



## **AIR QUALITY PERMIT REQUIREMENTS AND PLANT OIL EXTRACTION EQUIPMENT**

The South Coast Air Quality Management District (SCAQMD) in California regulates the emissions of air pollutants. Plant oil extraction equipment such as that use flammable solvents such as butane, propane, or ethanol will require a Permit to Operate (PO) from the SCAQMD. This document provides an industrial hygiene review of those permitting requirements as they relate to the use of solvents to extract oil from plant material.

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### **DO I NEED A PERMIT?**

The SCAQMD has reviewed plant oil extraction systems used in the plant oil extraction industry and determined that extraction systems that use ethanol, butane, or propane must be permitted. As of July 2018, the SCAQMD has issued permits to operators of such systems.

Here, Plant Oil Extraction Equipment includes ethanol, butane, or propane solvent extraction systems. An example of a butane or propane solvent extraction system is such as the closed loop manufactured by ExtractionTek Solutions MEP Modular Extraction Platform. An example of control equipment to vent such equipment is the HAL Extraction Technology Ltd. 180U Extraction Booth.

If you operate an off-the-shelf manufactured extraction system such as the MEP, the SCAQMD will issue a combined Permit to Construct/Permit to Operate (PC/CO). A permit is required for each extraction system operated in your facility. For example, if your facility has two HAL Extraction Booths, one MEP in one booth, and two MEP extraction systems in the other, three permits will be required for your facility. If you build your own extraction system, the SCAQMD may require additional steps beyond what is outlined here.

**HOW DO I GET A PERMIT STARTED?**

The SCAQMD’s web page (Web Page) located at <http://www.aqmd.gov/home/permits> provided information regarding the permitting process, forms, and applications. Necessary forms are located at: <http://www.aqmd.gov/home/permits/permit-application-forms>.

On the permit application form page, go the section labeled “*To Apply for a Permit*”. That section requests that you submit the following forms:

Form 400A	<a href="http://www.aqmd.gov/docs/default-source/aqmd-forms/Permit/400-a-form.pdf?sfvrsn=2">http://www.aqmd.gov/docs/default-source/aqmd-forms/Permit/400-a-form.pdf?sfvrsn=2</a>	Application Form for Permit or Plan Approval
Form 400-CEQA	<a href="http://www.aqmd.gov/docs/default-source/permitting/ceqa-2017/400-ceqa-dec2017.pdf?sfvrsn=8">http://www.aqmd.gov/docs/default-source/permitting/ceqa-2017/400-ceqa-dec2017.pdf?sfvrsn=8</a>	California Environmental Quality Act (CEQA) Applicability
Form 400-PS	<a href="http://www.aqmd.gov/docs/default-source/aqmd-forms/Permit/400-ps.pdf?sfvrsn=2">http://www.aqmd.gov/docs/default-source/aqmd-forms/Permit/400-ps.pdf?sfvrsn=2</a>	Plot Plan and Stack Information Form
Form 400-E-xx	<a href="http://www.aqmd.gov/home/permits/permit-application-forms#Supplemental%20Forms">http://www.aqmd.gov/home/permits/permit-application-forms#Supplemental%20Forms</a>	Supplemental Forms (Note; none of these apply for plant oil extraction.)

**Form 400A** is the basic permit application form. You will need to fill this form out to get a permit. The form is straightforward, with a few comments regarding particular questions below:

Question 6. Check the “Not in RECLAIM or Title V” button. Those programs are for facilities that release tons of pollutants annually. The plant oil industry specific extraction facilities are unlikely to generate sufficient quantities of pollutants to belong in those programs.

Question 7a. In mid-2018, most facilities will be new and will check the “xxxx” button.

Question 7b. Leave blank.

Question 7c. Leave blank. Will not apply if you have never had an AQMD permit before.

Question 9. Description of Equipment or Reason for Compliance Plan. State here that this is a planned, constructed but not operating, or operating plant oil extraction facility that will use (insert solvent(s) here) for the recovery of oil from plant material. The solvent extraction equipment planned on being used includes (insert manufacturer and model number here). The equipment is closed loop with solvent recycling for reuse, but some solvent may be released during normal operations.

Question 10. You will need to submit applications for each piece of equipment. List the total number of applications submitted here.

**FORM 400 CEQ**, which must be filled out by the applicant, is a screening tool used by the SCAQMD to determine if the project, which may consist of one or more air quality permit applications, is exempt from CEQA or if an analysis of potential environmental impacts is necessary.

Section B – Skip this section

Section C

Question 1. Check “No”.

Question 2. Check “No”.

Question 3. If you have a single extraction system to be permitted, check “No”. If you have multiple units, check “Yes” and add a description of the facility with a list of all extraction systems.

Question 4. Check “No”. If you plan to store more than 10,000 pounds of solvent, check “Yes”.

Question 5. Check “No”.

Question 10. Grows that are on the same property as the extraction system might qualify here. It is recommended that you check with the SCAQMD to answer this question if you have a grow.

Question 13. Check “No”.

**Form 400-PS** requests plot plans and stack information.

Section C – Emission Release Parameters – Stacks, Vents

“Stack Data” section: Skip this section.

Receptor Distance section: See footnote on form.

Building Information sections: Answer “Yes” and fill in building information.

In lieu of Form **400-E-xx**, attach all available documentation for equipment listed on Form 400A. If available, attach standard operating procedures related to plant oil extraction. Attach cut sheets/specification sheets for extraction facilities such as extraction booths or fume hoods.

## SOLVENT USE

Plant Oil Extraction Equipment systems are typically operated as closed-loop systems where solvent is recovered for reuse following each batch extraction. Butane and propane plant oil extraction equipment, when used for plant oil extraction, must be designed as closed-loop systems. Operator procedures and use will significantly impact the amount of solvent loss to spent feed material and raw oil. For example, if spent feed is vacuum-dried prior to emptying an extraction vessel, solvent loss to the spent feed will be reduced. If raw oil is heated and vacuum-dried prior to opening the oil recovery vessel, solvent loss to the raw oil will be reduced.

For planning purposes, let's assume an extraction system processes 10 pounds of plant feed material per hour (assuming a one-hour cycle time), and two gallons (8.46 pounds) of propane solvent used per cycle. If 95% recovery of the solvent is achieved, the facility will release 0.1 gallons per cycle to the atmosphere. If the facility operates for one shift a day (8 batches), the total release to the atmosphere would be 0.8 gallons of solvent per day.

For a new application, attach an estimate of solvent use per work day per extraction system. All invoices for solvent purchases should be retained to allow documentation of overall solvent use for the facility.

## SUBMIT COMPLETED APPLICATIONS

Do not hesitate to call the SCAQMD for help on filling out forms, how long the permit processing will take, or other questions. Most agencies are happy to discuss requirements for filling out applications, even on an anonymous basis. HAL Extraction recommends speaking with your regulators early and often vs. trying to hide from them. SCAQMD has a small business help section that can assist you in filling out forms if your business has less than 10 employees or receipts of less than \$500,000 per year.

Permit fees depend on several factors; expect at least \$2,600 per extractor. A fee discount of 50% is given if you qualify as a small business.

Submit documents to:

SCAQMD  
P.O. Box 4944  
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385  
[www.aqmd.gov](http://www.aqmd.gov)

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