

Occupational Safety and Health in the Cannabis Industry



Presented By:

Michigan Occupational Safety and Health Administration
Consultation Education and Training (CET) Division
Michigan Department of Labor and Economic Opportunity

www.michigan.gov/miosha

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Occupational Safety and Health in the Cannabis Industry

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MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

WWW.MICHIGAN.GOV/MIOSHA

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Overview

- Describe potential hazards associated with the cannabis industry
- Describe the applicability of Michigan Occupational Safety and Health Administration (MIOSHA) requirements
- Identify MIOSHA agriculture, general industry and construction standards that may apply

Background

- Medical marijuana states
 - 38
- Recreational states
 - 23
- U.S cannabis industry on pace to hit \$30 billion annually by 2025
- Colorado and Washington legalized in 2012
- Michigan approved medical use in November of 2008 and recreational use in 2018



Prior to
regulation

Regulatory Authority of MIOSHA

Federal OshAct of 1970

Michigan Occupational Safety and Health Act
- MCL 408.1001 et. seq. / Public Act 154

MIOSHA administers standards and regulations

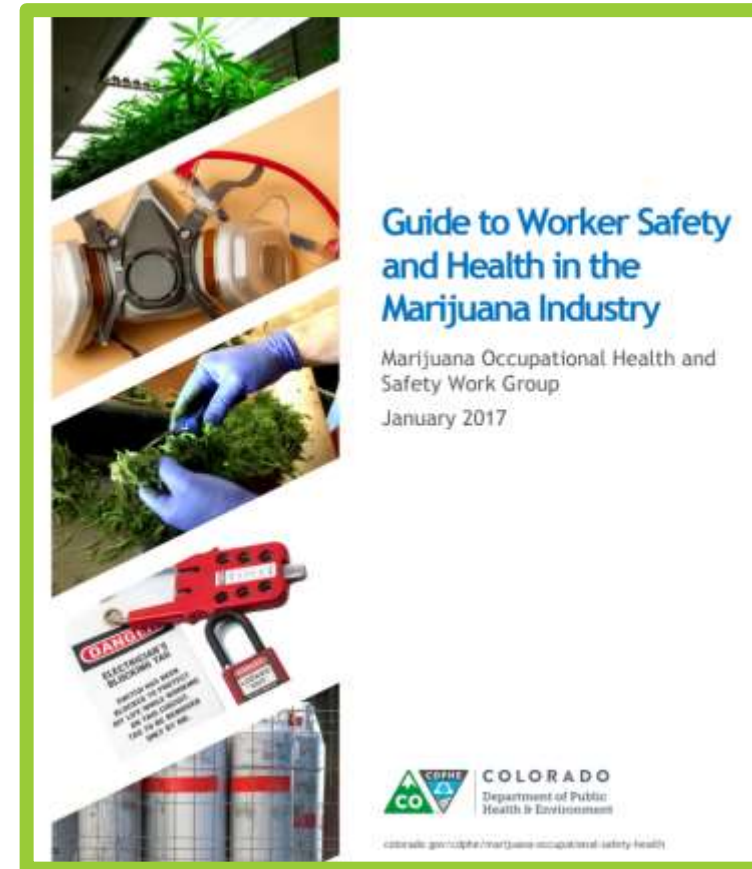
- Enforcement
- Consultation, Education, and Training

NAICS Codes

NAICS	NAICS Title
111419	Grower under cover
111998	Grower in open field
325411	Processor
424590	Wholesaler
459991	Marijuana stores, medical or recreational

Colorado Guide to Worker Safety

- Created in 2017
 - Comprehensive guide to hazards in Cannabis Industry
- [Guide to Worker Safety and Health in the Marijuana Industry FULL REPORT.pdf - Google Drive](#)



Biological

Chemical

Physical

Primary Types of Hazards

Biological

- Mold
- Sensitizers/Allergens
 - Pollen
- Can you name others?

