



HyperCide

BROAD SPECTRUM DISINFECTANT



- Breaks down to water, oxygen and acetic acid and leaves no residues on fruit.
- Kills postharvest decay fungi as well as bacteria compromising food safety.
- Is not pH sensitive, efficacy increased as temperature increase.
- Is ideal for packhouse sanitation.
- Can be monitored with the "HyperCide Test Kit" for maintaining effective and optimal efficacy levels.

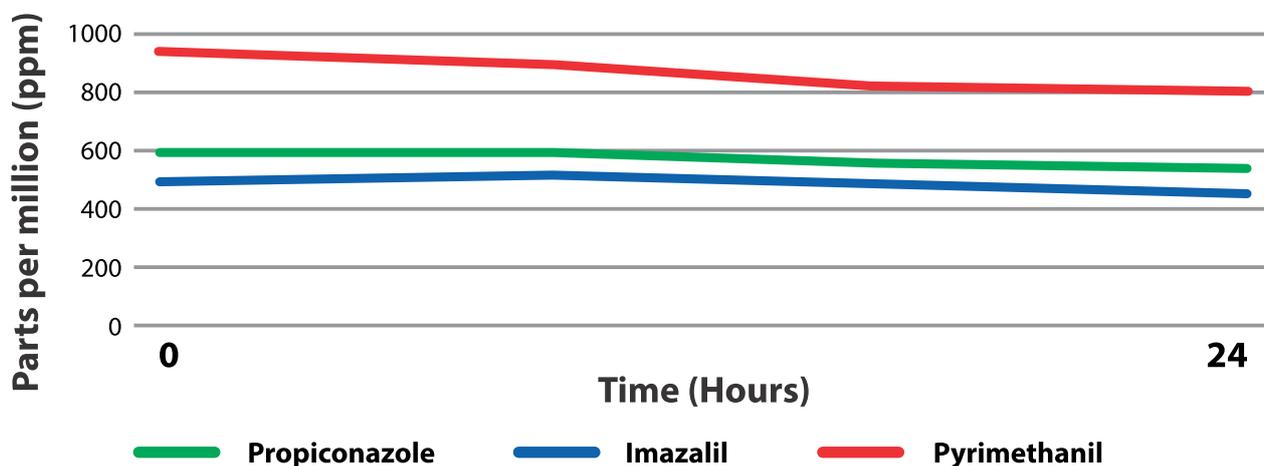
HyperCide

REGISTERED TO SANITISE

- Wash water in vegetable and fruit packing and processing.
- Packhouse and processing plants including picking crates and bins.
- Benches and work areas, other surfaces and food utensils.
- Evaporative coolers.
- Irrigation systems.
- Pots, flats, trays and cutting tools.

Efficacy was confirmed against *Pseudomonas aeruginosa*, *Pectobacterium brasilienses*, *Bacillus atrophaeus* (spores), *Staphylococcus aureus*, *Escherichia coli*, *Galactomyces citri-aurantii* and *Penicillium spp.* by various institutions (SABS, ARC, Universities of Stellenbosch and the Free State, CRI and QMS Laboratories).

EFFECT OF HYPERCIDE ON FUNGICIDE CONCENTRATION IN CITRUS POST-HARVEST DRENCH MIXTURES

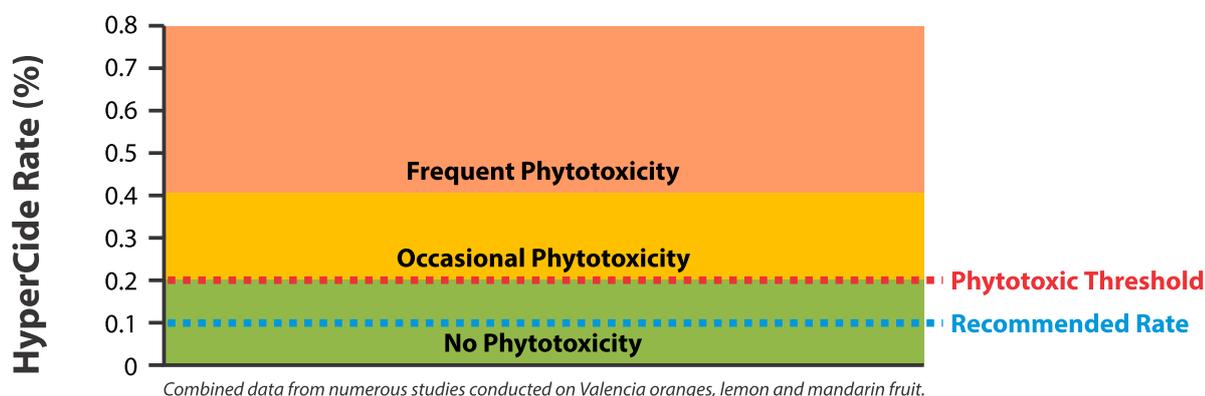


In the drench mixtures there were a very limited effect on propiconazole, imazalil and pyrimethanil over a 24-hour exposure period. HyperCide is therefore compatible with these fungicides in mixtures.

