Evidence-based summary of HOCl/electrolyzed water contact times versus key food-borne pathogens. I grouped results by organism and matrix (clean suspension vs. real surfaces/food), since matrix and temperature heavily influence needed exposure.

Organism	Matrix / Scenario	HOCl / EO conc. (free Cl) & pH	Temp	Contact time & effect	Notes / Source
E. coli O157:H7	Clean liquid suspension	≈50 mg/L (EO water; HOCl-dominant), acidic	45 °C	**1 min → ≥7–8 log** kill (complete)	Classic AEM study on EO water; same setup also tested Salmonella. (PubMed)
E. coli O157:H7	Clean liquid suspension	≈50 mg/L (EO)	35 °C	**2 min → ≥7 log**; at 4–23 °C **5 min → ~7 log**, **10 min → complete**	Temperature matters; colder needs longer. (Summary quoting same AEM data.) (image.sciencenet.cn)
Salmonella enteritidis / S. Typhimurium	Clean liquid suspension	≈50 mg/L (EO), acidic	45 °C	**1–2 min → ≥7 log**	Same AEM protocol shows rapid kill for Salmonella. (ASM Journals)
Mixed vegetative bacteria	Sprayed on **surfaces** (porous & non-porous)	Slightly acidic HOCl water (SAHW), ~50–100 ppm, pH ~6	Ambient	**≤5 min** to inactivate surface bacteria; **much faster in liquid**	Demonstrates slower action on real surfaces than in clean suspension. (pmc.ncbi.nlm.nih.gov)
Campylobacter jejuni	**Pure culture** (clean suspension)	50 mg/L residual chlorine (EO or chlorinated water)	Ambient	**10 s → complete inactivation**	Very fast kill in clean conditions. (PubMed)
Campylobacter jejuni	**Chicken skin (real food surface)**	200 ppm NaOCl (near-neutral) or 400 ppm chlorous acid	Ambient	**15 s → ~1.3–2.6 log** reduction (not complete)	Shows matrix/organic load shielding on poultry. (sciencedirect.com)
Campylobacter jejuni	SAEW, mechanism & kinetics	Slightly acidic electrolyzed water (ACC varies), pH ~5.5–6.5	Ambient	**Higher ACC + longer time → more kill**; organic protein reduces efficacy	Useful for setting ranges; confirms time–dose relationship. (spkx.net.cn)

How to read this for operations

- **Clean, low-organic situations (rinses, CIP tanks, filtered spray)**: 50–100 ppm free chlorine as HOCl often achieves multi-log kill in **seconds to a couple of minutes** (faster when warm). Validate on-site. (PubMed)
- **Real surfaces / food with organic load or biofilm**: Expect **longer contact** (e.g., **1–5 min** at 50–100 ppm) or increase concentration and improve **pre-cleaning**; biofilms dramatically slow kill. (pmc.ncbi.nlm.nih.gov)