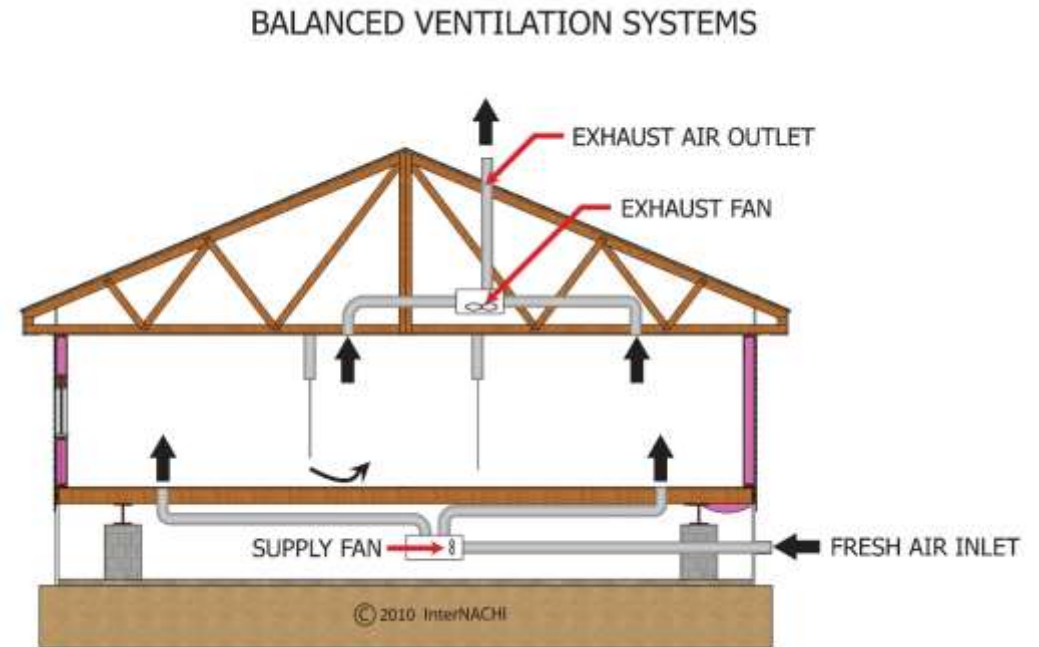


Mold

- Production areas increase humidity to as high as 70%
 - Poor ventilation could lead to:
 - Asthma symptoms
 - Respiratory infections
- Has a PPE assessment been completed? Respirator use?

Mold cont.

- ❖ Utilize an engineer to provide contractor with print/drawings of ventilation system.
- ❖ Conduct periodic air velocity measurements and cross reference with print or drawing





Prior to regulation

Sensitizers/Allergens

➤ Handling of plant material

➤ Hives

➤ Itchy skin

➤ Swollen puffy eyes

-- PPE assessment completed?
Gloves, goggles, arm protection?



Asthma causing agents in processing facilities



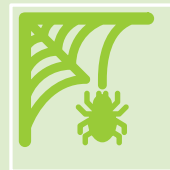
Plant Materials

- Terpenes
- Fine microparticles



Disinfectants

- Bleach
- Hydrogen Peroxide
- Peracetic acid



Mold

- Powdery Mildew
- Penicillium
- Alternaria – less common

DATE:

January 4, 2022

VICTIM:

27-year-old flower
production
technician

SCENE:

Cannabis processing
facility

**Massachusetts FACE (Fatality Assessment and
Control Evaluation)**

**Cannabis Flower Technician Experiences Fatal Asthma
Exacerbation — Massachusetts**

CONTRIBUTING FACTORS

**Key contributing factors identified in this investigation
include:**

- Failure to recognize ground cannabis as a potential occupational respiratory hazard
- Failure to adequately control the spread of airborne cannabis dust
- Lack of a comprehensive safety and health program and overall safety training

Chemicals

Carbon Dioxide (CO₂)

Carbon Monoxide (CO)

Disinfectants/cleaning
chemicals

CO₂ Properties

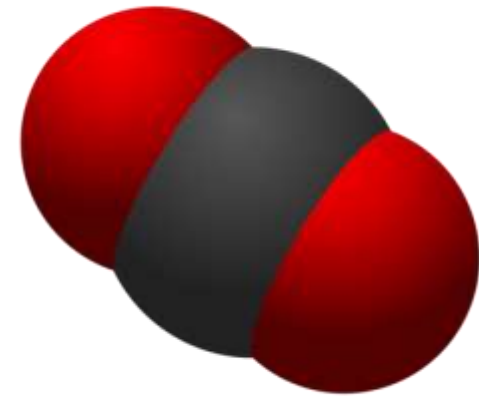
Present as a natural component in fresh air (approximately 350 – 400 ppm)

