



BarthHaas®



***DELIVERING FAST, EFFICIENT AND STABLE
FLAVOR AND AROMA DISPERSION USING
A 100% HOP-DERIVED EMULSIFIER.***

WHITEPAPER



TABLE OF CONTENTS

| | |
|--|-----------|
| WHAT IS PRYSMA™? | 4 |
| EMULSIFICATION AND IT'S IMPORTANCE | 5 |
| BENEFITS OF PRYSMA™ | 6 |
| PRYSMA™ AND NEW PRODUCT DEVELOPMENT | 8 |
| INTRODUCING PRYSMA™ INTO YOUR BREWING PRODUCTION | 9 |
| PRYSMA'S CLEVEREST TRICK | |
| <i>DOSING POST FILTRATION FOR PRODUCTION DIFFERENTIATION</i> | 11 |
| FOR BREWERS | |
| <i>DOSING DURING THE BREWING PROCESS</i> | 13 |
| APPENDIX 1 - CASE STUDY | 16 |
| APPENDIX 2 - CASE STUDY | 19 |



INTRODUCTION

THERE ARE MANY hop flavor products available on the market, and it can be difficult for brewers to navigate the many different options. At BarthHaas we have looked at some of the key issues with liquid hop products and found a clever solution that offers the best that a liquid hop product can, without having to move away from the traditional ingredients of brewing.

WE HAVE DEVELOPED a way to use components extracted from hops themselves as an emulsifier that acts as a stable platform for both hop oils and other natural flavors. This 100% hop-derived emulsification technology underpins both PRYSMA™, our new flavor platform, and SPECTRUM, our liquid hop pellet product. This short paper explores how this technology is utilized in PRYSMA™ to offer unique benefits.





WHAT IS PRYSMA™?

***PRYSMA™ IS A
FLOWABLE LIQUID HOP
FLAVOR PLATFORM.***

PRYSMA™ utilizes a unique emulsification technology that is 100% hop derived. This allows PRYSMA™ to deliver a highly impactful range of hop and other natural flavors into beer and beverages without the need for non-hop derived emulsifiers, carriers or solvents. The hop-based carrier ensures a stable 100% dispersion, meaning faster initial flavor and aroma transfer that remains in suspension to offer a long-lasting freshness. It is simple to dose throughout the brewing process, including post filtration diversification of production streams.

PRYSMA™ is highly effective across most beverage styles and can be used to great effect to add flavor more efficiently throughout the brewing process from whirlpool to post filtration. It is also particularly effective for brewers producing no/low alcohol beverages, and those looking to produce multiple products from a single wort or beer stream by dosing liquid hop products in late-stage production.





WHAT IS EMULSIFICATION AND WHY IS IT SO IMPORTANT?

MANY will know that hop oil compounds are naturally insoluble in aqueous solutions.

EMULSIFICATION is the process of mixing two substances that normally do not combine, such as oil and water, into a stable, uniform mixture. This is achieved with the help of an emulsifier—a compound that has both water-attracting (hydrophilic) and fat-attracting (lipophilic) properties, allowing it to bridge the gap between the two phases and prevent them from separating.

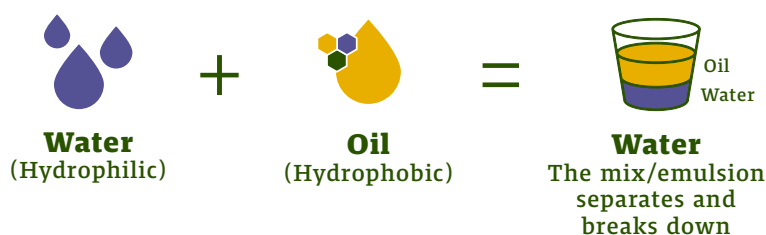
When added to a mixture of oil and water, the hydrophobic tails of emulsifier molecules attach to oil droplets while the hydrophilic heads remain in the water. This arrangement surrounds oil droplets with emulsifiers—tails inward and heads outward—forming micelles.

These micelles distribute oil droplets within water, lower surface tension, and result in a stable emulsion. The hydrophilic heads create a barrier that helps prevent oil droplets from merging together.

