APPLICATION NOTE • FOOD SAFETY & POST-HARVEST

Mineral Oxychloride Improves Food Safety

Mineral oxychloride technology uses various forms of oxygen to reduce or eliminate the microorganisms behind both food spoilage and foodborne illness — without impacting taste.

6-log
MICROBIAL REDUCTION IN <10 SECONDS

+700 mV
SUSTAINED ORP THRESHOLD

12-day
SHELF-LIFE STUDY (RASPBERRIES)

Food scientists have long recognized two categories of concern: food-spoilage microorganisms and pathogenic microorganisms. Their research has pointed to using a strong disinfectant (oxidizer) that provides a measurable residual while not impacting taste. Research using ROS (reactive oxygen species) has demonstrated a **6-log reduction in less than 10 seconds** at an ORP (oxidation-reduction potential) consistently above +700 mV.

The mineral oxychloride solution quickly destroyed microorganisms and delayed mold formation. It also provided oxidative energy to the fruit, slowing spoilage. The chemistry generates a high concentration of hydroxyl radical ions and singlet oxygen ions, enabling quicker disinfection — killing microorganisms as quickly as ozone.

JC 9465 (sodium oxychloride) works like liquid ozone. It is USEPA-registered as a disinfectant for post-harvest applications, USDA Organic-certified for organic applications, and NSF-approved for use in potable water systems.

USEPA Registered | USDA Organic Certified | NSF Approved

Figure 1 — 12-day study: raspberries washed with JC 9450 (~+750 mV) vs. a rinse-water control

OXIDATION POTENTIAL OF COMMON OXIDANTS

REAGENT	FORMULA	VOLTS
Fluorine	F_2	3.06
Mineral Oxychloride	**$M_xO_yCl_t$**	**2.8–2.9**
Hydroxyl Radical	$OH\bullet$	2.80
Oxygen Ion	O^-	2.42
Ozone	O_3	2.07
Hydrogen Peroxide	H_2O_2	1.78
Perhydroxyl Radical	HO_2	1.70
Chlorine Dioxide	ClO_2	1.57
Hypochlorous Acid	HOCl	1.49
Chlorine Gas	Cl_2	1.36
Oxygen (Molecule)	O_2	1.23
Hypochlorite Ion	OCl^-	0.94
Sodium Hypochlorite	NaOCl	0.94

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