



Cannabis/Hemp
Oregon OSHA

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2026 Pacific Coast Safety Fest



Brian Hauck

Working Life



Outline

- Terminology and Background
- Oregon Multi-Agency Cannabis Regulations
- Oregon OSHA Program Directive
 - Retail, Growing, Processing*
- Common Hazards

Terminology

- **THC** Tetrahydrocannabinol

Psychoactive Effects

Types of Cannabinoids

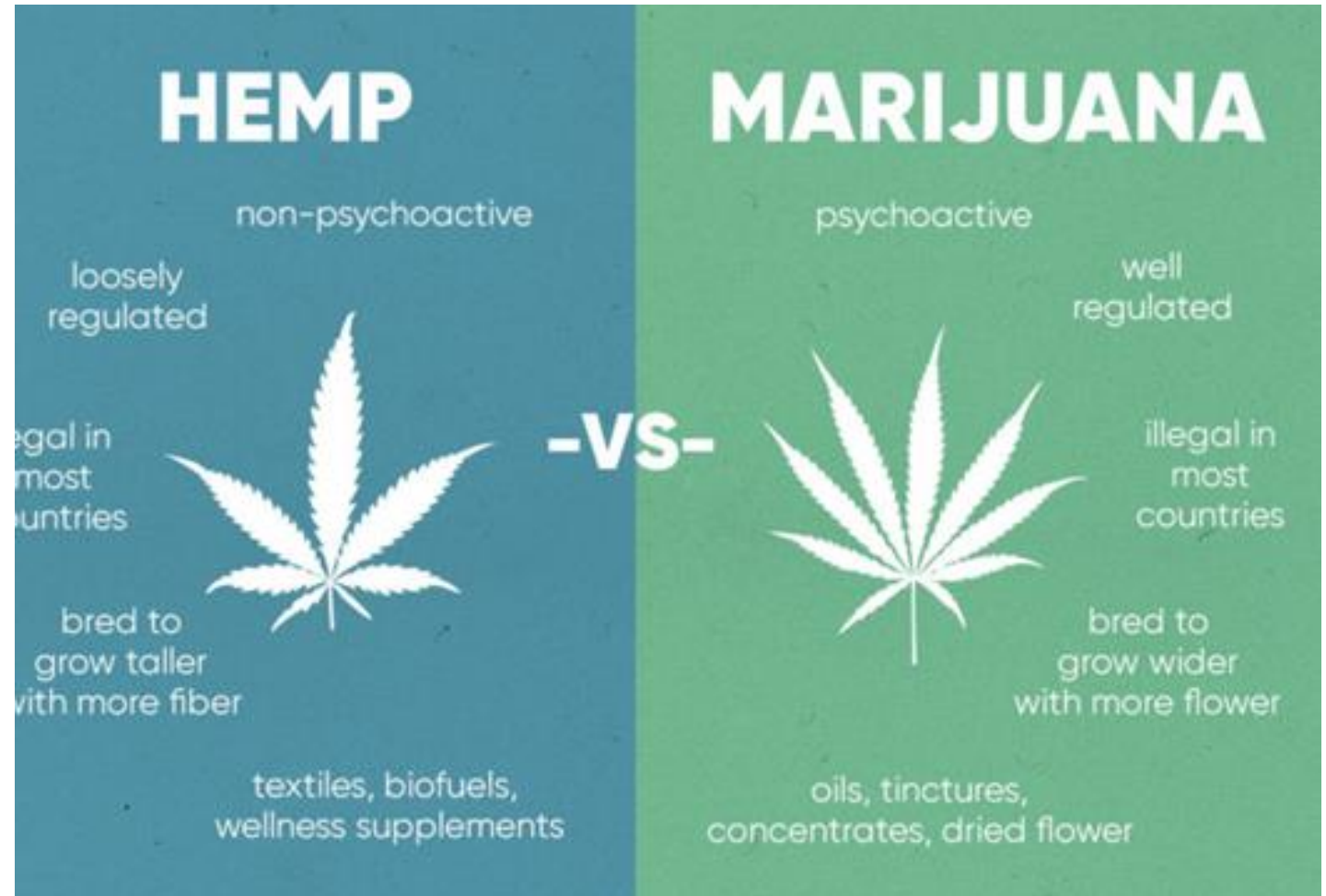
- **CBD** Cannabidiol

Arthritis, Pain, and Anxiety

Hemp vs. Marijuana: What's the Difference?

- Both hemp and marijuana plants are the same species. The main difference lies in how much of a certain cannabinoid each contains.

HEMP < 0.3 THC



CBD – Booming! Billion Dollar Market

- Oils, Edibles, Creams, Etc.
- Arthritis
- Anxiety
- Pain Management
- Sleep Help
- Easy to Scale

Golden Goose - Put Hemp in one side and money comes out the other end!

