



BrewTimes™

MARCH 2023



BALAJI ENZYME & CHEMICAL PVT LTD

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Introducing BrewTimes :

We **M/s Balaji Enzyme & Chemical Pvt Ltd**, are pleased to bring to you our March 2023 month edition of BrewTimes.

We would like to use this platform to introduce our association with BetaTec, UK for their natural solutions for ethanol recovery in grain and molasses distilleries. The product is revolutionary and unlike any in the market is 100% natural and antibiotics free. Vitahop series of products helps in ensuring optimum yield and keeps the yeast healthy all naturally.

We are extremely proud of announcing our association with IIT Bombay Research Park. We have begun a journey together to work on sustainable, reliable and innovative solutions for the Food and Beverage Industry.

About Our Company :

We **M/s Balaji Enzyme & Chemical Pvt Ltd** are a leading supplier of Enzymes, Filter aid, Yeast, Hops, Processing aids, Clarifiers and food fortification products to breweries, distilleries, malt extract industry, starch industry, juice and beverage industry, and other food industry.



HopAid® Antifoam

Purpose

HopAid® Antifoam is used during fermentation to prevent excessive foam formation. It can be used for top and bottom fermented beers in all kinds of fermenters. Produced with deionised water and hop extract is considered food safe in both USA (GRAS) and EU.

Product Specifications

Appearance:	Creamy pale yellow emulsion
Odour:	Slight odour of hops
Solids:	< 12%
Yeast and Moulds*:	< = 10 cfu/g
TVC*:	< = 100 cfu/g
Centrifuge Test:	Pass / Fail

* Values monitored on a regular basis but not on every batch.

Composition

Ingredient	Range
Hop Extract fraction	5 – 10 %
Food grade emulsifier	0.1 – 2 %
Water	Balance

Application

HopAid® Antifoam should be dosed into cold wort. Either inline or, alternatively, dosed into the fermenter before the cold wort is transferred. This will ensure good mixing with the wort which is essential for optimum performance. Dosing into hot wort will lead to unpredictable losses in the hot trub.

Depending on the brewing recipe and fermentation regime the dose rate for most applications will lie between 5 and 50 g/hL. For a normal strength lager type a starting dose rate of 20 g/hL is recommended. However, fermentations with high levels of foam stabilizing substances such as hop acids and proteins, dark malts and higher fermentation temperatures may require higher dosing

rates. Products with high levels of adjuncts may require lower levels of HopAid® Antifoam addition. If the brewer is using a synthetic, silicone based product the dose rate can be used as an indication. In most cases HopAid® Antifoam should be dosed at 2x the concentration as the Silicone based product.

Effect of HopAid® Antifoam on the final beer

Technical studies and feedback from customers have not shown a negative impact on final beer foam, in fact some data suggest a positive one.

HopAid® Antifoam: Yeast and pH

Yeast removes the vast majority of the active components by adsorption on to the cell wall. Any remainder may be removed by filtration.

HopAid® Antifoam is incompatible with strong acids and bases.

Strong acids and strong bases will damage the antifoam, so HopAid® Antifoam should not be added to yeast directly after acid washing of the yeast. Beer pH is fine.

Trial Design:

The trial should consist of 2 initial trial fermentations, both with the same volume of wort and in tanks with the same dimensions. To the first fermentation no HopAid® Antifoam should be added (control sample) and the foam height should be monitored. Ensure that the tank is big enough to include the foam built in the control sample. The second fermentation with HopAid® Antifoam, added in the recommended starting dose rate, should use the same wort volume. To understand the required dose rate and the effects of HopAid® Antifoam, it is important to measure the following attributes if possible:

- Foam height in fermentation tank
- IBUs of the beer
- % of attenuation
- Beer foam stability

Safety

There are no known health hazards for this product. Please consult safety data sheet for full information.

Packaging

HopAid® Antifoam Antifoam is packaged in 1 kg Tetrapacks and 10 kg aluminium foils.

Transport

Transport temperatures should be maintained above 0°C to ensure the product does not freeze

Storage

Ideally store away from direct sunlight and between 5°C and 20°C if unopened. HopAid® Antifoam can be stored in the original unopened containers for up to 15 months. Do not freeze as this will cause the emulsion to collapse. If this occurs the product can be redispersed by shaking to restore its antifoam capacity. Open containers should be stored cool (+5°C) and used within 2 days.



Vitahop®

Increase profits in BIOETHANOL...naturally

Vitahop® is a range of natural hop extracts, ideal for production of bioethanol from a range of raw material feedstocks, as they protect yeast from bacterial growth, and their acid by-products, during fermentation processes. When used as part of a planned process regime with regular additions, bacterial infections do not develop and spoil yeast fermentations.

When infections do develop, they can quickly get out of control and disrupt production, potentially causing substantial losses and lost revenue. By controlling bacteria and preventing bacterial growth, catastrophic infections can be a thing of the past.

Vitahop® is used in both continuous and batch fermentations. It helps ensure healthy, vitalised yeast growth and during fermentation suppress gram positive bacteria. If bacteria are allowed to prosper, they will compete with and eventually inhibit the yeast, slowing fermentation sometimes to a complete stop, resulting in a “stuck” fermentation. Bacteria will also use up valuable feedstock producing organic acids such as lactic acid, further reducing ethanol yields. Prevent this happening with **Vitahop®**.

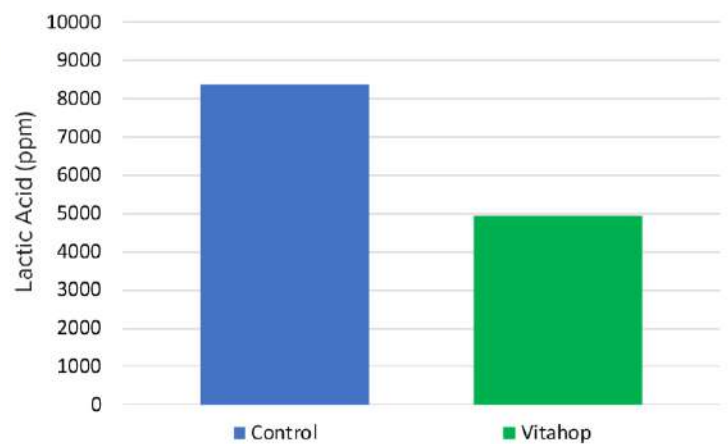


Key Benefits of Vitahop®

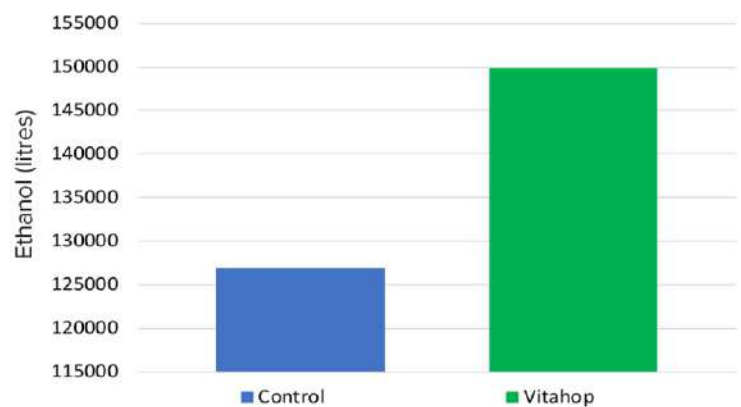
- Maintains optimum ethanol yields
- Ensures reliable fermentations
- Keeps yeast healthy
- Controls bacteria
- Demonstrated benefits in ethanol production plants worldwide
- Safe and natural, easy to use
- Safe DDGS for animal feed
- A natural alternative to antibiotics



Effect of Vitahop® on Average Lactic Acid Production at Fermenter Drop



Effect of Vitahop® on Ethanol Production



Unpublished data BetaTec 2015



BetaTec is the first company worldwide specialising in the application of hops and hop-derived compounds for use in “beyond brewing” industries. Our product portfolio includes natural fermentation aids, antibacterials, flavours and functional ingredients. Our key business areas are alcohol, yeast and sugar production.

