

Cannabis Industry

Teresa Sewell, Supervising Air Quality Inspector
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*Monterey Bay Air
Resources District*

Monterey Bay Air Resources District

- Monterey, San Benito, and Santa Cruz Counties



Overview

- Outreach
- Permit Requirements
- Examples of Permitted Equipment
- Enforcement
- Unforeseen Issues

Outreach – Focus Monterey County

- Worked with City and County Planning Departments
 - In 2017 and 2019
 - Mailed out advisory to cannabis operations based on local agency permit application information
- Conducted Site Visits
 - Facilities which submitted applications to county/city
- Worked with Monterey County Cannabis Industry Association



Types of Cannabis Operations

- **Dispensary**
 - Not subject to Permit
- **Processing**
 - Subject to District Permitting Requirements
 - Subject to Odor Nuisance Regulation
- **Cultivation (Indoor and Outdoor)**
 - Growing exempt from District Permitting Requirements
 - Associated equipment may need permits
 - Currently do not enforce cannabis odor nuisance

Processing - Potential Emission Points

- Step 1: Leaf Processing
 - Dust Control Devices
- Step 2: Hash-Oil Extraction
 - Solvent Based (Propane, Butane, Ethanol, etc.)
 - Non-solvent Based
 - CO₂
 - Coconut Oil
 - Use Ethanol For Cleaning (Minor)
- Step 3: Hash-Oil Processing
 - Vacuum Oven
 - Distillation
 - Winterization
 - Flavoring

Step 1: Leaf Processing

- Permit required, if equipped with dust/odor filters



Convion
Drying &
Curing
Room

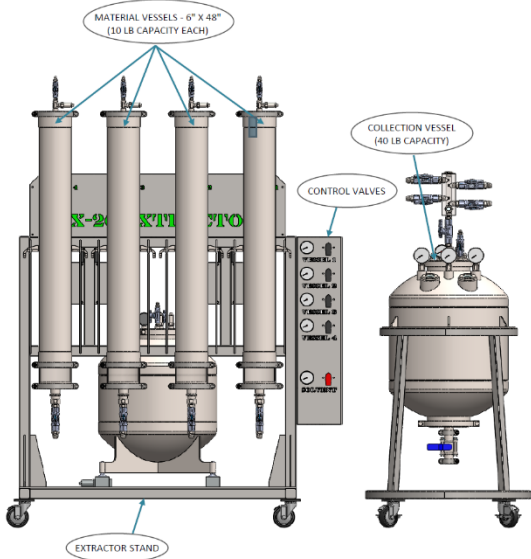


Step 2: Hash-Oil Extraction

- Uses solvent (propane, butane, ethanol, etc.)
 - Permit not required if solvent is not a VOC, i.e., CO₂
 - Normally done in a Class 1, Division 1/Division 2, exhausted room
 - Room exhaust passes through a carbon filter/ an air purifier for odor control



Butane/Propane Extraction Systems Examples



Iron Fist 20/40



Bizzybee Mega Beast



MEP



PX1 (left) & PXP (right)

Picture References

1. Precision Extraction Solutions Model PXP Operational Manual – For Hazardous Environments, 2017.
2. Precision Extraction Solutions Model PX1 V2017 Operational Manual – For Hazardous Environments, 2017.
3. <http://extractiontek.com/hydrocarbon-extractor-mep/>
4. https://www.portlandoregon.gov/bds/appeals/index.cfm?action=getfile&appeal_id=15883&file_id=18238
5. Engineering Report Professional Grade Closed Loop Extractor – Bizzybee Extractor Mega Beast, 5/21/2018.

Hydrocarbon Extraction Systems – Emissions Analysis

Emission is calculated as “*lb solvent loss / lb material processed*”

Cannabis Extraction Equipment & Emission List

● MEP

- Processing a mix of butane & propane: 0.42 (average)
- Processing butane only: 0.08 (average)
- The more percentage of propane in the solvent, the higher solvent loss

● Bizzybee Mega Beast

- Processing a mix of butane & propane: 0.21 (average)
- The facility uses a secondary solvent recovery system after the first solvent recovery process finishes.