Colorless

Odorless

Tasteless

Heavier than air, tends to settle and accumulate



CO₂ Exposure Symptoms

Headaches

Dizziness

Shortness of breath

Nausea

Rapid or irregular pulse

Depression of central nervous system

“Harmful” Concentrations

1500 - 2000 ppm – poor air, drowsiness, complaints

2000 - 5000 ppm – headaches, sleepiness, loss of concentration, nausea, increased heart rate

(MIOSHA’s Permissible Exposure Limit (PEL) is 5000 ppm)

5000 - 40,000 ppm – oxygen deprivation, potential for brain damage, coma, and death

Concentrations greater than 10% can cause loss of consciousness within 15 minutes or less



Grow Operations - Carbon Dioxide (CO₂) Exposure

- Necessary for plant growth (photosynthesis)
 - Optimal around 1300-1500 ppm, higher than ambient 500-600 ppm
 - Grow area tightly sealed, CO₂ introduced via
 - Compressed cylinder
 - CO₂ generators
 - Open flame
 - Other methods (fermentation, dry ice, composting etc.)

Carbon Dioxide Hazard Management

- At low concentrations CO₂ does not usually pose a health hazard
- A system leak could introduce high CO₂ concentrations creating a hazard, as the gas displaces oxygen, resulting in toxic effects
- Install proper detection and alarm systems to notify occupants of gas release ≥ 5000 ppm (MIOSHA PEL)
- Install engineering controls to maintain safe levels and avoid localized pockets
- Post a warning sign at entrance to room where gas is used

CAUTION—CARBON DIOXIDE GAS
Ventilate the area before entering.
A high carbon dioxide (CO₂) gas concentration in this area can cause suffocation.

Carbon monoxide (CO)

- Sources of CO
 - Generators
 - Hot water heaters
 - Floor buffers
 - Forklifts

Are CO monitors being used? Preventative Maintenance Plan for equipment?

Disinfectants/cleaning chemicals

- Corrosive or toxic

 - Peracetic acid (disinfecting a grow room)

 - Fumigation or insecticidal fogging (fungicides, insecticides)

- Large quantities

- Secondary container labeling

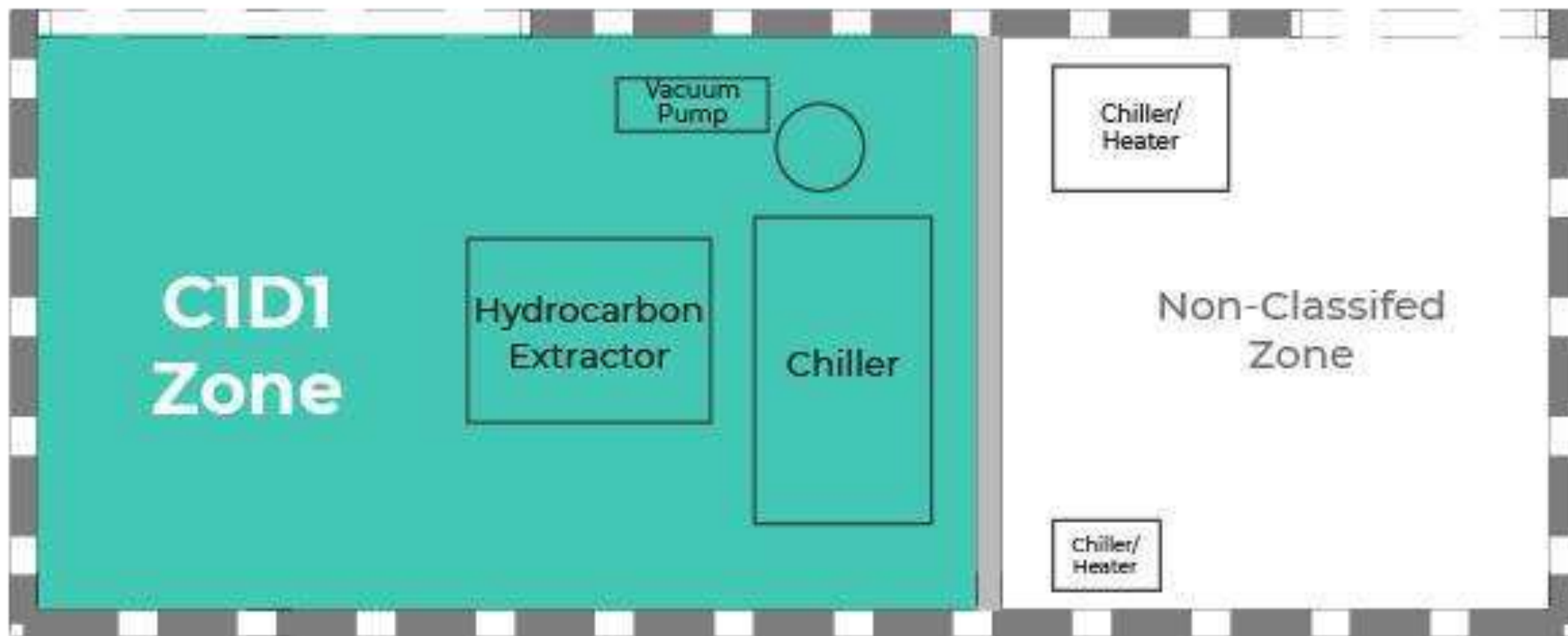
 - Hazard Communication Plan in place? PPE utilized?