All BetaTec products are accompanied by on-site support, process optimisation and consulting.

Please contact our technical experts to learn how Vitahop® can help you sustain improved ethanol yields.

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BetaTec® 
hop products

“Transforming your world with our natural hop solutions”



BetaStab® XL

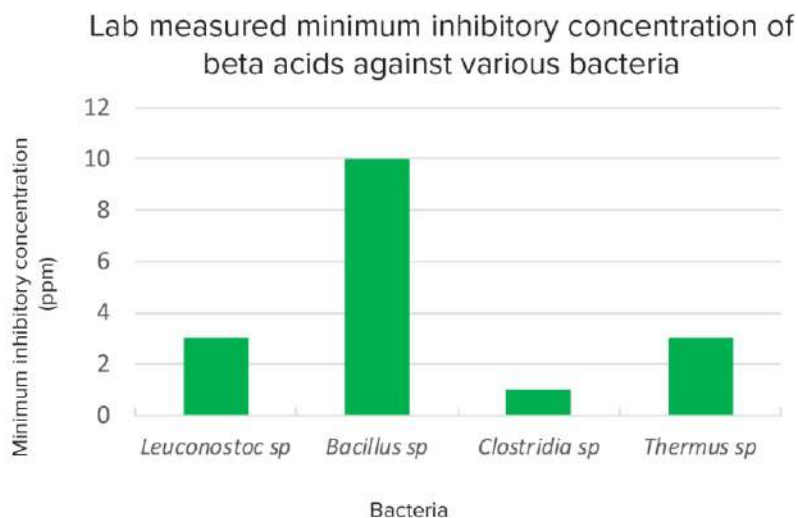
Reduce your sugar losses ...naturally

BetaStab® XL controls problematic Gram positive bacteria found in sugar extraction

Microbial sugar losses are a major problem in sugar production resulting in lower yields, increased processing problems and higher impurities such as lactic acid and dextran.

The hop product BetaStab® XL is a natural food processing aid. For more than 10 years it has proven effective at controlling bacteria in factories worldwide and is a cost effective alternative to synthetic biocides.

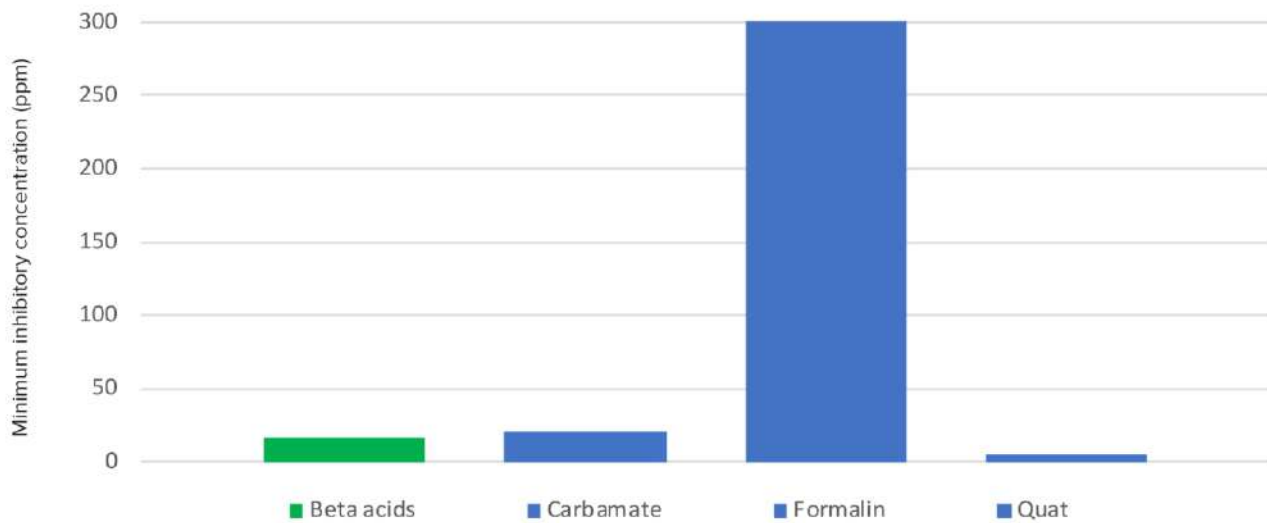
Our product can be applied during the production of sugar from either beet or cane. It is an aqueous solution of natural hop acids and is active over a wide range of temperatures and pH values.



Key advantages of BetaStab® XL

- Active against bacterial contamination at ppm levels. Immediately stops bacterial growth
- Control of lactic acid, dextran and nitrite production
- Effective over a range of pH values and temperatures
- Demonstrated activity in sugar cane mills and sugar beet factories worldwide
- Cost effective alternative to synthetic biocides
- Can be used in thick juice storage, prolonging storage times
- Products are water based for ease of dosing
- Safe to handle and non-corrosive to equipment
- Coproducts suitable for animal feed
- Residues are beneficial for yeast and ethanol fermentation processes

Comparison of Biocides against *Bacillus stearothermophilus*



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hop products

“Transforming your world with our natural hop solutions”

Levasil BF30

Colloidal silica

Levasil BF30 is an alkaline, aqueous dispersion of colloidal silica that is approximately 30% solids by weight. The silica dispersion is sodium stabilized and the amorphous silica particles carry a negative surface charge. The silica particles are discrete, have a smooth, spherical shape, and are present in a narrow particle size distribution. The particles have also been surface modified with aluminum. The physical appearance of the dispersion is an opalescent liquid, slightly more viscous than water.

CAS number
7631-86-9

Characteristics

Silica	30 wt%
Density	1.2 g/cm ³
Specific surface area	160 m ² /g
Surface area, via BET	200 m ² /g
pH	9.5
Viscosity	5 cP
Na ₂ O	0.3 wt%
Al ₂ O ₃	0.1 wt%

Applications

Levasil BF30 is a specialty product designed primarily for the beverage fining market and is very low in trace metals.

Storage

Levasil BF30 should be transported and stored at a temperature of 5-50°C (40-120°F). If the silica dispersion is allowed to freeze, the silica will irreversibly precipitate. For bulk storage, the tank should be sealed and constructed of plastic, fiberglass reinforced plastic, or stainless steel. For packaged goods, any translucent packages should be stored out of direct sunlight or bright light. Under recommended conditions, Levasil BF30 has a shelf life of at least eighteen months after production.

Packaging and transport

Levasil BF30 has European availability in bulk and world-wide availability for packaged quantities.

Safety and handling

Before handling this material, review the corresponding Material Safety Data Sheet. Colloidal silica products are aqueous dispersions of amorphous silica. Colloidal silica is not classified as harmful, but as mildly irritating. Because the products can have a drying effect on the skin, protective gloves should always be used. In case of skin contact, wash the area of contact with plenty of water. The use of safety glasses is always recommended. In case of eye contact, rinse with large amounts of water and seek professional medical advice.

