

# Iodine Production and Industrial Applications

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Iodine is deeply rooted to our daily life [1]. In the seminar, I would like to review and discuss about iodine production and industrial applications.

## 1. Iodine Production and Recycling

Today about 90% of iodine in the world is produced from niter in Chile (60%) and from natural gas brine in Japan (30%). Japan's iodine production has remained at constant levels because the amount of water extracted for this purpose must be maintained at constant levels to prevent land subsidence associated with pumping of water from unconsolidated formations. Therefore, we have developed and established the comprehensive iodine recycling technology based on the high-temperature decomposition process and the electro dialysis process to continue sustainable iodine production [2].

## 2. Industrial Applications of Iodine

Iodine compounds have unique properties and are essential to our life. The major industrial applications of iodine include Xray contrast media (XCM) (22%), disinfectant (12%), polarizer (11%), catalyst (11%), and pharmaceuticals (10%) [3].

## 3. Novel Industrial Applications of Iodine

Novel Application of iodine: Perovskite Solar Cell is one of the promising applications of iodine. Organic iodine compounds are efficient catalysts for Iodine transfer polymerization. Polyiodide and amylose complex is applied as the antivirus agent for COVID-19.

## References

- [1] T. Kaiho, Eds., Iodine Chemistry and Applications, John Wiley & Sons, Inc., Hoboken, NJ, USA, **2014**.
- [2] <https://www.godoshigen.co.jp/en/business/recycle/>
- [3] T. Kaiho, Iodine Made Simple, CRC Press, Taylor & Francis: Boca Raton, FL, USA, **2017**.