NATURAL EMULSIFIERS are widely found in foods, helping to combine ingredients that would otherwise separate. For instance, in mayonnaise, egg yolk acts as an emulsifier thanks to lecithin, a molecule that stabilizes the mixture of oil and water, resulting in a creamy, uniform texture. Similarly, in milk, casein proteins naturally disperse fat droplets within the liquid, producing a stable emulsion that prevents separation. Mustard, often used in vinaigrettes, contains mucilage and proteins that enable the smooth blending of oil and vinegar, giving salad dressings their characteristic consistency. Even in chocolate, soy lecithin ensures that cocoa butter and other ingredients remain evenly mixed, lending chocolate its smooth, glossy finish.

At BarthHaas we have been able to identify certain naturally occurring compounds in hops that can act as emulsifiers. This enables the integration of aromatic hop oils or other botanical oils—which are not water-soluble—into beverage formulations. By utilizing the interaction between these emulsifying components and those essential for water solubility, brewers are able to utilize this unique emulsification technology to produce stable and consistent flavor profiles while continuing to use traditional hop ingredients.

THE SCIENCE BEHIND EMULSIFIERS





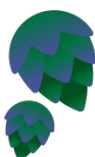
BENEFITS OF THE 100% HOP-DERIVED EMULSIFIER

100% HOP-BASED AND FULLY DISPERSIBLE

PRYSMA™ is based on our 100% hop-derived emulsifier. This means it delivers two key benefits, the combination of which makes PRYSMA™ a flavor platform solution that you cannot find anywhere else.



Being able to deliver a fully emulsified, dispersed and stable flavor and aroma while...



... being able to remain 100% hop-based.

THIS IS A UNIQUE and very clever trick. There are many products that can do one of these things, but only products based on our patented technology can do both.

IN REALITY, this means you can add hop flavor and aroma into your production more easily, efficiently and flexibly. There is no need for heavy premixing or continued agitation to keep hop oils in suspension. You add the flavor how and where you need it, and it stays.

It also means you don't need to use non-hop-based carriers or solvents. If you want or need to ensure you are using traditional brewing ingredients, then our hop-based emulsifier offers you the ability to get the benefits of 100% stable dispersion, while staying true to brewing tradition and avoiding any regulatory pitfalls.





BENEFITS OF THE 100% HOP-DERIVED EMULSIFIER

AND THE MANY OTHER BENEFITS
PRYSMA™ CAN OFFER

CONSISTENCY:

- PRYSMA™ is standardized to deliver the same consistent hop aroma and flavor every time.
- PRYSMA™ offers the ability to dose very precisely to help improve the consistency of your final flavor profile.
- Keeping the oils dispersed in the beer/beverage provides long-lasting consistent flavor.



INCREASED EFFICIENCY: Increasing your production efficiency using PRYSMA™ means you can reduce other costs:

- Full utilization of hop oils, delivering the highest possible flavor impact.
- Reduced wort or beer losses.
- Faster tank turnover.
- Improved hop utilization.
- Reduced hop transport costs, reduced hop storage costs.
- No danger of oxygen uptake in the process.
- No hop creep.
- Easy handling and dosing.
- Less losses of iso-alpha acids.
- Less cleaning time and costs.
- Less waste water treatment.
- Less disposal of packaging material.
- Less maintenance of machinery, e. g. centrifuge.
- Time and energy savings: less contact time – lower OpEx.
- No Capex for dry hopping equipment.
- Improved yeast cropping.
- Diversification at a later stage in the brewing process.
- Lower risk of microbiological contamination.

LOWERS THE ENVIRONMENTAL IMPACT OF YOUR PRODUCTION:

- Lower raw material usage.
- Reduced waste generation.
- Lower shipping and storage costs.



PRYSMA™ AND NEW PRODUCT DEVELOPMENT

MOVING FASTER WITH
GREATER IMPACT.

PRYSMA™ IS A PRODUCT DEVELOPER'S DREAM.

The flexibility of flavor options and its versatility of dosing across the production process make it fast and easy to work with. The 100% hop-derived emulsifier adds another bonus in that there are no limitations on dosing as there would potentially be with other carriers. This allows developers to work freely and quickly to create the flavor and aroma outcome they are targeting

FOR LARGER PRODUCTION FACILITIES we are

able to work with you to support new product development. Our technical experts will employ the flexibility of the PRYSMA™ platform to create and refine the precise flavor and aroma you need. Working in partnership it is possible to significantly shorten the time it takes to bring new products to market, giving you the competitive edge.





INTRODUCING PRYSMA™ INTO YOUR PRODUCTION

ONE PLATFORM, SUPER FLEXIBLE APPLICATION AND A WORLD OF FLAVORS.

