

Technical Data Bulletin

#249 - Legal Cannabis Growing Operations

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The following, with the exception of the PPE Suggestions section, is a brief summary of the Washington State Department of Labor & Industries recommendations¹ and “Health Effects Associated with Indoor Marijuana Growing” by Martyny, Van Dike et al.

This brief summary was prepared by the 3M Personal Safety Division. It does not represent an official or necessarily complete description of the issues present, or the referenced publications. For complete details, the above linked documents should be reviewed.

The Medical Cannabis (Legal Marijuana) Growing Industry

Medical Cannabis, also known as medical marijuana, became legal in several states starting with California in 1996². As these operations shift from illegal marijuana growing operations (MGOs) to legal agriculture operations, the need to understand the impact on workers in this industry has grown. The worker safety and health hazards of MGOs are currently being investigated by NIOSH, Colorado Department of Public Health, Washington State Department of Labor and Industries, and other state agencies where legalization has occurred. The currently available safety and health recommendations are based on efforts to protect law enforcement in the investigation and removal of illegal operations. In addition, to worker safety and health concerns, changing EPA regulations concerning pesticides, agricultural Worker Protection Standard will take effect in 2017 impacting MGO operations.

Background

While full study results are limited and the list is not yet comprehensive, the following hazards and health risks have been identified for cannabis growing operations:

- Mold exposures in indoor growing operations caused by improper ventilation

- Drug exposures to 8-9-tetrahydrocannabinol (THC) while handling plant buds. This can occur through respiratory, eye and dermal contact
- Exposures to pesticides and fertilizers
- Excessive carbon dioxide (CO₂) exposure in green houses with optimized growing environments
- Accidental carbon monoxide CO and oxides of nitrogen (NO_x) exposure from CO₂ producing devices
- Excessive ultra violet (UV) exposures from grow lamps
- Electrical shock, fire from poor wiring
- Cuts, pinches and sprains from harvesting or processing operations
- Heat stress in outdoor growing operations

Washington State Department of Labor and Industries Recommendations

The Washington State Department of Labor and Industries, has one of the most comprehensive websites with recommendations for cannabis worker safety and health during phase-growing, processing and retailing. They also have links to related US OSHA and EPA documents at:

<http://www.lni.wa.gov/Safety/Topics/Industries/Marijuana/default.asp>.

Suggestions Regarding Personal Protective Equipment (PPE)

The following PPE suggestions are based on the report “Health Effects Associated with Indoor Marijuana Grow Operations”. As with all PPE selections, it remains the responsibility of the employer to conduct a full hazard assessment and to select the PPE needed to address the hazards present.

Respirators

Respiratory protection may be required during normal growing operations to reduce exposures to mold, pesticides, or chemicals. Respiratory selection and use should be based on results of air monitoring, in compliance with the assigned protection factors (APFs) outlined in the US OSHA Respiratory Protection Standard 29 CFR 1910.134, state or local pesticide application regulations, and pesticide manufacturers’ recommendations. Based on the exposure assessment, an N-95 or P-100 disposable respirator, or half face piece or full face piece respirator* with a combination organic vapor cartridge/P100 filter, may provide appropriate protection. Examples of air purifying respirators include:

- 3M™ Particulate Respirator 8210, N95

- 3M™ Full Facepiece Respirator 6000 series* with 3M™ P100 Organic Vapor Cartridge/Filter 60921

State and local pesticide regulatory agencies should be consulted for any additional respirator selection requirements based on the pesticide to be used. Per US OSHA regulations, a site-specific cartridge change-out schedule may need to be developed. Respirators must always be used in accordance with all procedures, cautions and limitations specified in the respirator manufacturer's user instructions in order to receive the assigned level of protection. Per 29 CFR 1910.134, OSHA requires employers to implement a written respiratory protection program meeting all the requirements of the standard when respirators are used. The respirator manufacturer or a health and safety professional should be consulted if there is any question regarding respirator selection and use. Misuse of the respirator may result in sickness or death.

Proper ventilation should be maintained to avoid over exposure to CO, CO₂, and NO_x, as air purifying respirators will not provide protection. Over exposure to these gasses remains an acute concern if CO₂ producing devices are not monitored or maintained properly.

Skin Protection

Skin contact must be prevented during cutting and harvesting operations to reduce the risk of dermal exposure to THC, pesticides and fertilizers. Protective coveralls, lab coats, aprons, footwear, and especially gloves should be considered during cutting and harvesting operations, and during the application of pesticides or fertilizing chemicals. Refer to coverall, glove, and pesticide manufacturers recommendations for specific products. In outdoor operations, the potential for increased risk of heat stress should be considered when selecting worker protective clothing.

Eye and Face Protection

Eyes must be protected from contact with THC, pesticides and chemicals. Employers should consider the need for eyewear, eyewear and face shield, or a full face piece respirator. If not required to wear a full facepiece respirator for pesticide spraying, indirect venting goggles meeting the ANSI Z87.1 D3 Splash/Droplet rating are recommended (e.g. 3M™ Goggle Gear, 500-Series Clear Scotchgard™ Anti-fog Lens).

Endnotes and References

*Half face piece respirators have an assigned protection factor (APF) of 10. Full facepiece respirators, when quantitatively fit tested, have an APF of 50.

¹<http://www.lni.wa.gov/Safety/Topics/Industries/Marijuana/default.asp>

²Martyny, John; Van Dyke, Mike; Schaeffer, Josh; Serrano, Kate “Health Effects Associated with Indoor Marijuana Grow Operations” Division of Environmental and Occupational Health Sciences, Department of Medicine, National Jewish Health, Denver, CO

³<http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>

“Hashing Out the Issues: IAQ and Health and Safety in the Marijuana Industry”, Colorado Environmental Health Association Conference, Steamboat Springs, CO, September 26, 2014
Koch, Thomas, Carol-Lynn Chambers, Stacy Bucherl, John Martyny, John Cotner and Stan Thomas. “Clandestine Indoor Marijuana Grow Operations- Recognition, Assessment, and Remediation Guidance” AIHA



Personal Safety Division
3M Center, Building 235-2W-70
St. Paul, MN 55144-1000
3M.com/WorkerSafety

For More Information
Technical Assistance 1-800-243-4630
Hours of Operation: M-Th 8am-6pm, Fri 8am-4:30pm
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