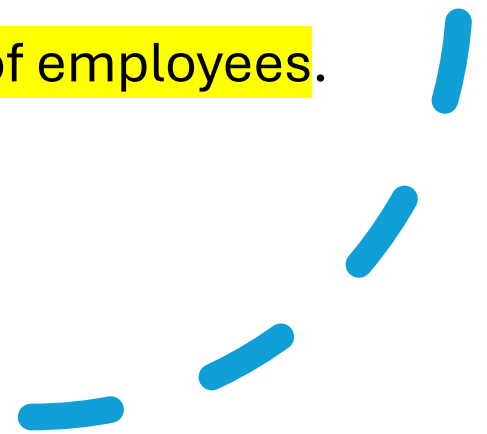


10,000mg CBD Oil Tincture

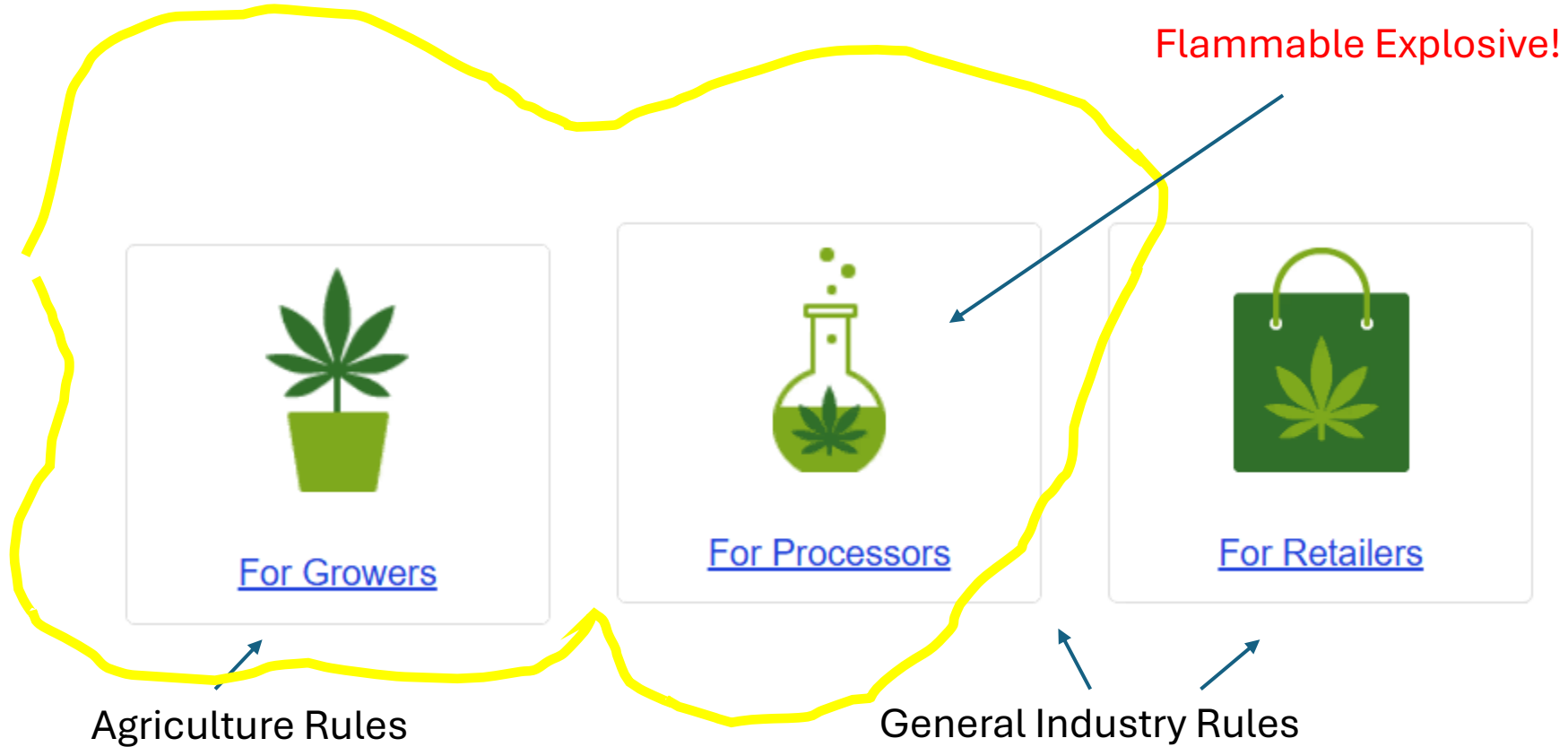


**Multi-Agency
Approach
Oregon
Cannabis
Regulation:
Variety of
Scopes**

- **Oregon Liquor and Cannabis Commission (OLCC)**: Licensing, production, processing, and retail sales.
- **Oregon Health Authority (OHA)**: The OHA oversees the Oregon Medical Marijuana Program.
- **Oregon Department of Agriculture (ODA)**: The ODA regulates the industrial hemp industry in Oregon, including production, testing, and labeling requirements for hemp-derived products.
- **Oregon OSHA**: The safety and health of employees.
- **Fire Marshal's Office**: Life Safety



