

INTRODUCTION

In the cannabis industry, butane gas is often used in the extraction of cannabis oil for hash oil or honey oil through the use of a butane hash oil (BHO) extraction system. Just as with other flammable gases, improper use or storage of butane could expose you and others to harm. In this lesson, we will cover what butane gas is, the hazards, the permissible exposure limits, the personal protective equipment, and the safe work practices associated with this gas.



WHAT BUTANE GAS IS

Butane gas is colorless, odorless liquefied gas that is highly flammable. This gas comes from both oil refining and natural gas processing and is typically used as fuel in lighters and portable stoves, as well as in torches used for glass-making and crafting projects. It is also used in aerosols as a propellant.



HAZARDS

When working with butane to extract cannabis oils, you could be exposed to one or more of the following hazards:

- Fire or explosion from the gas being ignited
- Frostbite from the skin making contact with the liquid butane
- Eye damage if liquid butane makes contact with the eyes
- Shortness of breath, dizziness, drowsiness, headaches, and/or seizures from inhaling butane.
- Exposure to nitrogen dioxide when butane gas is combusted

Note: In many underground operations, open blasting with a BHO extraction system has caused many house explosions.

PERMISSIBLE EXPOSURE LIMITS (PELs)

Due to the potential health effects that can occur from exposure to butane gas fumes, certain government agencies such as The National Institute for Occupational Safety and Health (NIOSH) and Cal/OSHA have set the following permissible exposure limits:

Exposure Limits	
NIOSH REL Up to 10-hour TWA (ST) STEL (C) Ceiling	CAL/OSHA PEL 8-hour TWA (ST) STEL (C) Ceiling Peak
Recommended Exposure Limit (REL)- Time-Weighted Average (TWA)	Permissible Exposure Limit (PEL) – Time-Weighted Average (TWA)
800 ppm (1900 mg/m ³)	800 ppm (1900 mg/m ³)



CANNABIS: BUTANE GAS SAFETY

PERSONAL PROTECTIVE EQUIPMENT

To help minimize the chances of an accident occurring, you should wear the appropriate personal protective equipment (PPE) when using butane to extract hash or honey oil. PPE may include:

- Safety glasses or goggles
- Chemical-resistant gloves
- Flame-resistant coveralls or lab coat
- Closed-toed or steel-toed shoes

You should inspect all provided PPE for wear or damage before you put it on. Report worn or damaged items to your supervisor. Do NOT wear damaged PPE.

SAFE WORK PRACTICES

Note: In many states where cannabis extracts have been legalized for either medical or recreational use, only closed-loop systems may be allowed to be used for butane extraction. If you have questions about BHO extraction systems and specific state requirements, please speak with your supervisor.

Before Working with a BHO Extraction System

Before working with a butane hash oil (BHO) extraction system, you should do the following:

- Remove all jewelry and tie-back long hair.
- Read and become familiar with the manufacturer-provided owner's or operator's manual for your extractor.
- Where applicable, check flammable gas detectors to assure that they are functioning properly.
 - If detectors appear to be damaged or malfunctioning, report the detector to your supervisor.
- Inspect the extractor system for signs of missing or damaged parts.
 - Report extractors with missing or damaged parts to your supervisor.
 - Do NOT operate an extractor with missing or damaged parts.
- Check the extractor for leaks in accordance with the manufacturer's instructions.
 - If there is an indication of a leak, report it to your supervisor.
 - Do NOT operate the extractor until all leaks have been identified and repaired.
- Make sure that the extractor is placed in a well-ventilated area.
- Add material into the extractor in accordance with the manufacturer's instructions and your company's policies and procedures.

When Working with a BHO Extraction System

When working with a BHO extraction system, you should do the following:

- Only allow trained and authorized employees to use the extractor.
- Do NOT operate extractors while under the influence of drugs or alcohol.
 - If you are on prescription medication that could affect your ability to operate the extractor safely, please speak with your supervisor.
- Operate the extractor in accordance with the manufacturer's instructions.
- Keep pressure within manufacturer-recommended psi levels.
- Only use non-sparking tools in areas where extractors are operated.
- Do NOT eat, drink, smoke, or apply cosmetics (including lip balm) in areas where the extraction system is being used.





CANNABIS: BUTANE GAS SAFETY

Storage of Butane Cylinders or Tanks

When butane gas is not being used, it should be stored in accordance with the manufacturer's instructions and local, state, and federal requirements.

For more information on compressed gas safety, please refer to our "Compressed Gas Safety" lesson.

CONCLUSION

To conclude, butane gas is commonly used in the extraction of hash or honey oil from the marijuana plant. This is a hydrocarbon process, and due to the flammability of the gas can be extremely dangerous if certain precautions are not taken. To help minimize the chances of an accident occurring, many states where marijuana is legal only allow a closed-loop extraction system to be used. Butane extraction systems should be used in accordance with the manufacturer's instructions, your company's policies and procedures, and in accordance with local and state regulations. When not being used in the extraction process, butane gas should be properly stored. If you have questions about your butane extractor system, please speak with your supervisor.