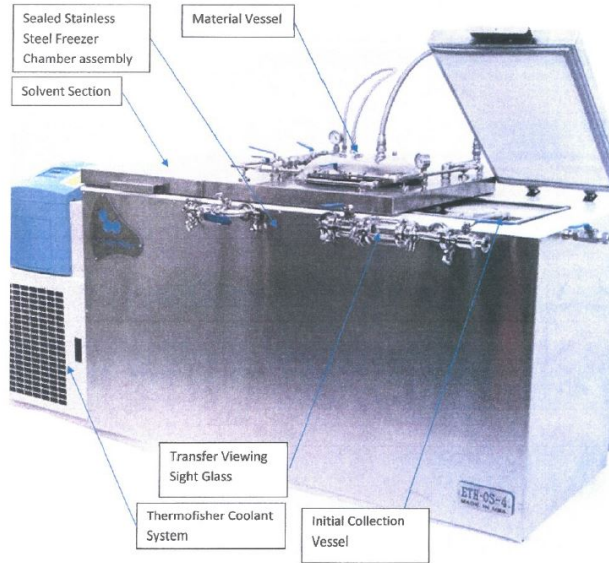
● Iron Fist EX-40

	<u>lb of solvent loss/ lb of material processed</u>	<u>material type</u>
<u>Average</u>	0.107	Fresh Frozen
<u>Average</u>	0.579	Dry
<u>Max</u>	0.232	Fresh Frozen
<u>Max</u>	0.986	Dry
<u>Min</u>	0.010	Fresh Frozen
<u>Min</u>	0.072	Dry

Ethanol Extraction Systems Examples



Bizzybee BB001



ETH-OS-4

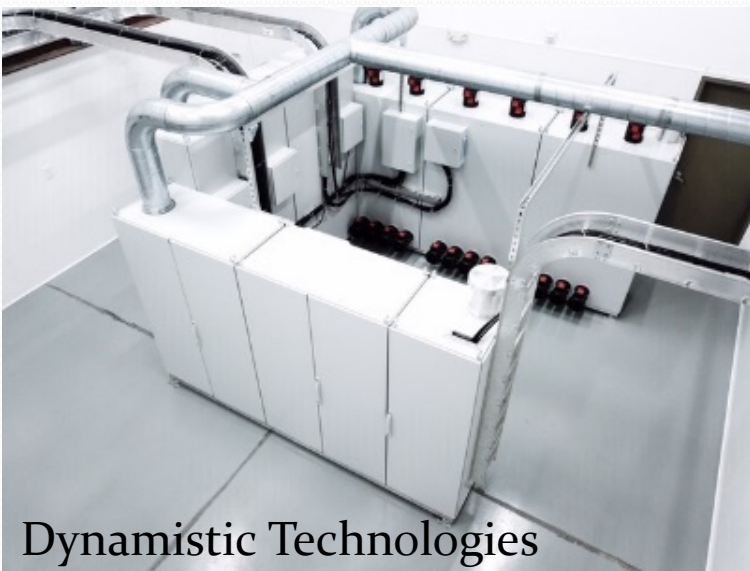


Delta CUP15

Engineering Report
Professional Grade
Closed Loop
Extractor – Bizzybee
Extractor BB-001,
6/12/2017.

Capna Fabrication
ETHOS Ethanol
Operating System
Operator's manual,
2017.

[https://www.de
ltaseparations.c
om/cup-series-
2/](https://www.de
ltaseparations.c
om/cup-series-
2/)



Dynamistic Technologies



Capna
Fabrication
Pilot

Engineering Report
Capna Fabrication
Pilot Extraction
System, 4/26/2018.



Ethanol Extraction Systems – Emissions Analysis

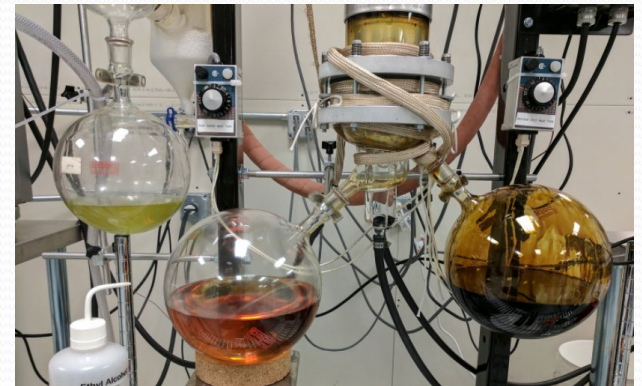
Emission is calculated as ***“lb solvent loss / lb material processed”***

Cannabis Extraction Equipment & Emission List

- ETH-OS-4
- Capna Fab Pilot With Alcohol Recovery Evaporator System
- Requires a separate device for ethanol recovery- Rotatory Evaporator

Step 3: Hash-Oil Processing

- Short-Path Distillation column
 - Removes terpenes
 - Extract has more active cannabinoids (~68%)
 - THC (tetrahydrocannabinol)
 - CBD (cannabidiol)



Step 3: Hash-Oil Processing

- Winterization
 - Hash-oil extract mixed with ethanol to remove waxes and stored in a freezer.
 - Waxes are filtered (vacuum filter)
 - Ethanol is recovered using a roto-evaporator



Permit Application Status

Category	# of ATC Issued	# of PTO Issued	# of Facility	# of BACT Analysis
Number	23	20	17	1

- Two facilities have more than 5 District permits and are looking at purchasing VOC offsets.
- One facility proposed BACT for exceeding threshold of 25 lbs of VOC per day.