RESIDUE LOADING ON FRUIT

Results from various trials conducted on different citrus fruit types (Valencia oranges, lemon & mandarins) from eight different packhouses showed that the inclusion of HyperCide in the drench mixtures had no significant effect on the residue loading of the active ingredients propiconazole, thiabendazole, pyrimethanil and 2,4-D, when compared to drench mixtures not treated with HyperCide.

PHYTOTOXICITY INCIDENCE ON CITRUS FRUIT EXPOSED TO DIFFERENT CONCENTRATIONS OF HYPERCIDE



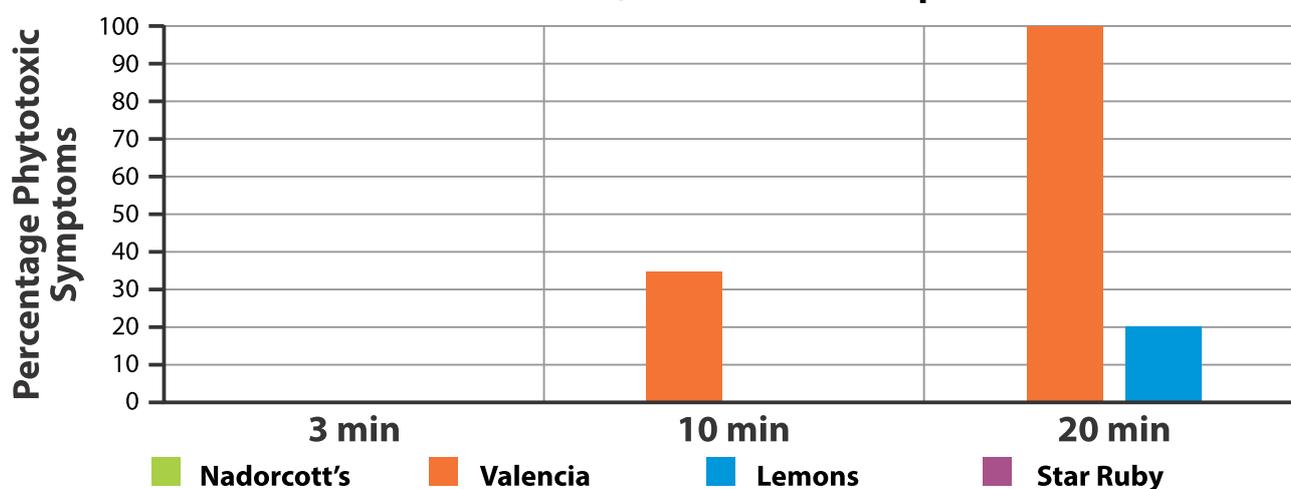
SUMMARY

- No phytotoxic symptoms were observed at 0.1 – 0.2% HyperCide.
- Recommended rate = 0.1% HyperCide (safety factor).
- Water with a high iron content may increase the phytotoxicity risk.
- Care should be taken with sensitive fruit.

EFFECT OF HYPERCIDE MIXTURE TEMPERATURE AND EXPOSURE PERIOD ON PHYTOTOXICITY INCIDENCE ON CITRUS FRUIT

- No phytotoxic symptoms were observed on any citrus fruit types after 20 minutes exposure in **unheated** 0.1% HyperCide mixture in the presence and absence of drench fungicides.
- No phytotoxic symptoms were observed on any citrus fruit types after 3 minutes exposure in **heated** 0.1% HyperCide mixture in the presence and absence of drench fungicides.
- Phytotoxic symptoms were observed on Valencia orange fruit after 10 minutes exposure in **heated** (40°C) 0.1% HyperCide mixtures.