All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable. Nouryon, however, makes no warranty as to accuracy and/or sufficiency of such information and/or suggestions, as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. Nouryon does not accept any liability whatsoever arising out of the use of or reliance on this information, or out of the use or the performance of the product. Nothing contained herein shall be construed as granting or extending any license under any patent. Customer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes. The information contained herein supersedes all previously issued information on the subject matter covered. The customer may forward, distribute, and/or photocopy this document only if unaltered and complete, including all of its headers and footers, and should refrain from any unauthorized use. Don't copy this document to a website.

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Nouryon

PACKAGING



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Introduction

“Packaging means all products made of any materials of any nature to be used for the containment, protection, handling, delivery, and presentation of goods”.

Beer has some additional requirements when it is packaged, which do not necessarily apply to all foods and drinks.

First, pressure; a beer package needs to be able to withstand the pressures generated when a carbonated liquid is heated, either during pasteurization or when transported at high ambient temperatures.

Second, light; beer is degraded by sunlight and this must be avoided. Surprising then that glass is so often used for packaging. By using colored glass together with additional external protection and covered transport, this problem can be largely avoided.

Finally, impermeability to gases; it is vital that the gas composition of beer is not altered in its package. This means not only preventing CO₂ from getting out, but also preventing access of oxygen.

Packaging is the most expensive aspect of brewing, representing up to two thirds of the cost of beer production. It is also one of the least forgiving steps in the brewing process.

A perfect batch of beer can be ruined in nanoseconds by microorganisms on the nozzles or too much oxygen making its way into your bottles or cans. Foreign objects, like glass, can get into the finished product and to the consumers. Too little glue on the corrugated boxes can send the product (and profit) crashing to the ground.

A properly design package must enhance the value of its contained product and impact an impression, directly or delicately, on the consumer. Understanding this is paramount to understanding packaging. Packing is not equivalent to packaging. A package's purpose is to move goods through a distribution system to the consumers. On the other hand, packaging is the term used by the marketing for the consumer – “buy our product, please.” Packing is, simply, a tool of packaging.

Packaging must accomplish the four goals:

1. Packaging has to contain and protect the product.
2. It must be useful and convenient to the consumers.
3. It must communicate the contents.
4. It must motivate consumers to purchase the product.

Each of these must be balanced to provide most desirable result.

Packaging Materials

The materials used for packaging beer are widely used elsewhere, but there are certain nuances in the way beer is packaged that make it distinct. None of the primary materials used have ideal properties, but our packages are designed to make the best of what we have.

Glass has several drawbacks. It does not have an easily printed surface, so we use labels. It is not opaque, so colored glass is generally used to protect the beer. It is also heavy and breakable. However, on the plus side, it is inert, attractive, reusable, and well established.

Steel and aluminum fit the ideal more closely, but need to be coated in various ways to make them inert and to facilitate printing and decorating.

Plastics have had limited success for beer, although polyethylene terephthalate (PET) has been tried. It works for soft drinks but PET cannot be pasteurized as a whole package. Its barrier properties are not quite good enough for a sensitive product such as beer. This is an area where research is ongoing and it may eventually change the market.

Wood is the traditional material for casks but the difficulties with cleaning means that it has given way to metal containers that are lighter, stronger, and easy to clean.

For secondary packaging, there is nothing unique to the brewing industry - although for kegs and casks there are some distinctive shapes for palletizing. The trend in materials for secondary packaging has been to move away from wood and corrugated board. Plastic sheeting and paperboard have come more into use. These materials can enhance the appearance of a pack and assist in marketing. They also improve the strength-to-weight ratio, particularly for plastic shrink wrap, and this has helped overall in producing more durable and lighter packs and usually at a reduced cost.

Packaging and the Brewing Industry

Packaging is of enormous importance to the brewing industry for a variety of reasons, and this will probably increase. Brewing has moved, over the last century, from being a small-scale industry where the product was consumed from glass bottles, cans or kegs to a large-scale industry where beer is transported huge distances. The product is expected to be uniform with a long shelf life rather than being instantly consumed before it can deteriorate. Therefore, it is vital that beer quality is maintained and this has become a huge technical challenge.

Glass Bottles and Bottling

Glass

Glass has been used as a packaging material for centuries and its use for beer goes back a long way. Its use in brewing increased rapidly with the mechanization of the glass molding process about a century ago. Bottles for beer are a major part of the glass market in most countries.

The three main colors for beer bottles are clear (white flint), green, and amber. Color is important from the quality viewpoint with beer.

Colorless (White Flint) Glass

To obtain completely clear glass, it is necessary to have raw materials with no impurities. The main impurity is usually iron oxide and its levels need to be below 0.04%, otherwise the glass has a blue-green tinge. To a certain extent this can be neutralized by adding "decolorizers," which are traces of cobalt and selenium.

Green Glass

Green glass is obtained by adding small amounts of iron oxide and chromium oxide to the melt. Iron oxide on its own gives a pale green color at levels of about 0.15%.

Amber Glass

Amber is probably the most common color for beer bottles and is obtained by adding carbon as a reducing agent to a glass melt with moderate levels of iron oxide. It also requires a trace of sulfur.

Crowns

Metal crowns for bottles have dominated the around the bottle top, the outer edge has 21 serrated “teeth” and the underside is coated with a flowed-in plastisol liner.

Nowadays, crowns are manufactured by the billion all over the world and are regarded as the standard closure for beer and soft drinks bottles. They have the benefit of low cost, reliability, convenience, and pressure resistance. In addition to the universal prize-off crown, there is also a significant market for twist-off crowns. Crowns are made of low-carbon steel or sometimes stainless steel which is supplied as sheets usually with a thickness of 0.24 mm, although other sizes are also used.

Adhesives

The majority of labels in use are still paper based, and wet adhesives are used to stick them to bottles. These adhesives fall into two main categories:

1. Casein - These casein-based adhesives have the advantage of being removable by caustic in a bottle washer. They are fast setting and still work below freezing point.
2. Resin-based adhesives are derived from starches and dextrans and are also soluble in dilute aqueous ammonia. They tend to be used with non-returnable bottles. A problem with returnable bottles is label removal and this is hindered if the adhesive or paper is resistant to wetting as a result of paper coating or lamination.

Bottling Plant

Bottling machinery has evolved over a considerable number of years but continues to change as the demand for increased speed, quality, and level control gets ever greater. Progressive improvements in automation have meant that numbers of operators have steadily fallen from dozens to a mere handful. The stages in the operation of a bottling line are as follows:

- Offload empties
- Wash/rinse empties
- Inspect empties
- Fill and crown
- Pasteurize
- Contents check
- Label and inspect
- Cartons packer
- Palletize

There are two main types of plant, returnable lines with a bottle washer and nonreturnable lines with a rinser only. In practice, however, lines often have both facilities.

Bottle Rinsing

New nonreturnable bottles have very little in the way of contaminants, but in order to ensure cleanliness they are normally rinsed before filling. Rinsers come generally in two forms, a rotary machine where the bottles are gripped at the neck and then inverted for spraying, and linear machines with an inverted belt where the bottles are gripped at the neck, inverted, and rinsed, and then placed back on a conveyor.