3 Employer Categories



PROCESSING



3 Main Cannabis/Hemp Extraction Methods

- Ethanol
- Hydrocarbon (Butane and Propane)
- Carbon Dioxide



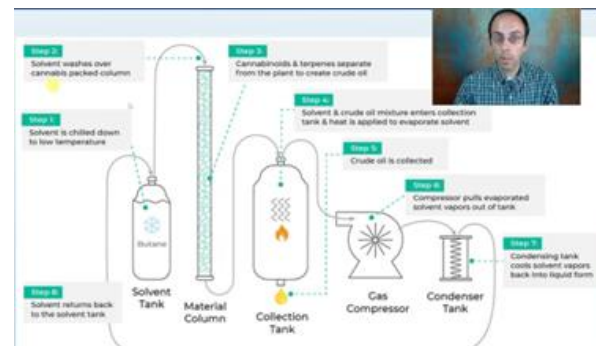
Ethanol Extraction

- Use food grade ethanol as a **solvent to extract** plant material. **(Distillation)**
- Ethanol is chilled to $<-20^{\circ}\text{C}$ (-4°F) either in a **cold room** or freezer and then pumped into a container of cannabis.
- After a soak period, the ethanol solution is either filtered or the plant material removed in a **'tea bag'** fashion.
- The resultant mother liquor of ethanol and extract is then **concentrated** by removing the ethanol vs distillation like rotary evaporators.



Hydrocarbon Extraction

- Pressurize **butane, propane** to a liquid state.
- The liquid hydrocarbons through a **bed of cannabis material and filter**, yielding an extract solution of hydrocarbon and plant extract.
- A reduction in pressure evaporates the hydrocarbon liquid, yielding a **solvent-free plant extract**.
- Fire Hazard!



Closed Loop System

[Hydrocarbon Extraction](https://youtu.be/mR-x0GZywUo)
<https://youtu.be/mR-x0GZywUo>

Super Critical Carbon Dioxide

- CO₂ is pressurized to its subcritical or supercritical state.
- The CO₂ stream passes through a chamber containing cannabis material.
- The distillate can be isolated easily by reducing the pressure which evaporates the CO₂, leaving a cannabis extract with no solvent.



← Piping/Vessels – High Pressure!

← Enclosed Rooms – Oxygen Displaced!

Fire Explosion Hazards Extraction!

- Gases – Butane and Propane
- Flammable Liquids – Ethanol, Heptane, and Various Solvents
- Ignition Sources
- Fire Control Systems – Improper



Rules and Regs ?

OLCC – Regulations

Oregon Liquor Cannabis Commission

- (b)(C) – Ventilation and Ignition Control
- (c)(B) – Room with Electrical to Fire Code
- (c)(D) – CO2 System, Enclosed Loop system, > 600 lbs/in²
- (c)(F) – Eyewash Stations
- (c)(G) - SDSs

OLCC 845-025-3260(b)

The screenshot shows the Oregon Secretary of State website. The header includes the Oregon Secretary of State logo and name, Tobias Read. A navigation bar contains links for Home, Business, Voting, Elections, State Archives, and Audits. The main content area is titled "Oregon Liquor and Cannabis Commission" and "Chapter 845". A sidebar on the left contains links for OARD Home, Search Current Rules, Search Filings, Access the Oregon Bulletin, Access the Annual Compilation, FAQ, and Rules Coordinator / Rules Writer Login. The main content area lists 16 divisions, with the 16th division, "RECREATIONAL MARIJUANA", expanded to show a list of rules including 845-025-1000, 845-025-1015, 845-025-1030, 845-025-1045, 845-025-1060, 845-025-1070, 845-025-1080, 845-025-1090, 845-025-1100, and 845-025-1115.

Oregon Secretary of State
Tobias Read

Home Business Voting Elections State Archives Audits

Oregon Liquor and Cannabis Commission
Chapter 845

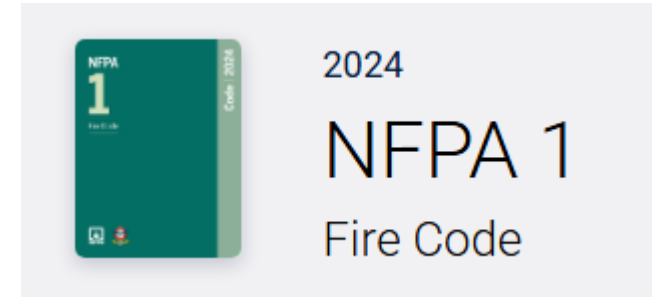
- ^ Division 1 - PROCEDURAL RULES
- ^ Division 2 - CRIMINAL RECORDS CHECK AND FITNESS DETERMINATION
- ^ Division 3 - CONTESTED CASE PROCEDURES
- ^ Division 4 - GENERAL
- ^ Division 5 - CRITERIA FOR ISSUANCE AND MAINTENANCE OF LICENSES
- ^ Division 6 - APPLICATIONS; REQUIREMENTS; RESTRICTIONS; PROHIBITED CONDUCT
- ^ Division 7 - ADVERTISING
- ^ Division 8 - PRIVILEGE TAX
- ^ Division 9 - SERVICE PERMITS
- ^ Division 10 - MANUFACTURERS; WHOLESALERS; IMPORTERS
- ^ Division 13 - FINANCIAL ASSISTANCE
- ^ Division 15 - RETAIL SALES AGENTS
- ^ Division 16 - SERVER EDUCATION PROGRAM PROVIDER CERTIFICATION
- ^ Division 20 - BEVERAGE CONTAINERS AND REDEMPTION CENTERS
- ^ Division 25 - RECREATIONAL MARIJUANA