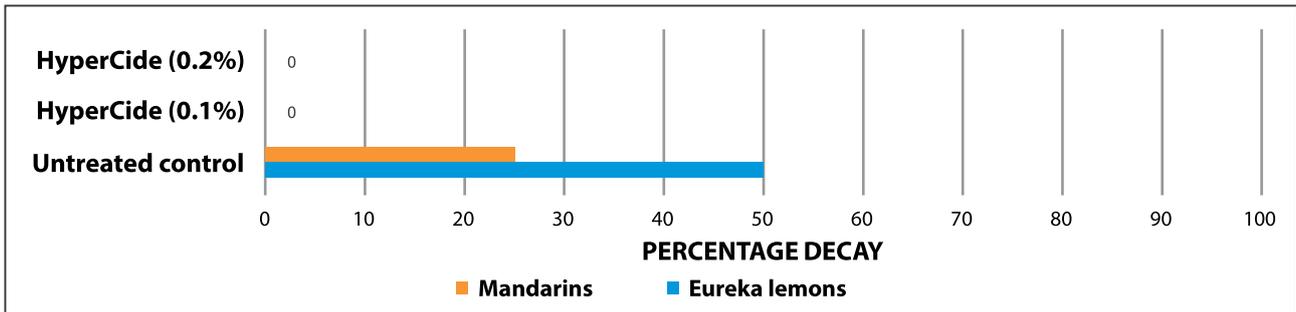
Percentage phytotoxicity on fruit after HyperCide treatment at 40°C with 3, 10 and 20 min exposure



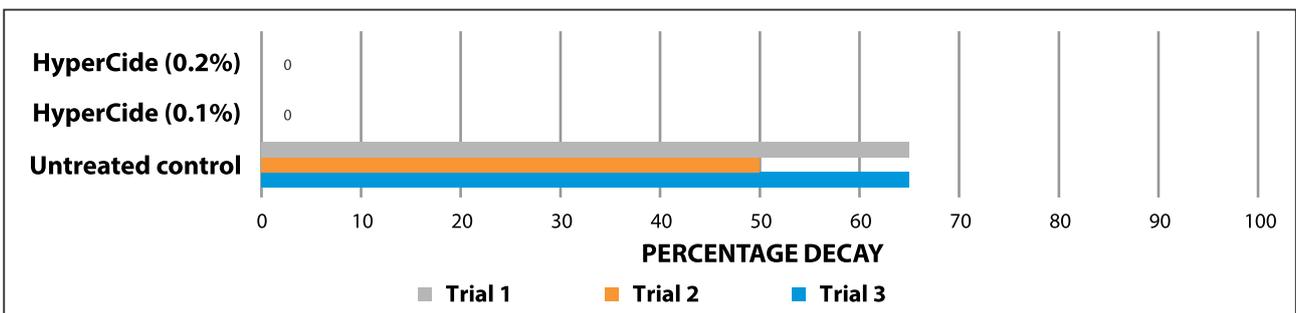
RECOMMENDATION

- Fruit can be exposed to 0.1% HyperCide in an unheated mixture for 20 min.
- Fruit should not be exposed for more than 3 min to a heated (40°C) 0.1% HyperCide mixture.
- Sensitive fruit should always be tested first.

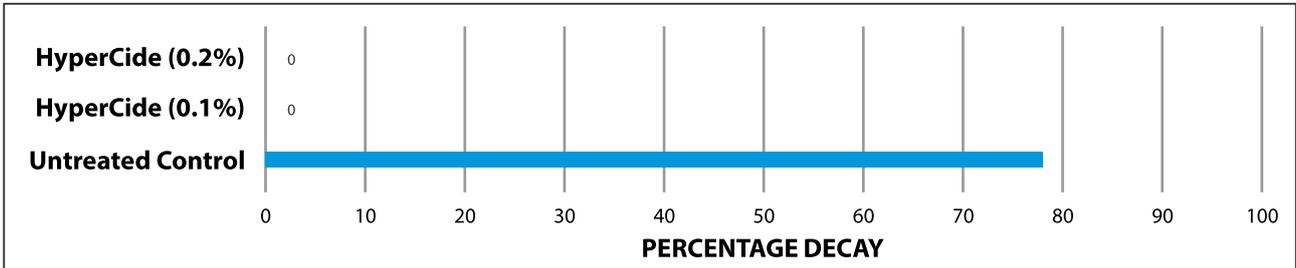
SANITATION EFFICACY OF HYPERCIDE IN PACKHOUSE MIXTURES



Mean percentage *Penicillium digitatum* decay on Nardorcott mandarins and Eureka lemons three days after dipping injured fruit into *Penicillium digitatum* inoculated mixtures.



Mean percentage *Galactomyces citri-aurantii* (sour rot) decay on Delta Valencia oranges (3 trials) seven days after dipping injured fruit into *Galactomyces citri-aurantii* inoculated mixtures.



Mean percentage *Galactomyces citri-aurantii* (sour rot) decay on Eureka lemon seven days after dipping injured fruit into *Galactomyces citri-aurantii* inoculated mixtures.

CONCLUSION

Research confirm that HyperCide at 0.1% is able to sanitise mixtures effectively to prevent *Penicillium digitatum* and *Galactomyces citri-aurantii* inoculum build-up.

CONTACT INFORMATION

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HyperCide (Active ingredients: 14% peracetic acid plus 22% hydrogen peroxide)
NRCS Reg. No: ACT5GNR529/243642/130/0885

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