Bottle Washing

The washing of beer bottles on a returnable line is a major component of the operation. There are a number of variables that can affect the operation:

- Temperature
- Detergent strength and composition
- Bottle condition
- Water quality
- Contact time

Bottle washing machines are designed to clean the bottles by a combination of steeping and jetting, so that heat, chemical, and mechanical actions are used to remove labels, glue, foil, dirt, and residual beer. The combination of soaking and jetting is the norm in today's machines. Bottle washers are large machines and work by loading up rows of dirty bottles into pockets on a continuous carrier chain, where they are held until they are discharged clean at the end of the cycle. There are two basic types of machines:

- Single ended—where the loading and removal of bottles is done at the same end. One operator can easily monitor these machines.
- Double ended — where the discharge end is at the opposite end to loading.

Bottle Filling

Large-scale bottle fillers are always rotary machines and the size is related simply to the desired capacity. The largest machines can have about 200 filling heads, be around 5 m in diameter, and produce up to 100,000 bottles per hour. Various ways of filling bottles are used, but in brewing it is always by using gas counter pressure to keep CO₂ in solution and also by the iso-barometric method, that is, the bottle pressure is the same as the counter pressure on the beer supply, so beer runs into the bottle effectively by gravity. Bottle contents are controlled by filling to a predetermined height, but recently filling by volume alone has become available. Because of its carbonation, beer is always filled cold between 0 and 3 °C.

The main process objectives during filling are:

- No product loss
- Consistent contents
- No microbiological (or chemical) contamination
- No loss of CO₂ or pickup of oxygen

Air Evacuation

Older bottle fillers filled beer against CO₂ counter pressure, but, not surprisingly, it was found that bottle air contents were too high due to the air in the bottle not being removed. Modern fillers have a vacuum system installed that evacuates about 90% of the air in the bottle before counter pressuring, which reduces potential air pickup by a factor of nearly 10. Most recent fillers do this operation twice to get the air contents down to levels of about 20–40 ppb.

Filling

Filling the bottle as it rotates on the filler head takes up about half the available time and there are essentially two different ways of doing this, that is, long tube and short tube.

The older method of filling is with a long tube that descends almost to the bottom of the bottle. Beer is run into the bottle from the filler bowl under the CO₂ counter pressure of about 1–1.3 kg/sq. cm and residual gas goes out by way of a vent tube near the top of the bottle. This long tube method is relatively slow because of its length and the diameter being restricted (10–12 mm), but oxygen pickup is quite low because of the quiet filling conditions with the submerged tube.

Fillers with short tubes give a greater throughput because the tube is for venting displaced gas, and beer goes down the outside of the tube. To avoid turbulence, the tube has a conical section on the outside and this deflects beer so that it runs quietly down the bottle walls.

Crowners

Crowns should be applied to bottles as quickly as possible after filling to keep air contents down and prevent loss of beer. As a result, it is usual for crowners to be situated close downstream from the filler, and they are frequently integrated into the filler bloc to get full synchronization of the two operations.

Use of Antioxidants

Addition of ascorbic acid (vitamin C) as antioxidant is possible for preservation. Primarily, it is used to protect the colour. Antioxidants can be used according to legal regulations.

A certain concentration of vitamin C gets lost even during the storage phase due to oxygen inside the packaging and dissolved in the product. This loss needs to be considered in the formulation. Higher additions are thus necessary, which need to be determined in advanced in stability and load tests. The amount which is necessary to dose to achieve a detectable antioxidative effect.

Use of Preserving Agents

The corresponding statutory threshold values for permitted acids are in force for the preservation of food stuffs.

Effective conservation of sugar-sweetened beer-based mixed drinks with preserving agents may not be sufficient and should be verified accurately. The conservation of the raw materials is advisable since the microbiological stability can just be ensured during fractional removal in the bottling factory.

The most effective method for stabilizing the final beer is generally pasteurization of the filled bottles. It needs to be taken into account that with high sugar concentrations, higher pasteurization unit (PU) values need to be applied than common in beer production. Due to the increased thermal load, the CO₂ concentration of the beer needs to be adjusted because of high pressure in the bottles. This can also have an influence on the filling level. It might be necessary to change the parameters usually used during beer filling.

Thermal Processes-Pasteurization

The heat treatment of foods and drinks in order to kill off spoilage organisms' dates back to the groundbreaking work of Louis Pasteur in the 1870s. He found that heating beer to temperatures between 50 and 55 °C was sufficient to preserve it. Within a few years the term "pasteurization" was coined and a number of food and drink industries adopted heat treatment as a means of preserving their products and this is still standard practice today. Not all materials respond to the same temperatures. Milk and foods need to be heated to quite high temperatures.

Theory of Pasteurization

The basis of pasteurization is establishing the minimum time and temperature required to destroy all expected biological contaminants at the highest concentrations at which they may occur in filtered beer. Different food products have different requirements for pasteurization, and those that can contain spore-forming bacteria require much higher heat treatment than beer. Mixed populations of common brewery contaminating organisms were subject to a range of times and temperatures in beer (Figure 1, known as a lethal rate curve) and were examined for subsequent viability. Typically, at temperatures of over 50°C an increase in temperature of 7°C accelerated the rates of cell kill by 10 times. Therefore:

- 53°C: minimum time to kill population 56 minutes
- 60°C: minimum time to kill population 5.6 minutes
- 67°C: minimum time to kill population 0.56 minute

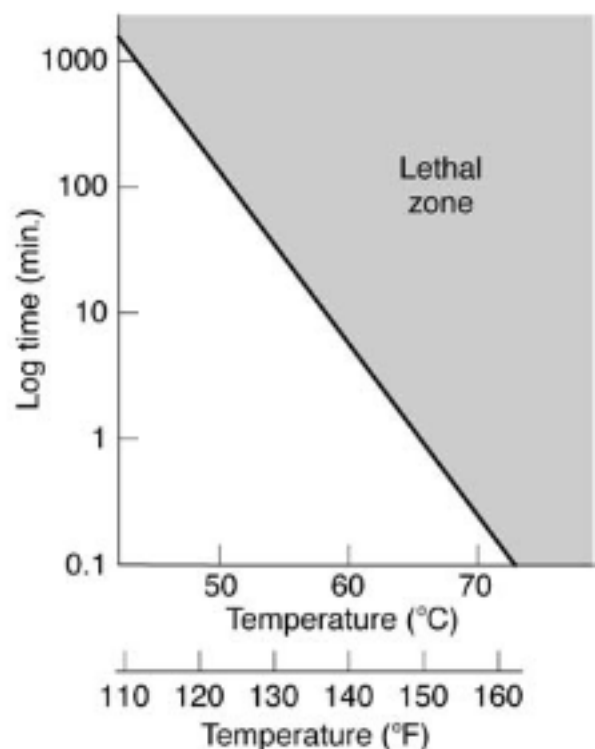


Figure 1: The effect of time and temperature on the viability of a mixed population of yeasts and brewery bacteria. The hatched area shows the range of conditions where all cells are killed (Hough et al., 1982)

Pasteurization Units

One pasteurization unit (PU) for beer has been arbitrarily defined as the biological destruction obtained by holding a beer for one minute at 60°C. Therefore, in Figure 1, the point at which the line crosses the 60°C line gives the thermal resistance of the particular suspension of organisms, this is 5.6 minute and so to achieve effective pasteurization the holding time at 60°C must exceed 5.6 minute. The slope of the line in Figure 1 is known as Z value. The lethal effect (PU) is simply the product of the lethal rate and the time of application. The lethal effect at various temperatures in a process is additive, therefore the sum of the lethal effect is the quantity of sterilization achieved:

$$\text{Lethal Effect} = L \times t \text{ (PU)}$$

Where,

L = Lethal rate

T = Time held at temperature T°C

$$L = 1/\text{Log}^{-1}(60 - T/Z)$$

In practice, heat treatments aim to give at least 5 PU and 10–30 is normal. Until the 1950s, the time–temperature relationship was not well understood, and brewers pasteurized their beer largely based on past experience. Around this time, a number of researchers started to look at different spoilage organisms and the effect of various temperatures. It was found that there were differences between organisms, as mentioned previously, and that the temperature effect was exponential, which is not surprising. The effect was not quite the same for all organisms. By plotting a graph of logarithm of time against temperature, a straight line was obtained. As a result of this work two main factors were devised to describe the heat effect:

1. Decimal reduction time. This is the time needed to kill 90% of organisms at a given temperature. This varies with the organism and typical D-values at 60 °C are 1–5 min, with 2 min being the average.
2. Temperature dependence value Z (°C). This is the temperature increase needed to reduce the D-value by 90%. Again, this varies with the organism. Values range from 3 to 8 °C and the average accepted value is 6.94 °C (~7 °C).