RECREATIONAL MARIJUANA

- 845-025-1000 Applicability
- 845-025-1015 Definitions
- 845-025-1030 Application Process
- 845-025-1045 True Name on Application; Interest in Business
- 845-025-1060 Fees
- 845-025-1070 Late Renewal Fees
- 845-025-1080 Criminal Background Checks
- 845-025-1090 Application Review
- 845-025-1100 Approval of Application and Issuance of License
- 845-025-1115 Denial of Application

NFPA 1, Chapter 38

National Fire Protection Association



NFPA 1, Chapter 38: Marijuana Growing, Processing, or Extraction Facilities

•38.2 Building Construction & Occupancy

- Hazard Identification:** Classification of hazardous materials and processes.
- Separation:** Separation of hazardous processing areas from other operations.
- Egress**

•38.3 Extraction Operations

- Prohibited Materials:** Restrictions on specific hazardous extraction solvents (e.g., prohibited use of certain flammable gases).
- Approved Equipment:** Extraction machines must be listed or approved, or have a professional engineering report certifying safety.
- Equipment Location:** Extraction processes must occur in approved, ventilated rooms (often with specialized exhaust systems).

•38.4 Fire Protection Systems

- Fire Sprinklers:** Requirements for fire sprinkler systems in extraction and processing rooms.
- Fire Detection:** Automatic fire detection systems.
- Gas Detection:** Continuous gas detection systems for flammable or toxic gases.

•38.5 Electrical & Mechanical Systems

- Hazardous Locations:** Electrical installations in hazardous extraction rooms must comply with NFPA 70 (National Electrical Code) requirements for classified areas.
- Ventilation:** Specific ventilation rates for extraction rooms to prevent vapor accumulation.

•38.6 Operational Safety

- Safety Data Sheets (SDS):** Required on-site for all chemicals and solvents.
- Training:** Employee training for fire safety and emergency response.
- Hazardous Material Management:** Plans for handling, storing, and disposing of hazardous materials.

Very Little Detail !

*Consensus
Document*

NFPA (National Fire Protection Association) 420 - Cannabis Safety

GREAT HOPE!



