

Annotated References

(This is not an exhaustive list, but is a good starting point)

Last updated: December 3, 2020

References 1 through 5 are important for understanding the safety of handling dilute hypochlorous acid solution

1. **Block, Michael S, and Brian G Rowan. "Hypochlorous Acid: A Review." *Journal of oral and maxillofacial surgery*. vol. 78,9 (2020): 1461-1466. doi:10.1016/j.joms.2020.06.029**

The above article goes through a thorough review of HOCl related research in order to examine HOCl's ability to effectively disinfect pathogens while still being safe for use in office spaces on a daily basis.

2. **Anagnostopoulos, Apostolos G., Andrew Rong, Darlene Miller, Ann Q. Tran, Trajen Head, Michael C. Lee, and Wendy W. Lee. "0.01% Hypochlorous Acid as an Alternative Skin Antiseptic." *Dermatologic Surgery* 44.12 (2018): 1489-493. Print.**

The above article provides information on the safe use of 0.01% HOCl as an effective skin antiseptic.

3. **Mourad, Khaldoun A., and Sture Hobro. "Developing Chlorine-based Antiseptic by Electrolysis." *Science of The Total Environment* 709 (2020): 136108. Print.**

The above article studies a system for creating HOCl for hand sanitization.

4. **USDA Technical Evaluation Report. *Hypochlorous Acid*. Agricultural Marketing Service, Agricultural Analytics Division for the USDA National Organic Program, 2015. CAS Numbers: 7790-92-3**

Discusses the use and safety of HOCl for farm products for direct consumption by people.

5. Wang, L et al. "Hypochlorous acid as a potential wound care agent: part I. Stabilized hypochlorous acid: a component of the inorganic armamentarium of innate immunity." *Journal of Burns and Wounds* no. 6 (April 2007)

Discusses the use of HOCl as a useful disinfectant for direct use on open wounds.

6. Bockris, J. O'M., B. E. Conway, and Ralph E. White. *Modern Aspects of Electrochemistry*. New York: Springer, 2011.

See the above book for a basic discussion of Chlor-Alkali process chemistry and engineering.

7. "Chemical Disinfectants." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, September 18, 2016.
<https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html>

Provides approved chemical disinfectants by CDC.

8. "Coronavirus Disease (COVID-19): Cleaning and Disinfecting Surfaces in Non-health Care Settings." *World Health Organization*. World Health Organization, 16 May 2020. Web. Accessed: 23 Sep. 2020.
From: <https://www.who.int/news-room/q-a-detail/q-a-considerations-for-the-cleaning-and-disinfection-of-environmental-surfaces-in-the-context-of-covid-19-in-non-health-care-settings>

The above website from WHO offers information in Question-and-Answer format about cleaning and disinfection of environmental surfaces.

9. Entwisle, J. H. "Consumption of Graphite Anodes in Chlorine Manufacture by Brine Electrolysis." *Journal of Applied Electrochemistry* 4, no. 4 (1974): 293–303.
<https://doi.org/10.1007/bf00608971>.

Analyzes the disintegration of carbon rod anodes in the Chlor-Alkali process.

10. Hakim, Hakimullah, Chanathip Thammakarn, Atsushi Suguro, Yuki Ishida, Akinobu Kawamura, Miho Tamura, Keisuke Satoh, Misato Tsujimura, Tomomi

Hasegawa, and Kazuaki Takehara. "Evaluation of Sprayed Hypochlorous Acid Solutions for Their Virucidal Activity against Avian Influenza Virus through in Vitro Experiments." *Journal of Veterinary Medical Science* 77, no. 2 (2015): 211–15. <https://doi.org/10.1292/jvms.14-0413>.

Discusses the effectiveness of 200 ppm HOCl for deactivating avian influenza

11. Karlsson, Rasmus K. B., and Ann Cornell. "Selectivity between Oxygen and Chlorine Evolution in the Chlor-Alkali and Chlorate Processes." *Chemical Reviews* 116, no. 5 (2016): 2982–3028. <https://doi.org/10.1021/acs.chemrev.5b00389>.

Chlor-Alkali process chemistry explained.

12. "List N: Disinfectants for Use Against SARS-CoV-2 (COVID-19)." EPA. Environmental Protection Agency, September 17, 2020. <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2-covid-19>

The title is self-explanatory. HOCl is part of this list of disinfectants

13. Rabah, M.a, Nabil Nassif, and A.a.abdul Azim. "Electrochemical Wear of Graphite Anodes during Electrolysis of Brine." *Carbon* 29, no. 2 (1991): 165–71. [https://doi.org/10.1016/0008-6223\(91\)90066-r](https://doi.org/10.1016/0008-6223(91)90066-r).

Analyzes the disintegration of carbon rod anodes in the Chlor-Alkali process.

14. Recalde, M. "Hypochlorous acid -- harnessing nature's germ killer, *Optometry Times*. (2009) Retrieved on Sept. 20, 2020 from <https://www.optometrytimes.com/view/hypochlorous-acid-harnessing-natures-germ-killer?page=3>

The short popular article above briefly covers the history of HOCl, describes how our body generates and uses HOCl to kill pathogens, and refers to its current use in eye care, and also recounts its history.

- 15. PATH: A catalyst for global health. “Developing the Smart Electrochlorinator: A Low-Cost Solution to Safe Water for Small Communities” (2011) Retrieved from https://path.azureedge.net/media/documents/TS_swp_smart_electro.pdf**

The brochure above shows the work that PATH - a Seattle-based non-profit organization -- has done on distributing equipment to locally generate HOCl from salt-water.

- 16. MSR Team “Designing MSR’s Community Chlorine Maker” (2016) Retrieved from <https://www.msrgear.com/blog/developing-msrs-community-chlorine-maker/>**

The above article shows how MSR - a high-tech company making mountaineering and camping gear, have produced portable HOCl devices for use by the US military and for civilian camping and mountaineering gear.