From these two factors a formula is derived to describe the PU in which 1 PU is defined as holding beer at 60 °C for 1 min and the relationship with temperature is:

$$\text{No. of PU} = 1.393^{(T-60)} \times \text{time (min)}$$

The numbers of PUs delivered at a range of temperatures over a 1-min period are shown in Table 1. From the figures in Table 1, it can be seen that a 20-min hold at 60 °C will deliver 20 PUs to a packaged beer, while 20 sec at 72.5 °C will do the same for bulk beer going through a flash or plate pasteurizer.

Table 1: The Number of PUs Delivered at a Range of Temperatures over a 1-min Period

Temp. (°C)	PU
60	1
62	1.9
64	3.7
66	7.2
68	14
70	27
72	52
72.5	62

In practice, pasteurization falls into two categories: flash pasteurization and tunnel pasteurization. Flash pasteurization is always used for keg beers (unless sterile filtration is used), as it is not possible to pasteurize such large containers, although it has been tried! Flash pasteurization is also used for some bottle and can filling operations and is needed when filling pressure-sensitive containers such as PET. This technique has the advantage that the capital cost of installation is not particularly high and the plant does not take up a lot of space.

Tunnel pasteurization is used on bottles and cans and is the most reliable way of producing long shelf life products in these packages as all parts are treated. It relies on a lower temperature than flash pasteurization spread out over a longer time (up to 1 hr) because of the time taken for heat to penetrate the package.

The effect of temperature on beer flavor is not entirely clear, apart from the fact that high oxygen levels and pasteurization do not go together. A stale, bread-like flavor is often the result. By keeping dissolved oxygen levels to a minimum, and by using only modest levels of pasteurization, it is possible to produce beers that can stay commercially acceptable for weeks or months. There is also some controversy over whether flash pasteurization is more or less damaging to flavor than tunnel pasteurization. Over pasteurization by either method is deleterious.

Tunnel Pasteurization

Tunnel pasteurization is similar to flash pasteurization in that it involves heating the package to the correct temperature, holding at that temperature, and then cooling down. The timescale is very much longer, however, up to 1 hour, and the peak temperature achieved is lower, at about 60°C. There are a number of reasons why this long-time span is needed. First, the rate at which heat is conducted through a container wall and then through the contents is quite long. There is a “lag” of about 10 min in this heating process. Second, with bottles, a rapid temperature rise would cause thermal stresses that could result in the bottle bursting. Third, there is a steep pressure rise when a highly carbonated package is heated and again there is a risk of bursting (Figure 2).

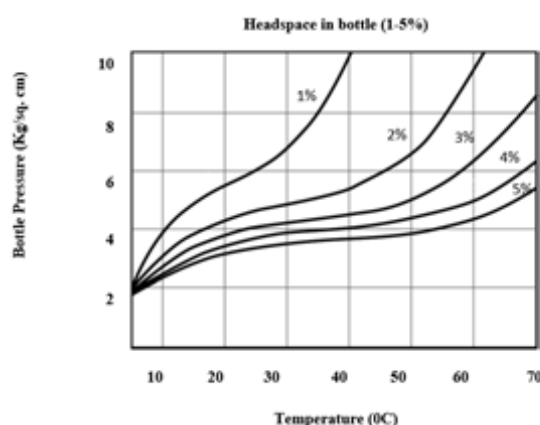


Figure 2: Relationship between headspace and bottle pressure

Bottles have a wide range of failure pressures and cans are specifically designed and manufactured to withstand only 6 Kg/sq. cm. For these reasons, a low temperature–long time profile is the only practical option to achieve the desired PUs (usually about 10) evenly distributed throughout the container.

Tunnel pasteurizers are very large equipment. It consists of a very long enclosed chamber where cans or bottles are fed in at one end on a conveyor, heated and cooled as they travel through, and emerge from the other end. Frequently, it has two decks to save space. The two main components of the pasteurizer are the water spray and circulation systems and the package transport system.

The Water System

Pasteurizers are prone to corrosion and slime growth due to the warm damp conditions and it is necessary to add inhibitors to control both of these. Another way to suppress slime is to circulate hot water through all of the sections. The use of inhibitors with cans needs to be done with care since the decoration occasionally suffers if the concentrations are too high, and the cans would be unfit for sale.

Blocked spray jets are a distinct quality hazard in pasteurizers as they will lead to under pasteurization. This occurs due to scale or slime build-up and is best countered by regular inspection of the water tanks underneath and by internal inspection of the machine. Cold spots due to blocked jets or other abnormal flow conditions can be picked up by using a traveling recorder and placing it at different points across the pasteurizer.

Flash Pasteurization

Flash pasteurization involves using a plate heat exchanger to rapidly heat the beer up to a temperature of about 70 °C, hold it at this temperature for some seconds, and then chill it down again ready for packaging. In practice, the plates in a pasteurizer are sized to give a substantial degree of heat recovery (90–95%). When the incoming beer comes out of the regeneration section, it helps if it is close to its final temperature so that this final heating step can be better controlled. The holding tubes on a pasteurizer usually consist of an elongated spiral of 100- or 150-mm pipe in sections with narrower connections. The most practical holding time is generally 20 sec, so to achieve 20 PU in the beer a target temperature of 72.5 °C would be used. This time span allows good control without the need for huge holding tubes. Brewers seldom use less than 10 PU for flash pasteurization and 20–50 is more common.

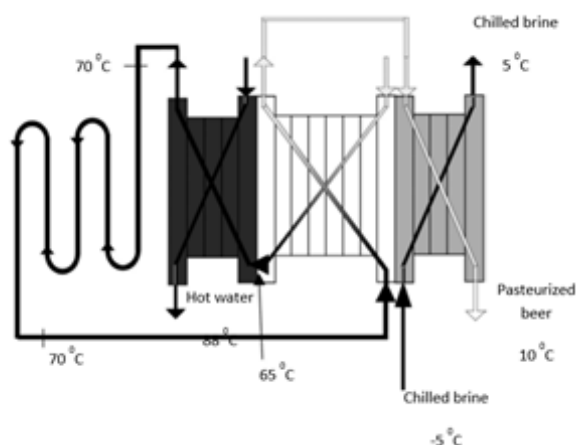


Figure 3: Schematic Representation of a Flash Pasteurizer.

Quality Safeguards

There are a number of practical difficulties in operating a pasteurizer that could be serious if allowed to continue. The all-important thing is to ensure that the beer is not under pasteurized and there are various failure modes where this could occur.

