FOOD INDUSTRY

Apple Packing Flume Antimicrobial Treatment US Pacific Northwest

Hydropath treatment enhanced antimicrobial control in apple flume water, supporting lower PAA and chlorine doses while maintaining improved microbial results.

Upto 80%	10 ppm	$10^7 \rightarrow 10^1$	Easier
Lower Chlorine Dose	Chlorine With Non-Detect Results	Lowest Observed Bacterial Count	Flume Cleaning Reported

⇄ BEFORE & AFTER

BEFORE

- Microbial counts reached 10^7 cfu/mL
- T-Dump relied on PAA treatment
- Treatment Tank used 40-50 ppm chlorine

AFTER

- ✓ T-Dump counts fell as low as 10^1 cfu/mL
- ✓ Improved control recorded with lower PAA
- ✓ Non-detect maintained at 10 ppm chlorine

OVERVIEW

A US apple packing facility evaluated Hydropath treatment across two process-water systems. The T-Dump trial assessed microbial control at lower peracetic acid (PAA) doses, while the Treatment Tank trial assessed whether chlorine could be reduced while maintaining microbial control.

⚠ CHALLENGE

Microbial control remained inconsistent in heavily fouled flume water.

- Dirt and debris entered with bins and fruit
- Bacteria and fungi remained at 10^3–10^7 cfu/mL
- Pathogens and decay organisms required control

SOLUTION

One *Hydro*FLOW® unit was first installed on the 6-inch T-Dump recirculation pipe for the PAA trial, then moved to the Treatment Tank for the chlorine-reduction trial.

TRIAL 1

T-Dump: PAA reduction

TRIAL 2

Treatment Tank: chlorine reduction

RESULTS

Lower T-Dump Microbial Counts

Counts fell from 10^3–10^7 to 10^1–10^3 cfu/mL with the signal.

Control at Lower PAA Doses

Counts improved with PAA at 18-35 ppm during the first treated week.

Up to 80% Lower Chlorine Dose

Non-detect results were maintained as chlorine fell from 40–50 to 10 ppm.

Free Chlorine Maintained

With treatment active, free and total chlorine readings were reported as equal.

Flumes Easier to Clean

Staff reported lighter wall debris that was easier to clean.

Microbes Detectable With Signal off

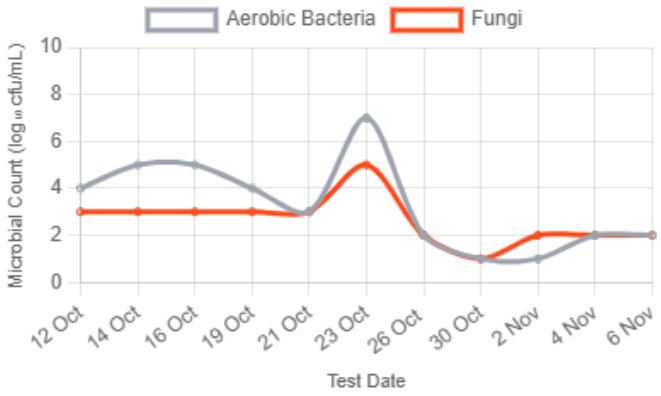
At 10 ppm chlorine with the signal off, counts returned at 10^1–10^3 cfu/mL.

GRAPHS

PAA Dose During T-Dump Trial

On 26 Oct HydroFLOW® Signal was switched on. PAA dosing fell from 35 ppm to 18 ppm before temporary dosing increases on 2–4 November.

T-Dump Microbial Counts



On 26 Oct when the HydroFLOW® signal was switched on, aerobic bacteria and fungi then fell from pre-treatment highs of 10^7 and 10^5 to 10^1–10^3 cfu/mL.

KEY TAKEAWAY

Apple Flume Treatment Summary

Hydropath treatment was evaluated on two apple-packing flumes. In the heavily fouled T-Dump, bacteria and fungi fell from 10^3-10^7 to 10^1-10^3 cfu/mL while PAA was reduced on key test days. In the Treatment Tank, microbial results remained non-detect at 10 ppm total chlorine while the unit operated. When the signal was turned off at the same dose, microbial counts became detectable again.

Upto 80%	10 ppm	10^1-10^3
LOWER CHLORINE DOSE	NON-DETECT MICROBIAL RESULTS	TREATED T-DUMP RANGE

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sales@hydropath.com ☎ +44 (0)115 986 9966 hydropath.com

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