 - Pesticide use - Michigan Department of Agriculture & Rural Development (MDARD), Pesticide & Plant Pest Management Division



Flammables

Extraction



What is C1D2?

Class 1 Division 2 classification defines **hazardous locations** where:

1. Flammable gases, vapors, or liquids may be present. This can happen intermittently or under abnormal conditions.
2. These environments require specialized electrical systems and equipment.

Physical Hazards

Ergonomics

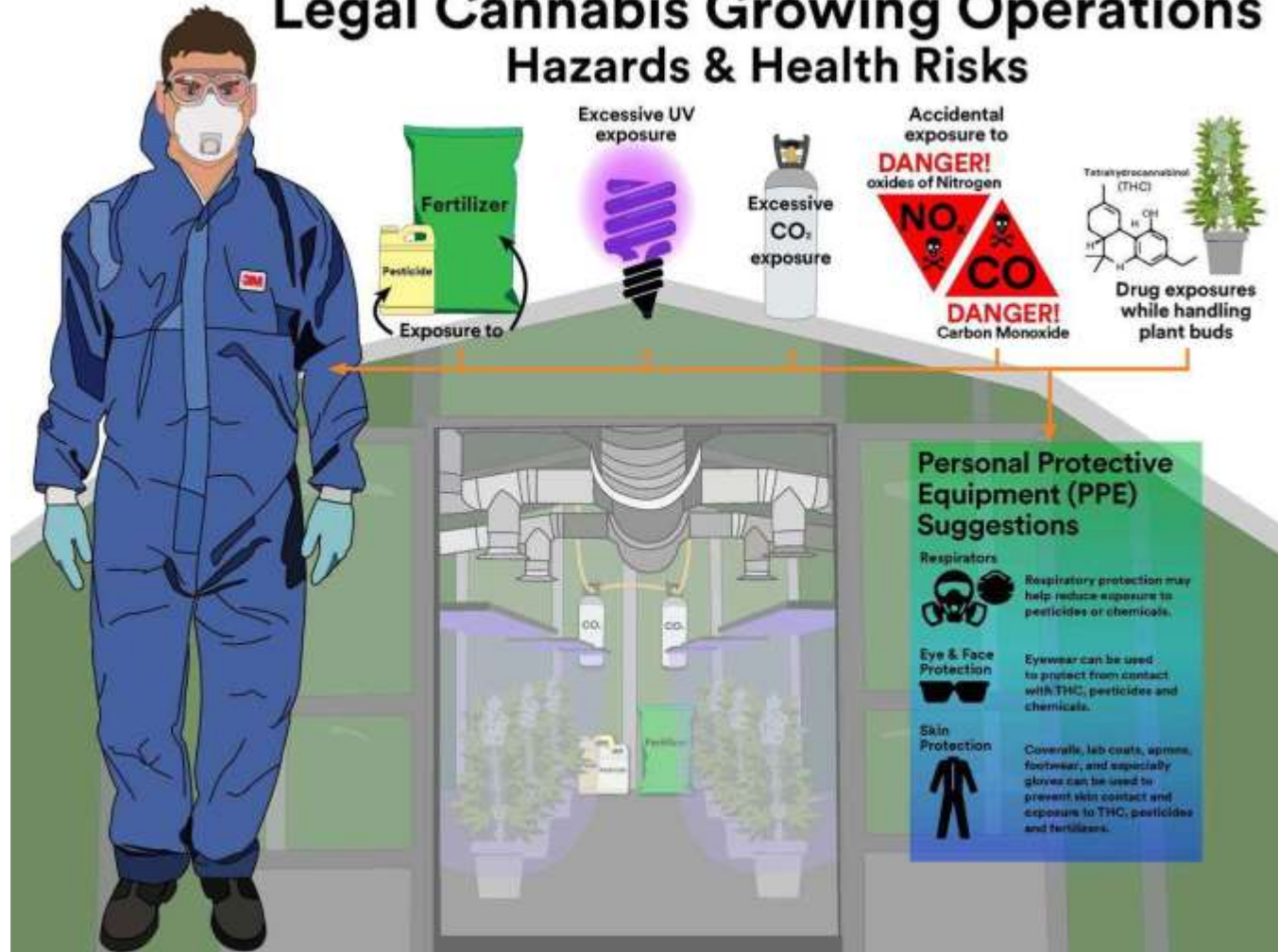
Walking Working Surfaces

Electrical

Noise

Lighting

Legal Cannabis Growing Operations Hazards & Health Risks



Physical Hazards

ERGONOMICS

- Bud Trimmers
- Shipping Personnel
- Administration Staff

--- Review 300 log, any strains, sprains?

WALKING WORKING SURFACES

- Grow Rooms
 - Water (slip)
- Uneven floor
- Cords or hoses in walkways
- Unsecured rugs or mats

Physical Hazards cont.

ELECTRICAL

- Temporary wiring
 - Blocked panels
 - Lack of training
 - Overloaded circuits
- Lock Out / Tag Out program implemented?

NOISE

- Maybe variable throughout facility
 - Specific tools or machines may contribute to the action level
- Has noise monitoring been conducted?

Physical Hazards cont.

Lighting

☐ Ultraviolet (UV)

☐ Photokeratitis – tearing, blurry vision, irritation of the eye

-- Ensure broke bulbs are replaced in a timely fashion.

-- PPE such as goggles, appropriate glasses.



Do MIOSHA rules apply?

- MIOSHA rules apply to all businesses where there is an employer/employee relationship
- Michigan Occupational Safety and Health Act (MIOSHA) P.A. 154 of 1974 (Excerpt):

An employer shall:

(a) Furnish to each employee, employment and a place of employment that is free from recognized hazards that are causing, or are likely to cause, death or serious physical harm to the employee

MIOSHA standards that may apply

Identify :

- Administrative – all industry classifications
- Agriculture – includes grow operations
- General Industry – includes retail, processing
- Construction – includes renovation, remodeling and new construction

MIOSHA Administrative Rules

