Editorial
Volume 11:5, 2020
DOI: 10.37421/ csj.2020.11.220

Chemical Sciences Journal

ISSN: 2150-3494 **Open Access**

Waste Management in Chemical Industry

Katta Eswar Srikanth

Department of Physics, DNR College, Bhimavaram, Andhra Pradesh-534202, India

Editorial Note

For the last few decades, the earth is suffering from many environmental problems like global warming, water pollution and water scarcity, waste disposal and land degradation and management etc. Out of these problems, recently, waste management is one of the biggest challenges to the scientist worldwide because most of the industries produces and releases large amount of solid waste as well as liquid waste every day. It is more difficult to dispose or destroy liquid wastes because most of the time it comes with a mixture of several chemicals and most of them are soluble in water which causes huge water pollution both in surface water and in ground water. The proper disposal of wastes is required for the reduction of many environmental problems like water pollution, soil pollution, ground water contamination, landfill etc. So, the destruction of these toxic chemicals is utmost important to reduce its bad effects on environment.

Common industrial processes that have traditionally been used in waste water treatment include adsorption, chemical coagulation, nano filtration and electrocoagulation. However, these industrial methods often generate sludge as a secondary pollutant which requires further processing to remove the contained organic compounds. Consequently, efficient, economic, and environment-friendly degradation of waste chemicals particularly by advanced oxidation processes may be one of the alternative approach to reduce the release of toxic chemicals to the environment by harnessing the energy from the sunlight.

Photocatalytic degradation is a technique which uses ultraviolet or visible light as a source of energy to carry out the reactions and it has been applied in the destruction or transformation of the toxic chemicals to non-hazardous chemicals. A number of nanomaterials are developed in the last few years e.g. copper, gold, silver, titanium dioxide, zinc oxide, bismuth oxide etc. for the photo catalysis. The defining properties of a good semiconductor photo catalyst material are, it should be chemically and biologically inert, easy to produce, activated by sunlight and the core element making up the material can reversibly change its valence state to accommodate a hole without decomposing the semiconductor. The photo generated holes should be highly oxidizing to produce hydroxyl radicals and the photo generated electrons should be reducing enough to produce superoxides from the oxygen.

Not surprisingly, no semiconductor perfectly fits this demanding list of requirements, although the semiconductor titanium dioxide, TiO_2, comes close. As a semiconductor photo catalyst, titanium dioxide has high photoactivity, chemical and photochemical robustness and inexpensive. TiO_2 is a potent photo catalyst that can break down almost any organic compound when exposed to sunlight, to remove nitrogen oxide from the air, breaking it down into more environmentally benign substances that can then be washed away by rainfall.

How to cite this article: Katta Eswar Srikanth. "Waste Management in Chemical Industry." *Chem Sci J* 11 (2020). doi: 10.37421/CSJ.2020.11.220

Address for Correspondence: *MKatta Eswar Srikanth, Department of Physics, DNR College, Bhimavaram, Andhra Pradesh-534202, India, E-mail: eswarsrikanth.katta@gmail.com*

Received 10 October 2020; **Accepted** 15 November 2020; **Published** 22 November 2020