Coming 2027

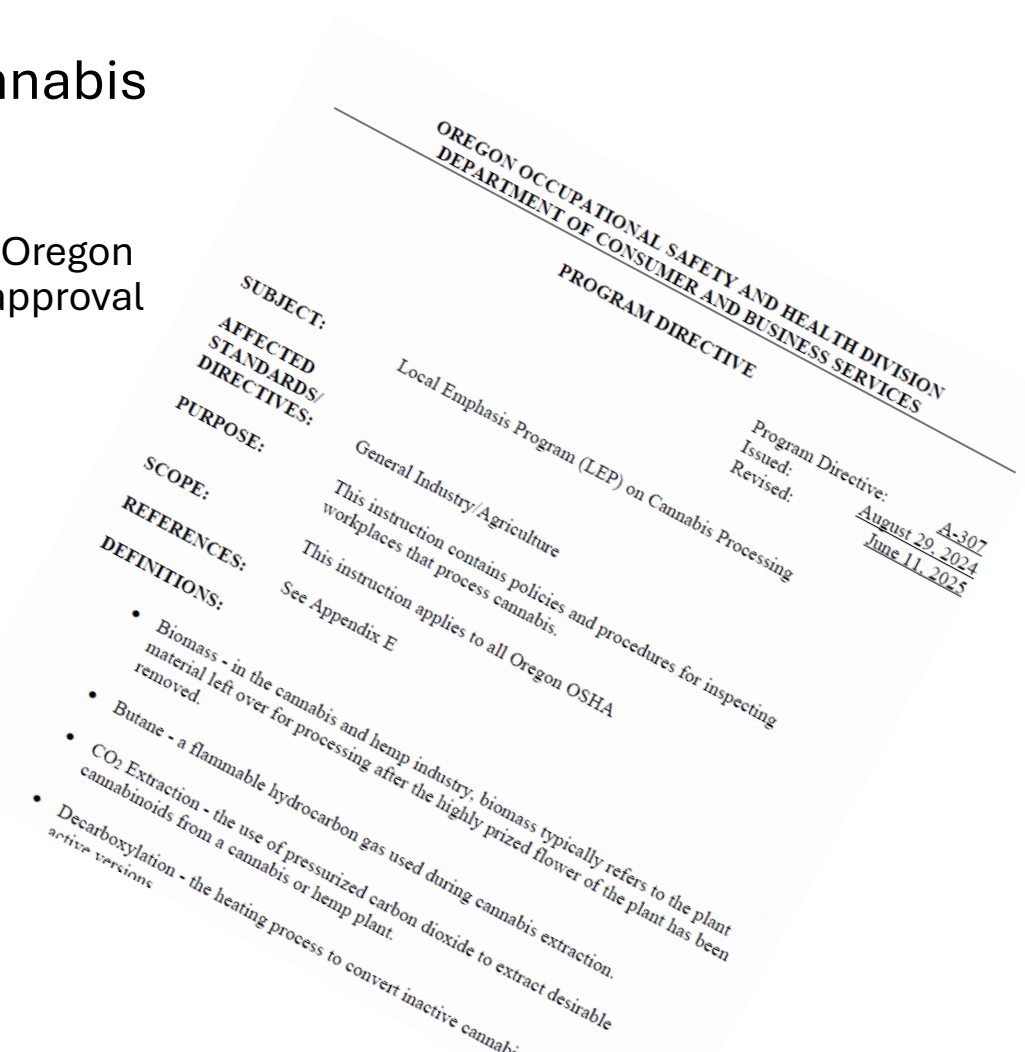


NFPA 420 Draft Chapters	
Chapter	Title
1	Administration
2	Referenced Publications
3	Definitions
4	General Requirements
5	Indoor Growing
6	Drying and Processing
7	Cannabis Plant Oil Extraction and Post Extraction Processing Operations
8	Liquefied Petroleum Gas (LP-Gas) Plant Oil Extraction
9	Ignitable (Flammable or Combustible) Liquid Plant Oil Extraction
10	Carbon Dioxide Extraction
11	Alternative Plant Oil Extraction Methods and Separation Processes
12	Post Oil Extraction and Processing Operations
13	Exhaust Systems
Annex A	Explanatory Material
Annex B	Informational References

PROGRAM DIRECTIVE A-307

Outlined (Oregon OSHA Program Directive)

- Emphasis Program – To Target Inspections in Cannabis
- Inspection Priority List = List of All Process Companies via Oregon Liquor and Cannabis Control (OLCC) marijuana business license approval database.
- What to Cite
- How to Cite
- How Conduct Enforcement A-Z



Standards – Oregon OSHA



**Program Directive A-307 Oregon
OSHA Cannabis Processing**

But, No Specific Rules

No Worries!

Numerous Existing Rules Cover
Cannabis

Rely on Existing Rules:

1. Hazard Communication
2. Electrical
3. PPE
4. Flammables
5. Fire Protection
6. LOTO
7. Confined Spaces
8. Respirators
9. Emergency Planning

Flammable Liquid

Emergency Planning

Incident Reporting

PPE

Hazard Communication

Safety Committees

Lock Out

Electrical

**COMPRESS
GLASSES**

Egress

Ventilation

Respirators

Liquid Propane

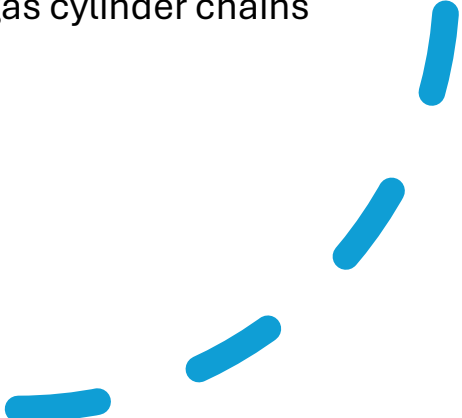
Process Safety Management

Common Hazards

= Citations

EXAMPLES



- 1. Flammable and Combustible Liquids Overflowing tank ethanol, ungrounded drum
 - 2. Division 1, OAR 437-001-0760, Rules for all Workplaces
 - 3. Personal protective equipment (PPE) Cotton Gloves and Goggles
 - 4. Respiratory Protection wrong filters, N95 when need more, storage
 - 5. Electrical Equipment, wiring installations of equipment in hazardous (classified) locations 1910.307(b): a. Class 1 division 1/2: intrinsically safe Lamps, regular outlets, power strips, regular centrifuge, vacuum pump not c1/di
 - 6. Warning signs Exit, Flammable
 - 7. Hazard communication violations SDS book, label missing
 - 8. Egress (Life Safety) Door open out, shipping refrigerated box
 - 9. Liquefied Petroleum Gas (LPG) Butane tank left open, gas cylinder chains
 - 10. Noise hazards vacuum pumps
 - 11. Slips, trips, and falls water floor, stripping
 - 12. Combustible Dust Kief
- 

Labeling

- Hazard Communication 1200



SDS

- Hazard Communication 1200



Color	Offers protection against:
Pink	Dusts, welding fumes
Olive	Organic vapors, ammonia, acid gases
Yellow	Acid gases (chlorine and other disinfectants)
Green	Ammonia (anhydrous, livestock confinement)
Black	Organic vapors (pesticides; not fumigants unless allowed on fumigant label)



Dust, Terpenes, Pesticides, Mold Spores, Solvents



Seattle

North Cartridge:
Organic Vapor



3M ORGANIC
VAPOR CARTRIDG...



OV/AG P100



Storage/Selection

Cylinder Storage

- Flammable 106
- Cylinder Storage



Safety Glasses versus Safety Goggles



Correct PPE

*Gloves,
Etc.*

437-002-134 PPE



Signs

Egress and Life Safety 437-002-0040

Door Open Out

- Egress Rules
- Life Safety



HAZARDOUS LOCATIONS

- **1910.307 (Electrical Code) and NFPA 70**

Makes Sure Everything Around Flammables are Intrinsically Safety

No Electrical Spark!



BEWARE FIRE

Control Ignition Sources!