Temperature Drop

If the temperature coming out of the heating section of a pasteurizer is not high enough then incomplete pasteurization will result. This is detected by a probe, which should feed a signal back to the controller calling for more heat and should immediately put the pasteurizer onto recycle mode, taking beer from the outlet and feeding it directly into the inlet until temperature conditions are restored. Usually, prolonged recirculation is avoided by shutting down the pasteurizer if the fault is serious, such as a steam supply failure or pump failure on the heating loop.

Gas Breakout

When beer is heated to 65 °C, the solubility of CO₂ drops so low that unless a high pressure is maintained in the pasteurizer there will be a breakout of gas, filling the holding tubes with fob. This has a number of unpleasant consequences.

1. The expansion of the beer means it flows much faster through the holding tubes in a turbulent state and the beer will be under pasteurized.
2. As the foam collapses on cooling, it will probably form a haze and under these conditions it is usually permanent and visible.
3. There is also the risk that fob will dry and bake onto the holding tubes where it may eventually become infected.

Gas breakout can be avoided by good system design but cannot be completely eliminated. It is likely to occur if the beer pump fails or if the beer supply valve fails and shuts, thus starving the system. A pressure monitor should shut the system down and once rectified, the pasteurizer should be cleaned and sterilized before resuming.

Relative Machine Speeds

For bottling and canning lines, the key item of plant is the filler and other machines should be rated relative to it. The best arrangement is where the items immediately before and after the filler are capable of running about 10% faster and the next machines faster still. This is sometimes referred to as the V-Diagram (Figure 3) from the way in which the speeds look when plotted on a graph with the order of the machinery. A typical example is given next for a bottling line.

Equipment	Relative Speed (%)
Bottle Washer	110 - 115
Filler	100
Pasteurizer	110
Labeler	110 - 120
Case Packer	120 - 125

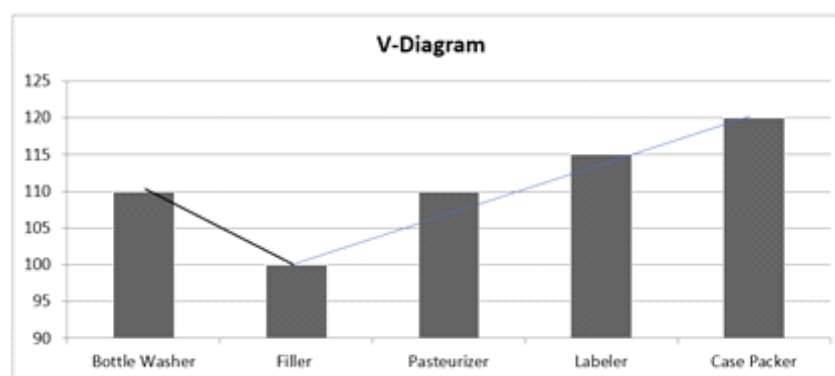


Figure 3: Relative Machine Speed

This arrangement of relative speeds means that the line is in a state of compression before the filler with the conveyors usually full, but after the filler bottles are being taken away faster than they can be supplied. This makes the filler the pinch point on the line, but there are good reasons for doing this.

1. Cost
2. Beer quality

In summary, it can be seen that beer packaging is of great importance and the most expensive part of the whole process. It has changed greatly over the last 50 years, and this will continue. Quality, economics, new technology, and the drive for increased market share and profit will keep this area in a constant state of change.

Warehousing and Distribution

Finally, it is important that the beer is distributed to the consumer in top condition. Today, this is an increasingly complex operation and the supply chain is a key element of successful distribution. Nevertheless, we must remember that an excellent product in the brewery does not necessarily mean that it will still be excellent when it reaches the consumer and that large companies in particular have struggled because the beer is in the wrong place at the wrong time. So, careful attention to logistics and supply chain is essential to both the large international and small breweries.

Conclusion

Packaging is a vital part of the brewery operation. The rise in the drinking beer at home and the influence of retail supermarkets has meant that effective packaging of beer in bottles and cans is essential to catch the eye of the purchaser. Huge amount of money is spent by multinational companies (MNCs) on packaging developments, certainly much more than is spent on research into processing or raw materials.

In many parts of the world, the major package remains the returnable bottles. But the local breweries are in competition with the breweries of international brands putting their traditional markets under threat by more sophisticated packaging. This has resulted in a rising of standards of packaging to preserve the market for local beers.

Brewing becomes increasingly a trans-national business and it is likely that as markets develop, the trend will continue towards packaging in non-returnable bottles, probably made of plastic. This will increase the pressure on effective ways of recycling the empty package.

References

1. Handbook of Brewing, Edited by William A. Hardwick
2. Brewing – A Practical Approach, Bijay Bahadur, 2016
3. Handbook of Brewing, Edited by Fergus G. Priest & Graham G. Stewart
4. Handbook of Brewing, Edited by Hans Michael Eblinger

A PRACTICAL APPROACH TOWARDS USING CHEMISTRY TO SOLVE PH RELATED PROBLEM DURING MASHING



SAURABH N. PERKAR

BREWER

ALCHEMY MICROBREWERY, BANGALORE

We have read about water ion concentration, calculating residual alkalinity from it and correlating it with distilled water mash ph. And how these three parameters affect mash ph.

As we have understood earlier that water ions such as

- carbonate
- bicarbonate
- Calcium
- Magnesium
- chloride
- sulphate
- sodium

This ions plays an important role for final beer profile. Out of this carbonate/ bicarbonate , calcium and magnesium are primary ions which affects mash ph by reacting with phosphate from malt.

We had a look at how to calculate “residual alkalinity” from carbonate/ bicarbonate, calcium and magnesium. And we have understood earlier how to calculate “distilled water mash ph” from malt bill and mash thickness.

From all above mentioned parameters we get to know theoretical mash ph and with help of different salts and acids or bases we can target our desired mash ph.

But what if one day your water profile alters because of failure of r.o. system and you don't have time to check water quality and its too late to do something because you have strict brewing schedule.

Lets just assume one example for case study .

Your recorded water profile which you check periodically is as following

25 ppm carbonate
15 ppm calcium
10 ppm of magnesium

So as per that your calculated R.A. will be 0.501 meq/l. Along with that your “distilled water mash ph” from malt bill is 5.7

So with 1:3 malt to water ratio consideration your theoretical mash ph came out 5.72 with increased because of carbonate.

Now to target 5.52 mash ph you decided to supplement 0.531 gm of $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$ and 0.622 gm of $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ per liter of strike water.

But still if you want to target less mash ph target like 5.3 so now instead of using salts you chose 1N orthophosphoric acid solution. Which in this case just need to use 2.8 ml of 1N ortho phosphoric acid solution.

So you decided every thing , began with mashing but your mash ph indicated 5.7 instead of target 5.3 (shocking and dissatisfied right?)

A big question is what went wrong?

Answer to this question is , increase in carbonate hardness because of failure of r.o. system. And team fail to notice it before starting brew. In this case cause of raise in ph is increment of 121.7 ppm of carbonate hardness which can calculated from change in ph.

And another big question is which will give headache to a brewer

How to solve this problem?

Now instead of raging out, there is a simple way to reduce mash ph back to 5.3 from 5.7 using acid.

Supplementing 5.4 ml of 1N orthophosphoric acid per liter of mash water volume used already in mash can achieve this target.