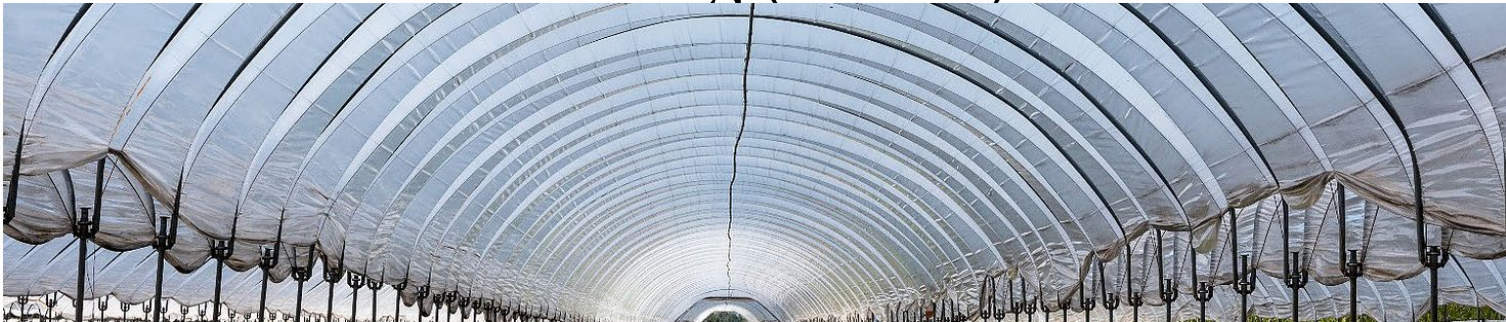
Cannabis Processing Nuisance Complaints

- Received odor complaints from one processing operation in 2017 and early 2018
 - Corrective Action - Installed additional exhaust filters

Cultivation

Exempt from District Permitting Requirements

- Greenhouses For Growing (indoor)



- Odor Control Equipment

- District Rule 201.4.17.14

“Any abatement device which is used solely to abate equipment that does not require a permit”.

Cultivation Equipment May Need Permits

- Engine-generator sets
- Natural gas heaters / hydronic water boilers
- Gasoline storage tanks

CDFA - Cannabis Cultivation Regulation Generators

§ 8306. Generator Requirements.

- (a) For the purposes of this section, “generator” is defined as a stationary or portable compression ignition engine pursuant to title 17, division 3, chapter 1, subchapter 7.5, section 93115.4 of the California Code of Regulations.
- (b) Licensees using generators rated at fifty (50) horsepower and greater shall demonstrate compliance with either, as applicable, the Airborne Toxic Control Measure for stationary engines pursuant to title 17, division 3, chapter 1, subchapter 7.5, sections 93115 through 93115.15 of the California Code of Regulations, or the Airborne Toxic Control Measure for portable engines pursuant to title 17, division 3, chapter 1, subchapter 7.5, sections 93116 through 93116.5 of the California Code of Regulations. Compliance shall be demonstrated by providing a copy of one of the following to the department upon request:
 - (1) For portable engines, a Portable Equipment Registration Certificate provided by the California Air Resources Board;
or
 - (2) For portable or stationary engines, a Permit to Operate, or other proof of engine registration, obtained from the Local Air District with jurisdiction over the licensed premises.



Cultivation Odor Complaints

- County and City ordinances and “Use Permits” require odor control
 - District provides assistance to City and County Code Enforcement on odor investigations
- Two complaints in the unincorporated area of Monterey
- Complaints in the City of Greenfield in 2018
 - Installed new odor control equipment at the facility

Unforeseen Issues – Monterey County

- Not enough electrical power to serve the greenhouses
 - Facilities awaiting for PG&E “Electrical Upgrade”
 - Use of PERP Engines during interim (Tier 1 and 2)
 - Tier 1 > 750 hp
- PERP Regulation – Section 2453(m)(4)(E)
 - Electrical upgrade operations... do not exceed 90 calendar days...

(E) generators used to provide primary or supplemental power to a building, facility, stationary source, or stationary equipment, except during the following:

3. electrical upgrade operations including-startup, shutdown, and testing-that do not exceed 90 calendar days, or a longer period as authorized in writing by the district.; or

Lessons Learned

- Coordinate with counties/cities
- Assume your advisory was recycled
- Ask questions
- Educate operators – little knowledge of air quality regulations

Questions?

Teresa Sewell
Supervising Air Quality Compliance Inspector
tsewell@mbard.org
(831)718-8035

Isael Rubio-Salazar
Air Quality Compliance Inspector I
ajimenez@mbard.org
(831)718-8022

Mengmeng Fang
Air Quality Engineer II
mfang@mbard.org
(831)718-8009