

**YAKIMA CHIEF HOPS  
HACCP AUDIT, ANALYSIS AND IMPLEMENTATION REPORT  
2021**

**Growing**

Although the growing of the hops is not part of the Yakima Chief Hops, LLC. operations, Yakima Chief Hops, LLC. does obtain records of chemical use on the farm. All growers follow the manufacturer label when applying and harvesting the crop. Yakima Chief Hops, LLC. monitors the application of chemicals by obtaining grower spray records for each current year's crop. In addition to obtaining spray records, Yakima Chief Hops, LLC. Also, samples finished product which is then delivered to outside lab services for testing of pesticide residue and heavy metals.

**Receipt and Storage—Raw Hops**

The audit of this process was conducted with our Manager of Operations. He supplied the information needed to create the process flow chart that would be used to outline the process and help determine critical control points (CCPs).

We document detailed information regarding the process steps and at which steps hazards and possible contaminants could be introduced to the product. Using the worksheets and attachments in the United States Department of Agriculture's "Guidebook for the Preparation of HACCP Plans", hazard likeliness and contamination levels were considered and each process step was tried for CCP status.

No CCPs were determined in this process in sampling and numbering of bales. Only food grade cleaners are used. When numbering the bales a chemical hazard could also arise from the ink used. The ink is strictly food grade, therefore this hazard is eliminated.

Biological and physical hazards were found to be highly unlikely in this process. The nature of the brewing process would eliminate any biological or physical hazards through extensive filtration and high temperature boiling. These hazards are eliminated for safety of brewery personnel and equipment.

## **Pelletization**

This process was audited with the Pellet Plant Manager to create the process flow diagram. A tour of the plant was taken and each step was reviewed in detail. The process flow diagram was created and each step was examined for hazard likelihood and the preventative measures taken.

A second tour of the plant was taken and each step was specifically audited for hazard possibility. Worksheets from the USDA guidebook were used to determine CCPs.

In the pelleting process, three critical control points were discovered. A physical hazard is possible in the bale breaker if blades break off or other metal is introduced to the hops. Magnets and traps exist in the breaker to prevent contamination of the final product.

At the pellet die Nitrogen is introduced to the pellets for cooling, the Nitrogen comes in direct contact with the pellets which could create a chemical hazard if there are any hazardous chemicals in the Nitrogen. The Nitrogen tested and certified by the supplier as being beverage grade, therefore eliminating any chemical hazard at this point.

In the pellet die, the lubricants used could come in direct contact with the hops, creating a chemical hazard. The lubricants used are food grade and therefore do not compromise the quality and safety of the final product. No biological hazard is likely to be introduced at any point in the pelleting process.

## **Extraction**

The Extract Plant Manager was consulted to create a process flow diagram for extraction. He provided the information necessary to accurately outline the process. After completing the process flow chart, each step was preliminarily examined for possibility of hazard introduction.

The Extraction Supervisor was consulted and each step was examined thoroughly for possible contamination of the final product. Using the USDA worksheets, no control points were discovered in the extraction process.

When the hops are dumped into the extractor the possibility of rodents, debris, and cleaners used on the extraction deck being introduced to the hops is marginally likely. The cleaners used are all food grade and the filters located within the extractor would eliminate any unacceptable contamination with debris and an outside company maintains rodent traps on a monthly basis.

With the introduction of Carbon Dioxide into the system, a chemical hazard may exist if the Carbon Dioxide is contaminated with unfavorable chemicals, however the Carbon Dioxide used is tested and certified to be beverage grade by the supplier, eliminating any chemical hazards at this point.

No other CCPs exist due to the completely closed system in which the extraction takes place.

### **Drums**

This audit was conducted in conjunction with the extraction audit. The Extract Plant Manager was contacted originally to help outline the process in a flow diagram. After the process flow diagram was completed each step was examined for hazard identification. The Extraction Supervisor was consulted on the possibility of hazard introduction. No contamination was found to be likely or applicable to this process and therefore, no CCPs are present.

### **Extract Packaging**

This process was audited in conjunction with the extraction and drum packaging. The Extract Plant Manager supplied the necessary information for the outline of the process. From this, an independent hazard audit was conducted to find possible points of

hazard introduction. The Extraction Supervisor then assisted in hazard identification. However, due to the nature of this process and training of the personnel responsible for extract packaging, no CCPs were discovered. The likely occurrence of hazardous contamination is minimal.

### **Cryo**

The Cryo Manager was consulted, and team created, flow charts, hazard analysis was created and reviewed for accuracy as the team reviewed each step of the current process. A walk through of the process was completed and the team found no CCP's to be assigned.

### **Downstream Processing**

This process was audited with the assistance of the operators. The auditor had been part of the start-up team the previous year and has profound knowledge of the system.

No lubricants, tools, or debris are allowed anywhere on the operating deck. All process chemicals are food grade. Excess chemical contamination by these process chemicals is not possible when product complies with specifications for commercial sale. All food grade caustic and acid are largely neutralized in process. There is also no possibility for biological hazards as there is no source of contamination.

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