So this way a brewer should solve problem with mash ph in microbrewery where everyday is a challenge to maintain desired brewing parameters.

Medicinal Benefits of Hops + Hop Tea



AKSHAT JAIN

Business Development Manager-Craft Brewing

Most of us have heard of hops because they are one of the main ingredients used in beer brewing. They give beer that classic bitter flavor, and in some varieties it can be quite pronounced. Since I love to make my own brews I've been curious about growing hops for a while now. Earlier this season we bought a start at the farmer's market, plopped it in the ground, and it was off and running in no time! But did you know that hops also have numerous health benefits and can be made into a tea? I was so happy to learn about the medicinal benefits of hops and hop tea, and now I want to share that with you!

Growing Hops

Hops (*Humulus lupulus*) are in the Cannabaceae family, which is the same family as cannabis and hemp.

One great thing about hops is that they are very easy to grow. They are a "bine" plant, which is similar to a vine but has a different growing habit. They are perfect for growing on a trellis, arbor, along a fence, or even on the side of a house or barn. Hops do have a tendency to take over a bit, so feel free to prune freely if they are going where they shouldn't.

Hops are perennial and will die back to the ground each fall, coming back up in the spring. This makes them good for growing as a natural shade provider in the summer when you still want to allow the sun to come through during the winter.

The pale green hop flower cones are what is primarily used for most applications, including brewing beer and for medicinal uses.

Medicinal Benefits of Hops

While hops are well known as being a bittering agent and natural preservative for beer, they are less known for their awesome medicinal benefits. Here are some of the powerful health benefits of hops.

The most common ways to take hops medicinally is as a tea, tincture, extract, or in capsules. For aromatherapy you can try hops essential oil.

HOPS AS A SLEEP AID

Probably the best medicinal use for hops is as a sleep aid. It is a relaxing sedative herb and is particularly effective when combined with valerian.

Hop tea, tincture, or capsules can be taken before bed to help with sleep. You can also make a sachet using dried hops and other calming herbs like lavender and chamomile to hang by your bedside.

You can even make an herb pillow using hops flowers to help you sleep. If you don't want to make it yourself you can buy a hops pillow [here](#).

So that's why I always feel sleepy after a very hop forward beer!

HOPS FOR STRESS AND ANXIETY

Beyond helping with sleep, hops are also very beneficial for reducing stress and anxiety. According to this study on the effectiveness of hops for anxiety and stress:

"In otherwise healthy young adults reporting at least mild depression, anxiety, and stress symptoms, daily supplementation with a hops dry extract can significantly improve all these symptoms over a 4-week period."

Several sources say that hops should be avoided by those with more than mild depression due to its powerful sedative properties.

HOPS FOR DIGESTION

Being a bitter and tonic herb, hops help to ease and stimulate the digestive system. Hops are perfect for making into digestive bitters and are best taken before a meal to stimulate the appetite and help with digestion. You can then use those bitters to make hop cocktails!

Drinking hop tea is another way to use hops for digestive issues, see how I make it below.

HOPS FOR THE IMMUNE SYSTEM

Amazingly, hops are also a powerful immune system booster! They have antiviral, antibacterial, antimicrobial, and antibiotic properties.

Brew up a batch of hop tea when you're feeling a sickness coming on, or take a few drops of hop tincture to shorten the duration of a cold or flu.

HOPS FOR SKIN AND HAIR CARE

Hops are high in anti-oxidants making them excellent for the skin and hair. They also have anti-inflammatory benefits, so are useful for calming rashes or inflamed skin. They would be excellent to use in an infused oil or herbal salve for skin conditions.

When hops are used on the hair they help to treat dandruff and flaky scalp, and can even help with hair loss! Some people claim that using a beer rinse makes hair shiny, likely due to the hops.

Hops are perfect for men's beard care as well! Check out these awesome hops beard products on Etsy, or you can make this cedarwood and hops shaving soap. These soaps made from beer sound really cool too!

They are also good for healing minor cuts and wounds. Try making a hops poultice next time you have an injury to help speed healing.

HOPS FOR WOMEN

Hops have historically been used for women's menstrual problems and also for women who are in menopause due to the high level of phytoestrogens they contain. They are effective at reducing the symptoms of premenstrual syndrome by reducing irritability and soothing cramps.

For menopausal women hops help to naturally regulate hormones, ease hot flashes, and calm nerves.

Because of its phytoestrogens hops should not be taken by pregnant women or young children.

How to Make Hop Tea

Making hop tea is probably the easiest way to use hops. Since we grow our own hops I prefer to use the fresh green hop flower cones when I make tea for the best flavor. But once the season is over I pick what's left and dry them for later use.

To make hop tea, simply pour two cups boiling water over 5-10 hop flower cones. The more hops you add the stronger, and more bitter, it will be. I found the bitterness to be quite mild and not bad at all, but everyone has different tastes. Adding other herbs like chamomile or peppermint will help with the flavor if needed.

As you can tell, hops are pretty amazing and have some great medicinal benefits. I hope this post has inspired you to use hops for your health, even if it means drinking an extra hoppy beer before dinner tonight!

HOPS & BENEFITS



ESHANT BHARDWAJ

**Business Development Executive,
BECC**

Hops are a key ingredient in beer, providing both flavor and aroma. These small, cone-shaped flowers are a member of the Cannabaceae family and have been used in beer-making for hundreds of years. In this article, we will discuss the benefits of hops in beer and why they are such an important ingredient.

First and foremost, hops are responsible for giving beer its distinctive bitter taste. This bitterness comes from compounds in the hops called alpha acids, which are released when the hops are boiled during the brewing process. Different varieties of hops have different levels of alpha acids, which can affect the bitterness of the final product.

But hops do much more than just provide bitterness. They also contribute a range of flavors and aromas, depending on the variety and how they are used. For example, some hops impart fruity or citrusy flavors, while others give off earthy or spicy notes. The aroma of hops can also vary widely, from floral and herbal to piney and resinous.

Beyond their flavor and aroma contributions, hops also play an important role in the brewing process itself. They help to balance the sweetness of the malted barley, and their antibacterial properties help to prevent spoilage and maintain the beer's freshness. Hops also act as a natural preservative, which is why beers made with hops have a longer shelf life than those without.

In addition to their role in beer-making, hops have a number of potential health benefits. For example, they are rich in antioxidants and have been shown to have anti-inflammatory properties. Some studies have also suggested that the compounds in hops may have a calming effect and could help to promote better sleep.

However, it's worth noting that the amount of hops consumed in a typical serving of beer is relatively small, so the health benefits are unlikely to be significant. And of course, any potential health benefits must be weighed against the potential risks associated with consuming alcohol.

In conclusion, hops are a crucial ingredient in beer, providing both flavor and functional benefits. They help to balance the sweetness of the malted barley, contribute a range of flavors and aromas, act as a natural preservative, and may even have some health benefits. So the next time you enjoy a cold beer, raise a glass to the humble hop!

BECPL TEAM AT BREWER WORLD CONCLAVE 2023 IN BANGALORE ON 23RD-25TH FEBRUARY





SACHIN MOGAL

**Technical Manager (Alcohol),
Balaji Enzyme and Chemical Pvt. Ltd.**

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IMPORTANCE OF INNOVATION IN INDUSTRIAL ENZYMES



RAGHAVENDRA SHARAN SINGH

**Sales & Technical Manager
(Alcohol Industry)**

We are at a stage of development where “innovation” is a keystone of extended economic growth and fortune. In layman terms, innovation does not only mean doing different things but it also portrays doing things differently.