Classifications Hazard Locations

- Class I, Division 1 Flammable Gases Vapors
- “ Division 2
- Class II, Division 1 Combustible Dust
- “ Division 2
- Class III, Division 1 Fibers In Air (Flying)
- “ Division 2

HAZARD LOCATIONS

Terminology
Flammables
1910.307 (Electrical Code)
and NFPA 70

Control Ignition
Sources!



BEWARE FIRE

Class I, Division 1 – Location in which ignitable concentrations of flammable gases or vapors may exist under normal operating conditions.

CI D1

Class I, Division 2 – Abnormal or Upset Conditions

CI D2



Eliminate Ignition Sources!

HAZARD LOCATIONS

Terminology

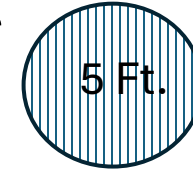
Flammables

1910.307 and NFPA 70

CI D1

Class I, Division 1 – Location in which ignitable concentrations of flammable gases or vapors may exist under normal operating conditions.

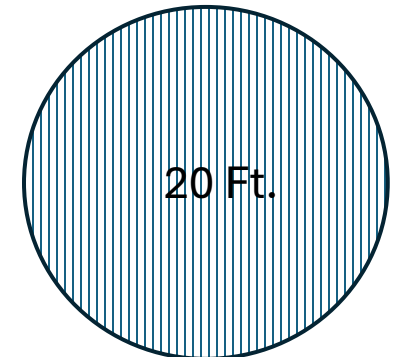
5 Foot Radius



CI D2

Class I, Division 2 – Abnormal or Upset Conditions

20 Foot Radius



NO!!!!



CI D1 Most Protective Hardware



Explosion Proof Power Rece...



Explosion Proof Outlet - C1D...