MIOSHA Part 11

Reporting and Recording of Occupational Injuries and Illnesses:

- Must record employee work-related injuries and illnesses
- Applies to employers with more than ten (10) employees unless partially exempt
- Partially exempt includes, but is not limited to:
 - Health and personal care stores
 - Security services
 - Insurance services
 - Legal services

General Industry Rules – Processing Operations

- Part 1 General Provisions
- Part 2 Walking-Working Surfaces
- Part 6 Fire Exits
- Part 21 Powered Industrial Trucks
- Part 92/430 Hazard Communication
- Part 33/433 Personal Protective Equipment
- Part 451 Respiratory Protection
- Part 380 Occupational Noise Exposure in General Industry
- Part 472 Medical Services and First Aid
- Part 474 Sanitation

NOTE: This is not a complete list of all MIOSHA Standards that may apply

General Industry: Processing

- Part 1 General Provisions
 - Housekeeping
 - Machine controls, guarding and devices
 - Compressed air
- Part 2 Walking Working Surfaces
 - Guardrails and handrails
 - Ladders
 - Fall protection
- Part 6 Fire Exits

Contact your local fire official and the Michigan Bureau of Fire Services for additional fire protection requirements



General Industry: Processing

Part 21 Powered Industrial Trucks- [GI 21 \(michigan.gov\)](http://michigan.gov)

Provides for the minimum safety rules for:

- Operator training, testing and permits
- Care and use of powered industrial trucks
- Specifications of equipment



General Industry Processing

Part 92/430 Hazard Communication

Requirements related to the use of hazardous chemicals:

- Scope and Application
- Definitions
- Hazard Classification
- Written Hazard Communication Program
- Labels and Other Forms of Warning
- Safety Data Sheets
- Employee Information and Training



Part 472. Medical Services and First Aid

Ensure that suitable facilities for quick drenching or flushing of the eyes and body are provided within the work area for immediate emergency use when the eyes or body of any person may be exposed to injurious or corrosive materials.