PRYSMA™ STARTS with our 100% hop-based platform. From there we can add a range of hop and natural flavors and aromas to enable us to build an extremely flexible and highly impactful flavor solution that meets your brief. Using our unrivalled expertise in hop flavor we can build variety-specific flavor additions from our world leading hop variety portfolio using whole hop oils.

WE CAN ALSO ISOLATE AND ADD FRACTIONS that deliver hoppy attributes, such as focusing on citrus flavors or floral notes, or build additional natural flavors into the platform such as fruit or herb extracts. All of these can be delivered on one hop-based flavor platform in the combination and intensity that you require for a fast and clean addition.

**VARIETY SPECIFIC
HOP FLAVOR
AND AROMA**

e.g. Citra®
or Galaxy®

**HOP DERIVED
FLAVOR AND
AROMA FRACTIONS**

e.g. citrusy
or floral

**NON-HOP
NATURAL FLAVOR
AND AROMA**

e.g. lemongrass
or grapefruit

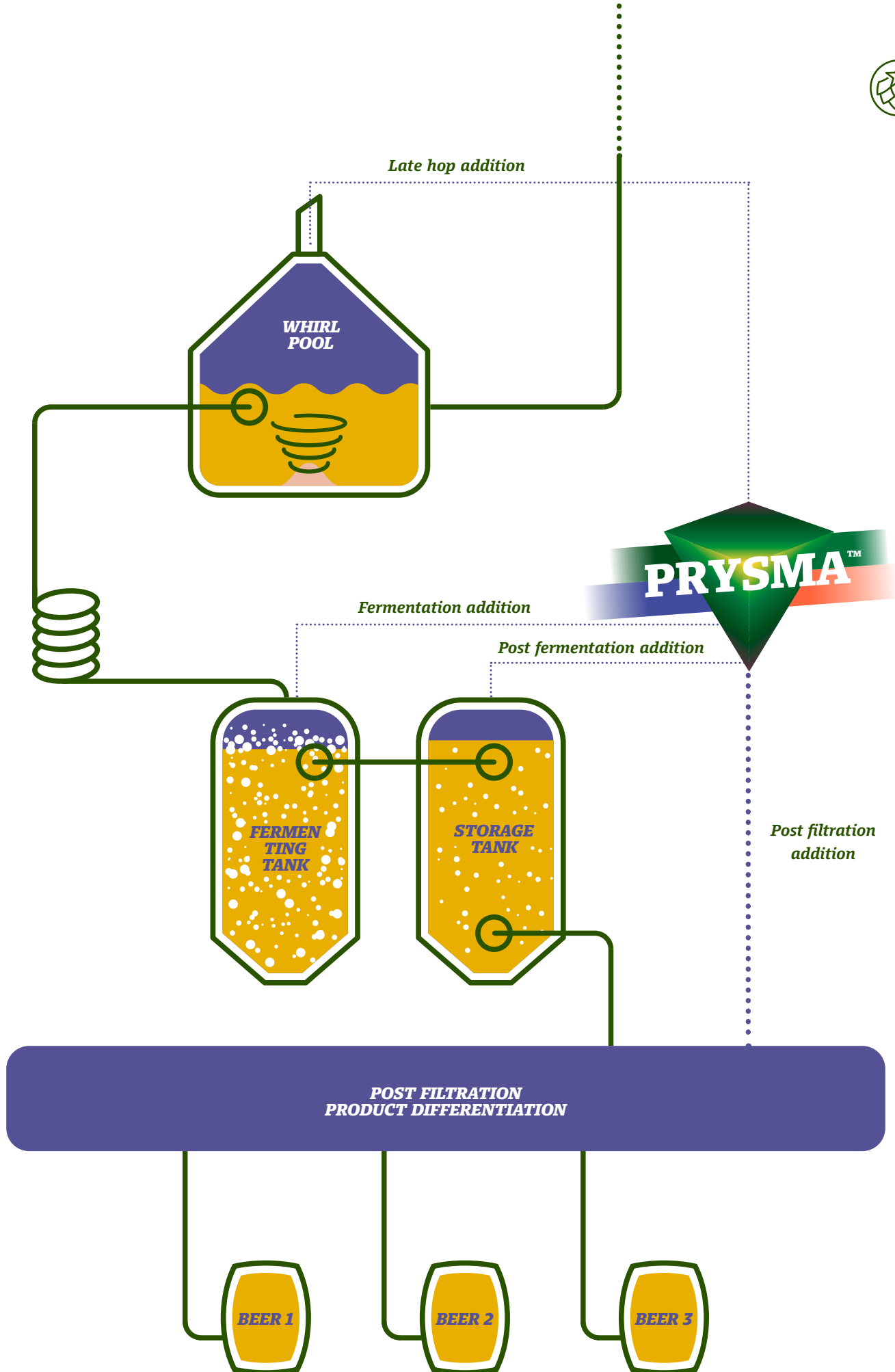
100 % HOP-BASED FLAVOR PLATFORM

**YOUR PERFECT FLAVOR AND
AROMA SOLUTION.**

BY REMOVING the bitterness and resinous notes and focusing entirely on flavor and aroma, PRYSMA™ is supremely flexible as a flavor product in the production process.

You can add it earlier in the brewing process as a late hop flavor addition or you can add it throughout the cold side of brewing production during or post fermentation. Finally, and perhaps most impressively, PRYSMA™ can be used as a post filtration addition.

NOT ONLY DOES THIS ALLOW you to tweak and control final output, but it also gives you the option to use a single production stream to create multiple beers. For instance, you could take a lager and through a simple post-filtration addition create a hoppy lager, a session IPA, a pale ale or an IPA. Simple, efficient and high quality.





PRYSMA'S CLEVEREST TRICK: DOSING BEER AND BEVERAGES POST FILTRATION FOR PRODUCT DIFFERENTIATION

IT HAS NOT BEEN POSSIBLE to dose hop and other natural oils into production beverages without the use of a non-hop derived emulsifier until now. PRYSMA's unique emulsifier and the fact that it does not add any notable bitterness or resinous notes give producers of beer and other beverages a new and very powerful option.

With PRYSMA™ it is possible to create a single production stream and then divert a percentage of that to create an entirely new experience using PRYSMA™.