JELLY JAR CLASS 1 DIV 1 LIGHTS



EMERGENCY EXIT CLASS 1 DIV 1 LIGHTS



ROUND CLASS 1 DIV 1 LIGHTS



C1 D2 Good

Protective Hardware but Not As Spandy

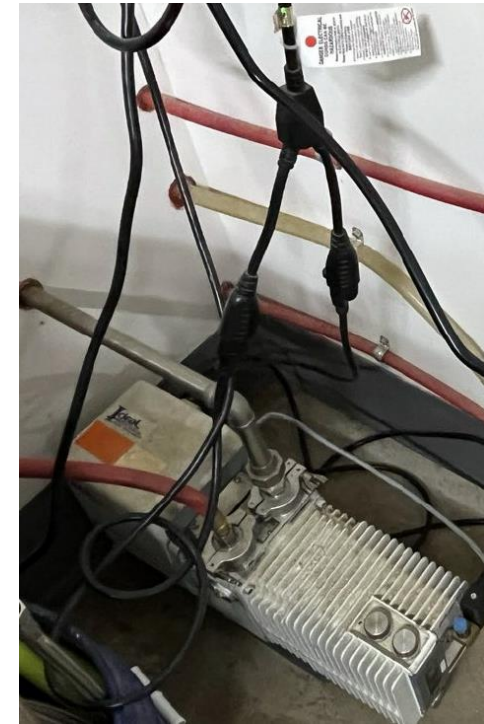
Most are both C1D1 and C1D2



Weather Proof Receptacle - C1D2, C2D1&2 - 480V

Vacuum Pump – Not C1/D1 or 2, Regular Electrical

- Hazard Locations
- Electrical 1910.307



Missing
C1D1 Covers

Centrifuges

For Food and
is Not CID1



Hazard Locations
Electrical
1910.307



Yes CI/D1

Flammable Liquid Containment 1910.106

- Secondary Vessel
- Not Intended To Be Used



Broken Intake
Values



- Lid Opened
- Ethanol Spilled to Floor



C1 D1/2

Flammable
Liquid
Containment
1910.106

- Secondary Vessel
- Not Intended To Be Used



Broken Intake Values



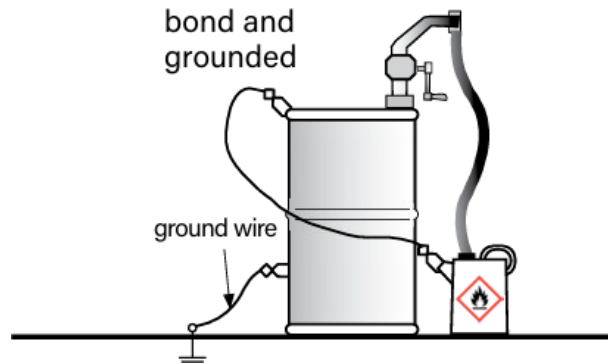
- Lid Opened
- Ethanol Spilled to Floor



Grounding and Bonding

Flammable 1910.106

**BOTH CONTAINERS ARE GROUNDED
AND HAVE NO CHARGE**





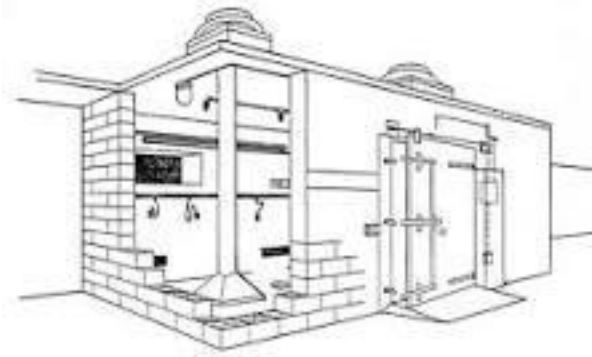
Yes Bonding

- **Over Storage of Flammables**
- **Must be in Flammable Store Room**

Flammable Storage

1910.106 Flammable Liquids

Good - Ventilation at floor of Flammable Room

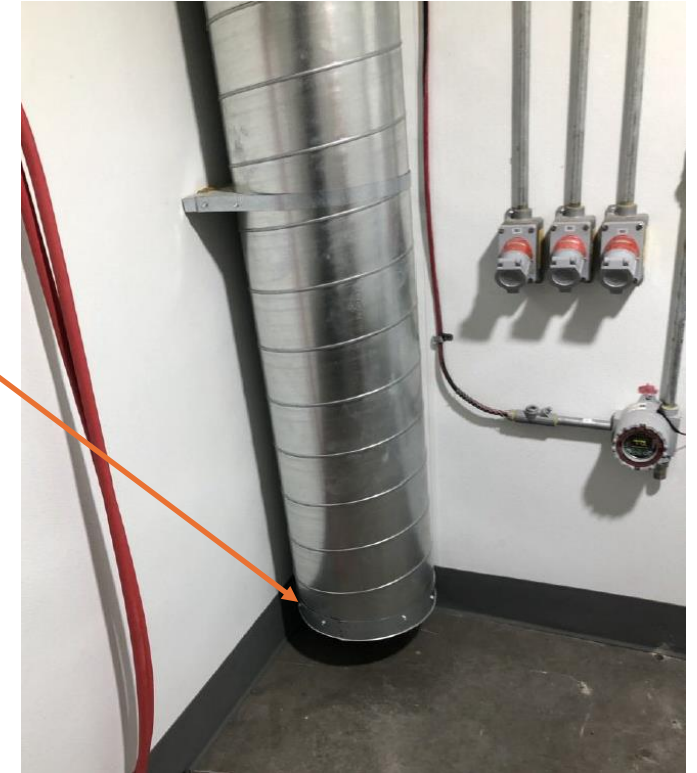


CID1 Electrical



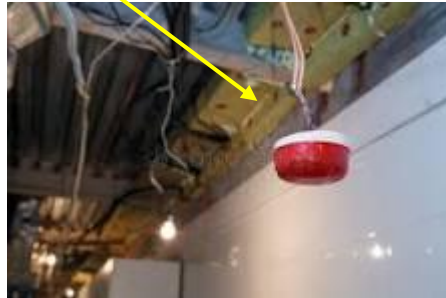
Gas Detector

**Flammable 1910.106
Storage Room**



Fixed Gas Monitors - Calibration

- Alarm Light



Grinder for Biomass

• Combustible Dust !

Dust Explosion
Hazard. Allergy
Hazard.

Example = Kief

Powder of material broken of of cannabis buds (trichomes, etc.)



Venting Ducts Must Be Metal (Fire Proof)



Plastic Vent Ducts

Refrigerated Shipping Container Walkin Freezer Cannot Open Door Inside

- Egress
- OAR 437-002-41(11)

No Panic
Lever



Originally Back Yard Extraction



Process Safety Management
Now Over TQ (10,000lbs)



BIG!
Especially CBD



44,000 Lbs. Units in Oregon

PSM

Many Cannabis Extractors Now
Require
Process Safety Management (PSM):

- Extensive Proactive Program
- Many Elements in PSM
- Over Threshold Quantity of 10,000 (Flammables)

BIG!



CANNABIS / HEMP GROWING SAFETY



GROW

Very Similar to All Agriculture Operations
Oregon OSHA has a well-developed Agriculture Program
(AG)
-Pesticide Worker Protection Standard

Biological Hazard: Mold



- **Risks:**

- Marijuana production requires humidity levels of up to 70%, which can result in mold growth.
- Mold spores in the air can cause wheezing, coughing, trouble breathing, respiratory infections, and exacerbation of asthmatic conditions.

- **Safety Precautions:**

- Hire an industrial hygienist to monitor the air and assess mold spore levels in working areas.
- Provide PPE, such as a respirator, for employees to wear.
- Ensure proper irrigation to limit standing water, which contributes to mold growth.
- Increase ventilation to the affected area.

Biological Hazard: Sensitizers / Allergens

- **Risks:**
 - Direct contact with marijuana plants can result in itchy skin, hives, and swollen, irritated eyes.
 - Some individuals are allergic or hypersensitive to the plant, and reactions can worsen with repeated exposures.
- **Safety Precautions:**
 - If possible - limit that worker's exposure to the plants.
 - If elimination of exposure is not possible, rotate workers to cut down on each one's time spent working with the plants.
 - Provide appropriate PPE.
 - Increase ventilation to the affected area.