Innovation is not limited to the invention of something new, but also offering it in the marketplace. It is more of an organized, human-



centered and technological lever for developing innovative culture and the global industry ecosystem.

When it is deeply inherent in the business philosophy, innovation leads to cover the entire business operation of an organization. Furthermore, with a continuous process, it advances creative thinking in every aspect of administration within an organization resulting in progressive approaches.

Significantly, innovation is the only way how a successful business responds to their current customer or organizational necessities.

Similarly, in the field of industrial biotechnology, cutting edge innovation in enzymes market focuses on the leading business trends that are making it possible to face the present and future challenges of the sectors.

The continuous evolution of enzymes is now routinely used to develop new catalysts with various applications, such as in environmental friendly production of chemicals and renewable fuels.

Like for instance, the global enzymes market size was USD 9.9 billion in 2019 and is projected to expand at a CAGR of 7.1%¹ from 2020 to 2027. With continuous innovation, there has been increasing demand from end-use industries such as food and beverage, biofuel, animal feed, and home cleaning, which is further projected to drive the market growth over the forecast period.

There are other important innovations taking place in the field of industrial enzymes. Let's have look:

- Increasing investments in research and biotechnology sector for the development of new medicines and diagnostic of solutions is one of the key factors driving the global enzymes market.
- Increasing demand for medicinal drugs, strong funding initiatives and extensive research activities are expected to drive this sector, which in turn is likely to fuel the product demand in the coming years.
- The research centers have developed proficiency in the expression and cloning of industrial enzymes in safe and suitable microbial hosts.
- Enzymes are also witnessing increased demand in paper processing, biofuels, contact lens, cleaners, rubber processing, biological detergents and molecular biology.

In a nutshell, due to constant innovation a significant growth has been observed in the enzyme industries globally which further leads to the development of many small and medium scale industries. However, the search for better enzymes, technological improvement, and an economically sound world population and rising environmental concerns will continuously be the moving force for increasing the global market for industrial enzymes.

Source:

<https://www.gminsights.com/industry-analysis/enzymes-market>

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BECPL TEAM AT VITAFOODS INDIA 2023 ON FEB 16-17



HOW TO OPEN A BOTTLE OF WINE



MAMTA BHARDWAJA

**Business Development Manager
(Wine Industry)**

How to open a bottle of wine? If it has a screw cap then no worries but if the bottle is with cork then you have to take some effort. It is not rocket science, it is just a matter of technique and practice. To master this technique you need to drink more wine, but again in a moderate amount.

To open a bottle of wine, first of all, you need a corkscrew. Basic two types of corkscrews are there, wing corkscrew and sommelier's knife.

1. Using wing corkscrew

Step1:-

Remove the cork foil with a knife and peel it away. Pull off the foil cap and discard it. Most wing corkscrews don't come with a knife, so you can use a sharp kitchen knife.

Step2:-

Place the tip of the corkscrew in the center of the cork and push down gently. The metal cap surrounding the corkscrew should rest against the top of the bottle, while the wings should be lowered against the neck of the wine bottle

Step3:-

Twist the handle clockwise to drill the screw into the cork. Hold the metal cap in place over the bottle's top, keeping your hand below the wings. Use your other hand to turn the handle and insert the corkscrew into the cork. Each time you twist, the wings will extend upward and outward. Continue turning the handle until the wings are fully extended. Don't insert too far otherwise pieces of the bottom of the cork may dislodge into wine

Step4:-

Now set the bottle on a table and push the wings down to pull the cork upward. Use both hands to push down the wings of the corkscrew. As you push them down, the corkscrew will retract and lift the cork. Once the wings are fully down and against the neck of the bottle, the cork will likely be fully removed. If the cork is still halfway, twist the corkscrew again and then pull upward to finish removing the cork.

2. Using wing corkscrew

It consists of a folded knife on one end and a corkscrew on the other. Some corkscrews have a sharp disc instead of a knife and are used to cut the foil of bottles.

Step1:-

Using a knife cut the foil around the top of the bottle. Cut it as you are turning the bottle to remove the foil. The foil should be cut just below the lip of the bottle to avoid any contact of wine with the foil when poured because it can change the taste of the wine. Or just remove the foil cap and discard it.

Step2:-

Close the knife and open a corkscrew. Place the bottle upright. Place a corkscrew on the cork just off center and insert rotating into the cork. Keep twisting the corkscrew until one twist is left. Don't insert too far otherwise pieces of the bottom of the cork may dislodge into the wine. And if you don't insert far enough, the cork may break.

Step3:-

Now move the lever arm down toward the neck of the bottle. Set the first set of ridges at the bottom of the lever arm on the lip of the bottle. Push down on the lever so that cork begins to move upward. If necessary use a second set of ridges.

Make sure to have a firm grip on the bottle and also lever the arm firmly in place before begin pulling the up. Otherwise, the hand may slip.

Step4:-

Pull the handle of the corkscrew firmly so that the cork should lift from the bottle easily. If not, then make sure that corkscrew is enough inserted until one twist is left. Remove the cork using the lever arm and pull the handle again.

Enjoy your glass of wine.

Cheers!!!

RCWS STOMPING FEST 2023

THE FUN OF GRAPE STOMPING @ JAIPUR

"RCWS Stomping Fest 2023" was organized on 22 Feb'23 at Chirmi palace Jaipur by Sanyogita Rathore of RCWS.

Visitors had fun of Grape stomping followed by Wines tasting and Scotch tasting with delectable snacks. Grape-treading or grape-stomping is part of the method of maceration used in traditional wine-making. Rather than being crushed in a wine press or by another mechanized method, grapes are repeatedly trampled in vats by barefoot participants to release their juices and begin fermentation. Grape-treading was widespread in the history of winemaking, but with the introduction of industrial methods, it now survives mostly as a recreational or competitive activity at cultural festivals.

Various social groups and students of various Hotel management institutes like Poornima University, JECRC, DSHM, Suresh Gyan Vihar University, VGU, AIHM participated and had fun grape stomping along with various fun activities like quizzes, games etc.

Event was supported By Rhythm wines, Good Drop Wine cellers, Brocode by Indospirits and Angus Dundee India Pvt. Ltd.



WINE REPORT



KANCHAN SINGH

Chapter Head - South Delhi, India

Apex Wine Club India

1 February 2023, Wednesday

The first fruit winery of Uttar Pradesh is set to come up on the Delhi-Haridwar National Highway in Muzaffarnagar District and sub-tropical fruits such as lychee, mango, peaches, guavas and jamun will be used for wine production.

The winery, with an investment of Rs 40 million in technology import, machinery and equipment, will be spread across an area of around 1.55 acres. The unit will be installed on NH-58 and will have the capacity to produce 155 litres of wine per day.

Due to the location, which is close to River Ganga, the water, soil and environment will add flavour to the wine and also provide employment to the people who live near Ganga.

In a bid to promote wine production in Uttar Pradesh, the state cabinet revised the provisions of the Excise Policy pertaining to wineries and procedure to obtain license, in May 2022.

According to the amended policy, the application fee for setting up a winery has been fixed at 2,500 for the V-1 license. The V-2 license will be obtained at a fixed rate of 5,000 per annum. An FL-3 license is mandatory in order to fill and store the bottled wines.

The revised rules further state that the government will not charge any fees for lab tests for the initial five years. Besides, the revised excise policy also permits an increase in Alcohol by Volume (ABV) at 12 to 24 per cent in wines.





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