

March 24, 2020

Dear Customer,

We wanted to address you in this national emergency to provide you some ideas about ways you can help meet the requirements for several items that are essential in the protection and prevention against the coronavirus and other diseases.

Breweries and Wineries switching to produce hand sanitizer

Did you know that distillers around the world are switching to produce hand sanitizer or ethanol to fight the spread of Coronavirus?

Did you know that some breweries and wineries around the world are joining this cause also?

We know that breweries and wineries are not distilleries, but we think that we must break a few paradigms to achieve it.

Here's an example from Manila: <https://www.youtube.com/watch?v=pNRvQShZ2cA>

Here are some ideas from TPT:

Using the same equipment to produce wine/beer, we can make a two-step of the process (We will talk about the third stage later):

- **Creating wort and fermenting it**

Anything with cheap starch can be an input into the process, such as: Glucose, dextrose, corn sugar, rice, wheat, molasses, etc.

In theory, yeast converts the sugar into ethanol.

$C_6H_{12}O_6$ (180 gr.) ----- $2 CH_3CH_2OH$ (92 gr.) + $2 CO_2$ (88 gr.)

Remember that only fermentable sugars are converted to ethanol.

A "rule of thumb" is: $1^\circ\text{Baume} = 1.8^\circ\text{Brix} = 1\% \text{ potential alcohol}$.

That means: 180 gr. of fermentable sugar can produce 10 -10.9% of ethanol (%v/v) or

260 gr/Lt can produce 14.4 – 15,8 %.

- **Distillation of the fermented wort**

With a distillation process we can produce 70% alcohol using the fermented wort that has 15% alcohol.

The Alcohol and Tobacco Tax and Trade Bureau (TTB) is making it flexible to produce hand sanitizers, you can check here:

<https://www.ttb.gov/public-guidance/ttb-pg-2020-1>

If you are not familiar with the distillation process, please watch the following video on YouTube that explains in a very simple, clear and concise way, the process and the equipment necessary.

<https://www.youtube.com/watch?v=8j43bqYVZOY>

After watching the video, you will understand that sophisticated and expensive distillation equipment is not needed. We only seek to have 70% ethanol, therefore with the components that you have in your plants, such as beer kegs, tri-clamp spools, fittings, valves and some inputs that you can find in hardware stores such as copper tube, copper mesh, etc. you can manufacture your own distillation columns quickly and economically.

If you do not obtain the necessary permits, you can work along with the distilleries closest to your facilities and supply them with the fermented wort necessary. Remember that the bottleneck in the fermentation processes is determined by the fermentation time and installed capacity of fermentation tanks. If the distilleries are dedicated to distilling and the breweries and wineries are dedicating to provide them with fermented wort, we can streamline the process.

The ethanol produced at 70% can also be used as an alternative in the disinfection process which is so important and so necessary in this health emergency.

Legal considerations if you decide to make the switch:

You will need to get a permit and be designated part of the essential production chain in the country. You also need to comply with all the sanitary guidelines as well as bio safety requirements to protect the integrity of the final product and the health of your staff.

For up to date information regarding State and Federal guidelines for your area refer to the following:

- The Alcohol and Tobacco Tax and Trade Bureau (TTB) – Distilled Spirits regulations
- State laws
- EPA

In this very difficult and world changing times, we just want to leave you with this thought:

“Ask not what your country can do for you – ask what you can do for your country.” - John F. Kennedy

Best Regards,

Mario Paz

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