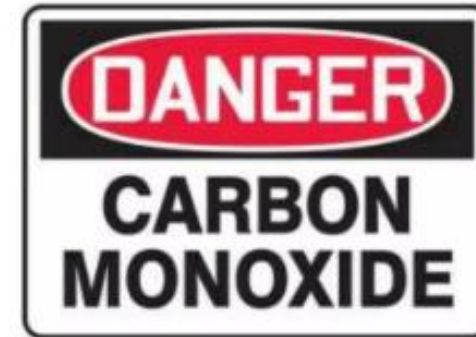
Chemical Hazard: Carbon Monoxide (CO)

- **Risks:**

- Carbon Monoxide (CO) is an odorless gas that interferes with blood's ability to carry oxygen throughout the body.
- Employees may be exposed to elevated levels of CO from gas-powered generators, water heaters, compressors, fork lifts, floor buffers, and space heaters.
- High concentrations of CO can overwhelm a person without warning, causing neurological damage, illness, coma, and even death.

- **Safety Precautions:**

- Eliminate sources of exposure when possible, i.e. using equipment powered by electricity instead of gas.
- Install CO monitors, proper ventilation to keep levels safe.
- Train employees to recognize symptoms of CO exposure.



Physical Hazard: Ergonomics

- **Risks:**

- Trimming marijuana leaves or other cultivation tasks often require awkward, repetitive postures, motions, and/or lifting.
- Various musculoskeletal and stress related disorders can develop if working conditions are not modified to reduce the impact of these activities.



- **Safety Precautions:**

- Develop and implement an ergonomic work plan.
- Ensure proper staffing so that employees can rotate between job stations.
- Construct work stations with anti-fatigue mats, and provide proper tools in a range of sizes.



Chemical Hazard: Pesticides

- **Risks:**

- Contact with insecticides and fungicides commonly used in marijuana cultivation can cause skin and respiratory issues.
- All workers who come in contact with the plants and machinery could potentially be affected.

- **Safety Precautions:**

- Make sure workers are aware of toxicity levels of any pesticides being used, and keep the relevant Safety Data Sheets accessible at all times.
- Label all pesticide containers with the name of the product and all applicable hazard warnings.
- Provide PPE for workers who come in contact with pesticides.



Chemical Hazard: Disinfectants



- **Risks:**
 - Employees must be informed of potential hazards of all chemicals they will come in contact with - including common household cleaners and disinfectants.
 - Even basic cleaning agents can cause skin irritation or respiratory issues.
- **Safety Precautions:**
 - Select the appropriate disinfectant for the specific micro-organism(s) you are looking to eliminate.
 - Hazard communication and safety training to ensure workers know how to use these products safely.
 - Make Safety Data Sheets available at all times.

Chemical Hazard: Corrosive Chemicals



- **Risks:**
 - Employees who mix plant nutrients may encounter corrosive chemicals used for plant growth - which can be so potent that they can damage or destroy metal.
 - Corrosives can irritate or burn the eyes and can present respiratory hazards if their vapors are inhaled, burning the inner lining of the nose, throat, and lungs.
- **Safety Precautions:**
 - Most corrosives are either acids or bases—acids and bases should **never** be mixed.
 - Be sure not to store acids on metal shelves or with water-reactive metals.
 - Provide appropriate PPE and training on safe use of corrosives.
 - Employers must also provide emergency eyewash stations.



Physical Hazard: Compressed Gas



- **Risks:**

- Compressed gas in highly pressurized cylinders are used at cannabis production facilities.
- Most cylinders have safety-relief devices designed to prevent rupture in the case of excessive pressure buildup, but a broken or leaking valve can be very dangerous.
- Cylinders exposed to fire or heat are at risk for explosion.

- **Safety Precautions:**

- Cylinders must be stored upright, properly chained, and kept at the appropriate temperature.
- When not in use, cylinder caps must be in place.
- SDSs on the gases being used at the facility should be available, and employees must be properly trained.

CO₂ - > Growth

*Ethylene and NO₂
- Ripening*

Physical Hazard: Electrical



- **Risks:**

- Marijuana operations require a great deal of energy.
- Areas of concern include: temporary wiring (e.g., extension cords), missing breakers, blocked electrical panels, improperly wired units, electricity use in high humidity and watering areas, improper repairs, unguarded fans, overloaded circuits, inadequate wiring, lack of training and general electrical safety.
- Employers are further required to protect employees from hazardous energy sources on equipment during maintenance and repairs (lockout/tagout).

- **Safety Precautions:**

- Implement a written electrical safety program, lockout/tagout protocols, and electrical safety

Physical Hazard: Extraction Equipment



- **Risks:**

- High heat and pressure are used in the extraction process, creating fire and explosion hazards.
- Extraction typically involves the use of high-pressure machinery, butane, CO₂, and/or flammable/combustible liquids, all of which are hazardous.

- **Safety Precautions:**

- Follow all local fire codes, and establish a fire protection policy plan.
- Employees performing extraction operations must be properly trained and must wear appropriate PPE.
- Extraction rooms should be dedicated specifically to extraction.

High Heat Illness Prevention Plan

- Days reaching Heat Index between **80 - 89 degrees F**:
 - Water
 - Shade /cool down (10 min. every 2 hours)
 - Know signs and symptoms of heat illness
 - Acclimatization
- Days reaching Heat Index of **90 degrees F.** and above,
 - Same as above,
 - Rest/work plan,
 - Communication – Supervisory / buddy system every two hours check-in



Questions!