

**Title of Research:**

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**Comprehensive evaluation methods for chemicals registered in PRTR.**

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**Summary of Research:**

For chemicals registered in PRTR, four test methods were established to evaluate formation potentials of trihalomethanes, aldehydes, and nitrosamines during oxidation processes using ozone, chlorine or chloramine. In addition, a quick and robust oxidation method was developed to evaluate formation potential of perfluorocarboxylic acids (PFCAs) from their precursors in wastewater samples. These methods were applied to wastewater and river water samples.

**Timeline:** November 1, 2012 – February 28, 2015

**Topics:** Poster presentation at 2<sup>nd</sup> Annual Conference of LRI

**Publications:**

- 1) Yuji SUZUKI, Shuhei TANAKA, Shigeo FUJII, Norihide NAKADA, Kazuma ISHIKAWA, Kongpran JIRA, and Norimitsu SAITO, "Study on Behavior of Perfluorocarboxylic Acids in Wastewater Treatment Plants in Consideration of the Formation Potential from Their Precursors", Journal of Japan Society of Civil Engineers, Vol.70 (7): p.III55-p.III64, 2014.
- 2) Yuji SUZUKI, Shuhei TANAKA, Shigeo FUJII, Norihide NAKADA, Kongpran JIRA, Kazuma ISHIKAWA, and Norimitsu SAITO, "Study on Formation Behavior of Perfluorinated Compounds from Their Precursors in Wastewater Samples", The 48th Annual Conference of Japan Society of Water Environment, Sendai, Japan, March 2014.
- 3) Yuji SUZUKI, Shuhei TANAKA, Shigeo FUJII, Norihide NAKADA, Kongpran JIRA, Kazuma ISHIKAWA, and Norimitsu SAITO, "Study on the examination methods of formation potential of perfluorinated compounds from their precursors in wastewater samples by preservation and oxidation processes", The 23th Annual Conference of Japan Society for Environmental Chemistry, Kyoto, May 2014.
- 4) Shuhei ITAI, Norihide NAKADA, Yongkui YANG, Hiroaki TANAKA, "Development of by-products formation potential test for PRTR chemicals during oxidation processes", The 23th Annual Conference of Japan Society for Environmental Chemistry, Kyoto, May 2014.
- 5) Yuji SUZUKI, Shuhei TANAKA, Shigeo FUJII, Norihide NAKADA, Kongpran JIRA, Kazuma ISHIKAWA, and Norimitsu SAITO, "Study on formation potential of perfluorinated compounds from their precursors by oxidation processes and determination of intermediate products", The 36th Annual Conference of the Association of Environmental & Sanitary Engineering Research, Kyoto, July 2014.
- 6) Shuhei ITAI, Norihide NAKADA, Hiroaki Tanaka, Formation potential test for individual chemicals during oxidation processes. The 36th Annual Conference of the Association of Environmental & Sanitary Engineering Research, Kyoto, July 2014.
- 7) Yuji SUZUKI, Shuhei TANAKA, Shigeo FUJII, Norihide NAKADA, Jira KONGPRAN, Kazuma ISHIKAWA, and Norimitsu SAITO, "Study on Oxidation Conditions in Evaluating Formation Potential of Perfluorinated Compounds from their Precursors", The 17th Annual Symposium of Japan Society of Water Environment, Hikone, Japan, September 2014.
- 8) Yuji SUZUKI, Shuhei TANAKA, Shigeo FUJII, Kazuma ISHIKAWA, Norihide NAKADA, Tsz Kit LIU, and Norimitsu SAITO, "Study on Occurrences of Perfluorinated Compounds and their Formation Potentials in Wastewater Samples in Dissolved and Particulate Phases", The 49th Annual Conference of Japan Society of Water Environment, Kanazawa, March 2015.