



MARIJUANA/CANNABIS PLANT PROCESSING AND EXTRACTION

TECHNICAL BULLETIN FIRE-38-1

City of San Diego
Development Services Department

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The purpose of this technical bulletin is to describe the fire and life safety requirements for marijuana/cannabis plant processing and extraction facilities. Note that all marijuana plant processing and extraction facilities are required to obtain a Marijuana Production Facility (MPF) Conditional Use Permit prior to any construction permits. See Information Bulletin 171, How to Apply for a Conditional Use Permit for Marijuana Production Facility for further information.

I. GENERAL

A. Definitions for Terms Used in this Technical Bulletin:

Desolventizing is removing solvents from a material.

Distillation is separating components from a liquid mixture by selective boiling and condensation.

Extraction is the process of removing oils and fats from the plant, desolventizing the raw material, production of the miscella, distillation of the solvent from the miscella and solvent recovery.

Marijuana plant processing or extraction facilities (MPF) include all building or structures used for cultivation, harvesting, grinding, wholesale distribution, storage, production of goods from marijuana products, extracting, desolventizing, and distillation of the marijuana plant.

Miscella is a mixture, in any proportion, of the extracted oil or fat and the extracting solvent.

Nonvolatile solvent is any solvent used in the extraction process that is not considered a volatile solvent (i.e. Carbon Dioxide).

Registered Design Professional is approved by the City of San Diego to prepare technical reports for MPFs. The Registered Design Professional preparing the technical report must be a California licensed Chemical, Electrical, Fire Protection or Mechanical Engineer. Any other California registered design professional would be required to submit qualifications to the City of San Diego for approval.

Volatile Solvent is any solvent, such as butane, hexane or ethanol, that is or produces a flammable gas or vapor that, when present in the air in sufficient quantities, will create explosive or ignitable mixtures.

Winterization is the heating or pressurizing of the miscella to other than normal pressure or temperature.

B. Permits

1. **Building Permits.** In addition to the MPF Conditional Use permit, a building permit and any associated electrical, mechanical, plumbing, and fire permits must be obtained. All MPFs are considered change of use and/or change of occupancy. Also, any change to process or procedure to an existing MPF requires a building permit to review and inspect the change of use and/or occupancy.
2. **San Diego Fire Department (SDFD) Permits.** The following systems require permits from SDFD.

- a. **Technical Services Hazardous Materials Permits.** Customers must obtain a Hazardous Materials permit from SDFD Technical Services in the Community Risk Reduction Division for the following uses. Call 619-533-4477 to schedule an appointment. It is recommended to attach a copy of the Hazardous Materials permit application at the time of building permit submittal. See Information Bulletin 116, Submittal Requirements for Hazardous Materials for further information and additional uses that require SDFD permits.
 - i. Above-ground tanks for flammable or combustible liquids containing greater than 60 gallons.
 - ii. Compressed gas systems over 200 cubic feet for corrosive and flammables, 6,000 cubic feet for inert and simple asphyxiants, 504 cubic feet for oxidizers and any amount of toxics.
 - iii. Cryogenic systems located outdoors greater than 60 gallons for flammables, 500 gallons for inerts and 50 gallons for oxidizers.
 - iv. Carbon dioxide enrichment systems greater than 874 cubic feet.
- b. **Plant Extraction Systems.** Facilities performing marijuana plant extraction must obtain a permit for the installation or modification to a plant extraction system prior to operation. Email SDFDFPBMt@sandiego.gov with questions regarding this permit.

II. SUBMITTAL REQUIREMENTS

In addition to the requirements contained within the Project Submittal Manual, Section 2, Construction Permits, provide the following information when submitting for a building permit:

- A. **Scope of Work.** Clearly indicate the scope of work including all processes, procedures, storage and methods. Identify any change of use and/or occupancy for all spaces specifically in the scope.
- B. **Occupancy Classification.** Provide occupancy classification for all spaces in the entire building, including areas not in the scope of work.
- C. **Process Flow.** Provide a detailed description of the process flow. At a minimum, include the following in the description:
 1. Materials used in the process, at what state, operating temperature, pressure, etc.
 2. Equipment used in the process. Identify all listed and non-listed equipment.
 3. Finished product(s) type, storage of and any packaging performed.
 4. Where gas detection is required, clearly state where and how it will affect the system proposed.

