gulf Water Supply Company (Kosar water treatment plants)

10. Tehran Fire Department

SOME INTERNSHIP/TRAINING

1. Drinking Water Treatment (DelftX - CTB3365DWx, Organized by Delft University of Technology via edx.org).
2. Urban Sewage Treatment (DelftX - CTB3365STx, Organized by Delft University of Technology via edx.org).
3. Introduction to Water and Climate (DelftX - CTB3300WCx, Organized by Delft University of Technology via edx.org).
4. Assessment and management of maintenance and repair contractor.
5. Basic, structure & documentation of Environmental Management System in accordance with ISO 14000 Series.
6. Basic, structure, documentation & auditing of Health, Safety, Environment Management System HSE-MS.
7. Chlorine emission modeling by dnv-PHAST software.
8. Crisis management in water and wastewater industry.
9. Crisis management in water distribution networks in earthquake.
10. Emergency response and disaster risk reduction in water and wastewater industry
11. General safety and fire extinguishing.
12. Health and safety in water and wastewater industry.
13. Introduction to requirements of OHSAS 18000 system.
14. Introduction to water chlorination and related emergency responses.
15. Predictive maintenance systems.
16. Systems and methods.
17. Total productive maintenance systems.
18. Water and Wastewater disinfection.
19. Water sampling.