

Air Permit to Install for Cannabis Oil Extraction

The Michigan Department of Environmental, Great Lakes, and Energy (EGLE) Air Quality Division regulates activities that emit air contaminants, including the processing of cannabis. Processes that emit air contaminants must have an air permit or qualify for an exemption. This worksheet can be used to estimate air emissions from cannabis oil extraction processes that use solvents and be included in an air permit application.

Air permits are required prior to construction or installation of the processing equipment. If you have already installed and are operating your equipment, you may still need an air permit. Call EGLE's Environmental Assistance Center at 800-662-9278 and ask to speak to an Air Quality Specialist for help with next steps..

SECTION 1 – Basic Information

Company Name: _____ SRN: _____

Emission Unit ID (i.e., EUEXTRACTION1): EU _____

What solvent(s) are is/are used for the extraction?

- Butane: Propane Ethanol/Denatured Ethanol Heptane
 LPG Other: _____

SECTION 2 – Throughput

How long does each extraction cycle or batch take? _____ hrs.

What is the maximum number of cycles/batches that can be run per day, month, and/or year?

Maximum Cycles/Batches: _____/Day _____/Month _____/Year

Total amounts of each chemical (ethanol, butanol, etc.) used per cycle.

Butane: _____ lbs. Propane: _____ lbs. Ethanol/Denatured Ethanol: _____ lbs.
 Heptane: _____ lbs. LPG: _____ lbs. Other (_____): _____ lbs.

SECTION 3 – Control Efficiency

Is there a closed-loop condenser? Yes No

What is the control efficiency? _____% How much solvent is being captured: _____

SECTION 4 – Requested Permit Requirements

What is the maximum annual amount of each solvent used that you are willing to accept as a permit limitation?

Butane: _____ lbs. Propane: _____ lbs. Ethanol/Denatured Ethanol: _____ lbs.
 Heptane: _____ lbs. LPG: _____ lbs. Other (_____): _____ lbs.

Permit to Install Worksheet for Cannabis Extraction

Based on the maximum annual solvent used, what would be the amount of solvent captured or reclaimed per year? *

Solvent used/year x 100 – (Control Efficiency/100) = Solvent Captured

Butane: _____ lbs. Propane: _____ lbs. Ethanol/Denatured Ethanol: _____ lbs.
Heptane: _____ lbs. LPG: _____ lbs. Other (_____): _____ lbs.

SECTION 5 – VOC Emission Calculation

The VOC calculations are based on the annual solvent emitted and the percentage of VOCs by weight in the solvent.

$$\frac{\text{lb Solvent Used}}{\text{year}} - \frac{\text{lb Solvent Captured}}{\text{year}} = \text{lbs Solvent emitted per year}$$

$$\frac{\text{lb Solvent emitted}}{\text{year}} \times \text{VOC \%} \times \frac{\text{ton}}{2,000 \text{ lb}} = \text{tons VOC per year} *$$

VOC Emissions: _____ tons VOC/year

SECTION 6 – TACs Emission Calculation

The TAC calculations are based on the hourly solvent emitted and the percentage of TAC by weight in the solvent. To be conservative, if a cycle is longer than 1 hour, we reviewed the total pounds per cycle being released in one hour. To calculate the TACs emissions, the TAC's weight percent in the product is based on the Safety Data Sheet (SDS) (If a range, use the maximum number):

$$\frac{\text{lb Solvent}}{\text{cycle}} \times \frac{(100 - \text{control})}{100} = \text{Solvent Emitted per Cycle}$$

$$\frac{\text{lb Solvent}}{\text{cycle}} \times \text{TACs \%} = \text{lbs TAC per cycle}$$

TAC Emissions: _____ lbs./Cycle

If the total amount emitted per cycle for all extraction processes is less than the following, the company does not have to do TACs analysis for that TAC:

- Butane: **45 lbs.** emitted/cycle
- Heptane: **6.5 lbs.** emitted/ cycle
- Ethanol: **14 lbs.** emitted/cycle
- Propane is exempt from TACs pursuant to Rule 120(f)(xxxv).

* Information will be a permit limitation and included in the Permit to Install (PTI)