III. EXTRACTION PROCESS

- A. **Prohibited Occupancies.** Extraction processes using flammable gases or liquids, as defined by the California Fire Code, cannot be located in any building containing a Group A, E, I or R occupancy.
- B. **Extraction Location.** All extraction equipment and extraction processes using hydrocarbon solvents must be located in a room or area solely used for extraction.
- C. **Listing of Extraction Equipment.** All systems and equipment used for the extraction of oils from plant material must be listed or approved for the specific use. If the system or equipment is not listed or approved for the proposed use, a Registered Design Professional, as defined in Section I, must prepare a technical report. It may be necessary to have multiple Registered Design Professionals prepare a technical report for complex processes/

projects involving multiple disciplines. At a minimum, provide the following information in the technical report:

1. Manufacturer information with the model number and any serial numbers.
2. List of every component of the equipment including sub-assemblies of the system or equipment. This includes all fittings, hose, quick disconnects, gauges, site glass, gaskets, valves, etc. Include manufacturer's data sheets and solvent compatibility.
3. Piping and instrumentation diagram.
4. Analysis of any vessel pressurized beyond standard atmospheric pressure. Include all purchased and fabricated components.
5. Structural analysis for any frame systems supporting equipment.
6. Process safety and hazard analysis. Include all failure modes and points of failure throughout the process. The analysis must include a review of the emergency procedure information provided by the manufacturer of the equipment or process and not that of the facility, building or room.
7. Assembly instructions, operational and maintenance manuals from manufacturer.

D. Site Inspection by Registered Design Professional. Prior to the operation of the extraction equipment, a Registered Design Professional must inspect the site of the extraction process once all equipment has been installed. The Registered Design Professional must verify that all equipment has been installed for compliance with the technical report and the building analysis. The Registered Design Professional must provide a report of the findings and the observations to the structural inspector prior to final inspection.

E. Mechanical and Electrical Requirements.

1. A hazardous exhaust fume hood rated for exhausting flammable vapors must be provided where flammable and combustible liquids are used for liquid extraction processes where the liquid is boiled, distilled or evaporated.
2. All electrical equipment in the hazardous exhaust fume hood must be rated for the use in flammable atmospheres. The heating element may be not rated for flammable atmospheres where the manufacturer's documentation or approved testing laboratory indicates it is rated for the heating of flammable liquids. All documentation must be submitted for review at the time of building permit.

F. Gas Detection Systems. Extraction processes using flammable gases as solvents require a continuous gas detection system.

1. The flammable gas detection system must be listed or approved and must be calibrated for the types of gases used. The control units must be listed and labeled in accordance with UL 864 or UL 2017.
2. The gas detection system must be designed to activate when the level of flammable gas exceeds 25% of the lower flammable limit (LFL).

III. OTHER PROCESSES

A. Ovens. The use of an industrial oven must comply with CFC Chapter 30.

B. Post-Process Purification and Winterization. Where post-process purification and

winterization involves the heating or pressurizing of the miscella to other than normal pressure or temperature must be conducted in an appliance listed for such a use. Domestic or commercial cooking appliances shall not be used.

- C. **Cultivation.** All processes for cultivation proposed must be fully described in detail on the plans, including the method of growth, fertilizers and the method(s) of fumigation. In addition, list all drying, cutting and/or grinding processes.
- D. **Production of Food or Other Products.** All processes proposed for the production of food and/or beverage products must be fully described in the plans. This must include the types of materials, temperatures of both the mixture and the marijuana extraction, all equipment used and the packaging.

V. INSPECTIONS

- A. **Development Services Inspections.** Depending upon the scope of work for the MPF, Structural, Mechanical, Electrical, Plumbing, Fire Alarm and Sprinkler inspections may be required. See Information Bulletin 120, Project Inspections for further information.
- B. **SDFD Inspections.** Projects requiring Hazardous Materials and Plant Extraction permits will require inspections by the SDFD.

Documents referenced in this Technical Bulletin

- California Fire Code
- [Information Bulletin 116](#), Submittal Requirements for Hazardous Materials
- [Information Bulletin 120](#), Project Inspections
- [Information Bulletin 171](#), How to Apply for a Conditional Use Permit for Marijuana Production Facility
- [Project Submittal Manual, Section 2, Construction Permits—Structures](#)

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