Provide immediate access within 55 feet from where Category 1 corrosive or Category 2A serious eye irritants are dispensed.

Eyewash stations need to conform with ANSI Z358.1. Additional details can be found in the [Eyewash/ Shower Agency Instruction.](#)

Part 33/433 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Perform a Job Hazard Assessment (JHA)
- Certification of hazard assessment
- Selection of PPE
- Employee training
- Recordkeeping requirements
- Clean and sanitize multi-user PPE

References:

[LEO - A to Z Topic Index \(michigan.gov\)](https://www.michigan.gov/leo)



Part 33/433 PPE Certification of Hazard Assessment

An employer shall:

Verify written PPE assessment certification which includes:

- Workplace evaluated
- Person who certified assessment
- Date of hazard assessment completion

Part 33/433 PPE: TRAINING REQUIREMENTS

Employer shall provide training to each employee who is required use PPE:

- When PPE is necessary
- What PPE is necessary
- How to:
 - Put it on (don)
 - Take it off (doff)
 - Adjust, and wear PPE



Part 451 Respiratory Protection

Required use of respirators due to overexposure or employer mandated use:

- Designate program administrator
- Provide respirators, training, and medical surveillance at no cost to employees
- Written program requirements:
 - selection procedure
 - medical evaluations
 - fit testing procedures
 - procedures for proper use and maintenance
 - employee training
 - program evaluation



Part 380 Occupational Noise

When information indicates that any employee's exposure may equal or exceed the action level of 85 dBA as an 8-hour time-weighted average:

- The employer shall develop and implement a noise-monitoring program to evaluate employee noise exposure
- Implement a Hearing Conservation Program when exposure exceed the action level

What information may indicate that exposures are above the action level?

Workplace noise levels that interfere with normal conversation (i.e., raising voice to be heard over background noise) may exceed the action level

Part 301 Air Contaminants for General Industry

- Permissible exposure limits for air contaminants:
 - Carbon Dioxide (CO₂) used in some extraction processes = 5000 ppm as an 8-hour time-weighted average (TWA)
 - Butane 800 ppm as 8-hour TWA

Agriculture Rules – Cultivation and Growing

- Part 700 – Agriculture
 - Air contaminants (e.g., carbon dioxide)
 - Respiratory protection
 - Noise
 - Fire Suppression Systems
- Part 42, 92, 430 Hazard Communication
- Strains and sprains related to overexertion or repetitive motion do not have a specific standard. Any hazard recognized by the industry as potential to cause harm to employees is covered by MIOSHA Act 154 duties of the employer.



NOTE: This is not a complete list of all MIOSHA Standards that may apply

Agriculture: Cultivation and Growing

Part 700 – Agriculture

- Air contaminants
 - Carbon Dioxide = 5000 parts per million (ppm) as an 8-hour time-weighted average
- Noise
 - Permissible exposure limit = 90 decibels (dBA) as an 8-hour time-weighted average
 - Hearing protection and/or noise controls required when exceeding limit
- Respiratory Protection
 - Shall be of a type approved for protection against the contaminant and degree of exposure
 - See [US EPA Worker Protection rules](#) for pesticide application requirements

Construction Safety and Health Standards

MIOSHA Construction Safety and Health Standards apply:

- When building new structures
- When renovating or remodeling existing structures

Electricity, Excavations, Fall Protection, Noise, Asbestos, Silica, Welding, Confined Spaces, Etc.

Reference: [MIOSHA Construction Safety and Health Standards](#)

Additional Resources

- ❑ [MIOSHA Fact Sheet – Marijuana Industry Potential Health and Safety Hazards](#)
- ❑ [Colorado Guide to Workplace Safety and Health](#)
- ❑ [Cannabis Regulatory Agency](#)
- ❑ [Colorado - Marijuana occupational safety and health](#)
- ❑ [OSHA Small Business Handbook](#)

Questions?

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