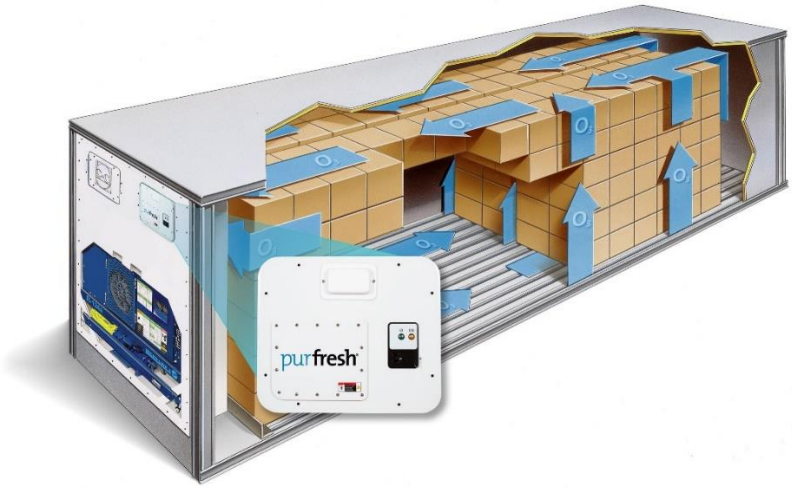
Purfresh Clean – Titan Systems for Wine Grape Smoke Taint Reduction
(Equipment/Treatment Specifications)

Purfresh
3858 Bay Center Place
Hayward, CA 94545 USA

Purfresh TITAN Unit(s) - Mobile virus, bacteria, fungus, odor, and smoke decontamination ozone distribution unit(s) for fruit, food, parts, and other equipment. Ozone is FDA approved for food contact and USDA approved for organic food processing. Titan units have included dynamic control settings and features for ozone, temperature, humidity,



- **40’ Purfresh Titan internal dimensions (feet): L 38’ x W 7.5’ x H 8.4’**
- **Temperature control range: −30ºC to +30ºC**
- **Ventilation (fresh-air exchange) range: 0 to 240 cbm/h**
- **Dehumidification range: 60% to 95% maximum relative humidity**
- **Power: 3-phase, 360 to 480 Volt/50 to 60 Hertz**
- **Fan speed (internal air circ.): 3,000 to 6,000 cbm/h (low speed/high speed)**
- **High-tech insulation ensures minimum heat leakage**
- **“T-bar” dynamic air-flow floors ensure optimum air circulation**
- **Ozone on demand remote control: 0.1 to 20 PPM**
- **Power Connector Image:**

Wine Grape Treatment Plan:

- Ozone threshold & application time:
- 2-5 PPM O3 for 24 hours - for each grape cargo load (Sensor recorded)
- Min 1 - Max 27 x wine bins loaded per treatment cycle (48 x 48 x 29 bins)
- Wine grape treatment holding bins should be plastic with vent holes on sides and bottom of bins. MacroBin 26 Series is recommended: https://www.macroplastics.com/wp-content/uploads/2017/03/MacroBin-26-Series.pdf

Purfresh Clean - TITAN units are for non-occupied use only, container doors must be closed and secure before ozone treatment can be started. Container doors may be opened only after ozone treatment has been stopped for minimum 1 hour. All Purfresh equipment can be remotely turned on, off, and O3 levels adjusted and recorded, via secure cloud, customer login at www.intellipur.com .

3858 Bay Center Place, Hayward, CA 94545 USA
Phone: +1-650-319-1164 • Web: www.purfreshclean.com

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Red variety wine grapes tested from both 2017 and 2020 after regional wildfire events in California. Harvested pre-crush grapes were treated with cooled forced-ozone-air for 24 hours. Results show across-the-board improvements in smoke taint impact reduction and improved key red wine profile analyte measurements after ozone treatment. Not measured below but also widely known is that ozone treatment for grapes will also significantly reduce any residual SO2 present on the grapes.

	Before Forced Air Ozone Treatment	After 24 Hour Forced Air Ozene Treatment
Guaiacol (GM/MS)	2.7 µg/kg	1.0 µg/kg
4-Methylguaiacol	0.6 µg/kg	<0.5 µg/kg
Catechin	25 mg/L	24 mg/L
Quercetin glycosides	110 mg/L	114 mg/L
Tannin	367 mg/L	396 mg/L
Polymeric anthocyanins	24 mg/L	26 mg/L
Total anthocyanins	1385 mg/L	1454 mg/L
Catechin / tannin index	0.068 mg/L	0.061 mg/L
Polymeric anthocyanins / tannins index	0.065 mg/L	0.066 mg/L

-Lower guaiacol = good, denotes reduced smoke taint
-Lower 4-methylguaiacol = good, denotes reduced smoke taint
-Lower catechin = good, denotes riper seeds
-Higher quercetin glycosides = good
-Higher tannins = good
-Higher polymeric anthocyanins = good, denotes higher/more stable color
-Total anthocyanins = higher is better, deeper color
-Lower catechin/tannin ration = good, denotes more advanced physiological maturity
-Higher polymeric anthocyanin/tannin ration = good

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