



CANNABIS & HEMP

APEX 7

Microbial Decontamination



APEX 7 is a non-ionizing, cost-effective solution for yeast, mold, and pathogen reduction. Using the precision of Radio Frequency technology combined with Ziel's patented process solutions, APEX 7 is proven to reduce microbial pathogens and achieve a >99% pass rate of regulatory compliance.

APEX 7 technology is chemical-free and suitable for organic operations and GMP certification.

Leveraging Ziel's patented¹ process solutions to eliminate *Salmonella*, *E. coli* and other microbial pathogens in food products, APEX 7 was specifically developed for cannabis to reduce a broad spectrum of microorganisms. APEX 7 effectively reduces microbial pathogens without the use of chemicals or ionizing radiation, making it a superior application for cannabis.

Yeast and Mold

The ideal growing environment for cannabis and hemp is also the ideal environment for yeast and mold to flourish. High yeast and mold counts are a primary reason for regulatory microbial compliance failure in cannabis and hemp flower. Products that fail regulatory testing impair top-line revenue, increase risk of product recalls, and jeopardize a cultivator's license.

Radio Frequency (RF)

RF works by creating an oscillating electromagnetic field between two electrodes in the APEX 7 cavity. Operating at a 27.12 MHz frequency level, polar water molecules contained in the natural moisture of the cannabis rotate 27 million times per second, generating friction and thus the heat necessary to kill microbial pathogens. The long radio wave profile penetrates uniformly throughout the flower, creating volumetric heat, as opposed to traditional

thermal heat. Ziel's proprietary process settings, administered by a Siemens PLC/HMI system, precisely control heat in real time via temperature probes, reducing targeted microbes to safe levels without compromising the flower's potency, terpene profile, or sensory qualities.

Benefits:

- > 99% pass rate; up to 3 log microbial reduction
- Treats dry trimmed flower and milled flower
- Highest volume throughput in the industry
- Treats 1.3 - 2.5 kg / 2.8 - 5.5 lb per cycle
- 14-min average cycle time
- Proven to reduce microbial pathogens, such as TYMC, TAMC, BTGN, coliforms, aspergillus, e.coli, and salmonella
- No X-ray, gas, or chemicals
- Organic process compliant
- EU GMP Validated + Turnover Package
- No labeling requirements
- Lowest processing cost
- 24/7 uptime

1. U.S. Patent No 10,517,308

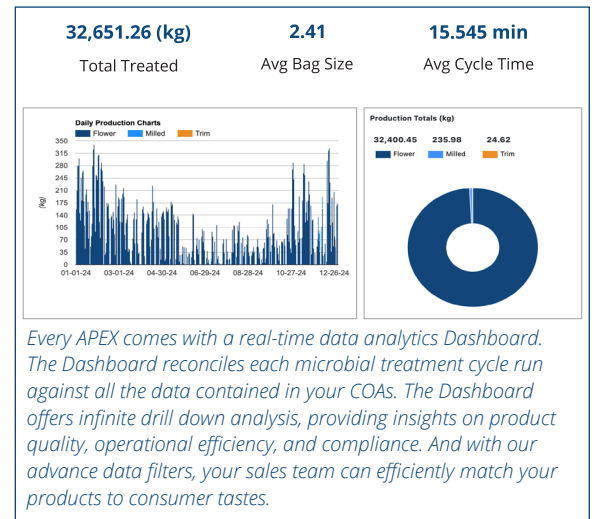
Easy To Operate

APEX 7's HMI user interface consists of easy-to-use menus of preprogrammed processing formulas. The system monitors the progress and temperature of each treatment cycle to provide real-time user feedback. Data logs are generated automatically to assist in quality control monitoring and reporting. Optional remote monitoring and software upgrades are available via a standard internet connection.

Since APEX 7 requires no additional supplies other than electricity and processing bags, there are no chemicals or waste products for disposal. The system has a low operating cost, consumes energy efficiently, is safe to operate, and is environmentally friendly.

Installation

Ziel provides a turnkey solution for your operation. Our in-house Installation and Commissioning teams coordinate directly with your facilities and QA teams to optimize treatment recipes and train your operators.



Requiring just a 480V 3-phase electrical connection, APEX 7 necessitates no additional siting or permitting requirements.

TECHNICAL SPECIFICATIONS

Product Applications	Cannabis & Hemp: Dried Trimmed Flower, Milled & Trim Material
Processing Capacity	Treats 1.3 - 2.5 kg / batch (2.8 - 5.5 lb / batch)
Processing Time	14-min average cycle time
RF Power	7 kW
Electrical Requirements	400/480 VAC +/-5%, 3-Phase + ground, 50/60 Hz, 32/38 A connected load
Codes & Standards	CE mark; UL and CSA compliant FCC compliant
System Dimensions	2800 mm (L) x 1520 mm (W) x 3110 mm (H) 9'-2" (L) x 5'-0" (W) x 10'-2" (H)
Weight	1,622 kg / 3,576 lbs
Material Construction	Food grade stainless steel
Operating Environment	Indoor location, well ventilated room 15° C to 40° C (59° F to 104° F) Relative humidity 10% to 90% non-condensing environment
Installation	3 Days
Noise	<80 dB
Life Expectancy	20+ year major structural equipment
Warranty	1 year limited parts & labor
Thermal Output	~ 12,000 BTU / hr
Manufactured	Italy

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