When dosing post filtration, there is no need to pre-disperse PRYSMA™ – it can be pumped directly into your beer stream during transfer.

PRYSMA™ can also be used easily with any dynamic dosing systems that you use in your production process.

For instance, a lager production line could be split with one output receiving a dose of PRYSMA™ to turn the base beer into a session IPA or a lager with a lime twist. Thanks to the nature of PRYSMA™ this process would be fast and extremely efficient and not involve any non-hop derived emulsifiers.





EXAMPLES

A SIMPLE WAY TO TURN A LAGER INTO A HOPPY LAGER

LAGERS ARE EASY TO DRINK, they have a low bitterness and often only a subtle hop aroma. Increasing hop aroma is a great way to increase drinkability and differentiate your product in a crowded market. For a noticeable but only moderate hop aroma add 10-20 g of PRYSMA™/hL beer with a positive displacement pump. To find the approximate addition rate start with benchtop trials by simply adding 100µL of PRYSMA™ to 1 Liter of beer and increase the dosage in 50µL steps.



ENHANCING THE HOPPY FLAVOR OF AN ALCOHOL-FREE BEER

ALCOHOL FREE BEERS ARE sometimes lacking body and flavor, with the alcohol missing they often have a low bitterness and depending on the production process the hop aroma can suffer a lot. Increasing hop aroma will give flavor and may increase drinkability. For a good and moderate hop aroma add 20-40 g of PRYSMA™/hL beer with a positive displacement pump. To find the addition rate start with benchtop trials by simply adding 200µL of PRYSMA™ to 1 Liter of beer and increase the dosage in 50µL steps.

***YOUR BREWING
LAB JUST
GOT BIGGER.***

A SIMPLE WAY TO CREATE A HOP WATER

HOP WATERS ARE A TRENDY ALTERNATIVE to water, offering some refreshing hop flavor, that elevates a standard sparkling water. For a noticeable but only moderate hop aroma in a hop water add 5-10 g of PRYSMA™/hL into carbonated water with a positive displacement pump. To support the refreshing character and to tune the pH, citric acid can be used as well. PRYSMA™ works excellent in combination with PHA® products for hop water to fine tune the hop character. To find the addition rate start with benchtop trials by simply adding 50µL of PRYSMA™ to 1 Liter of beer and increase the dosage in 50µL steps.





DOSING DURING THE BREWING PROCESS

PRYSMA™ CAN BE USED TO SUBSTITUTE PORTIONS OF OR EVEN THE ENTIRETY OF YOUR HOP PRODUCTS THROUGHOUT THE BREWING PROCESS FOR SIGNIFICANT EFFICIENCY GAINS

INTRODUCING PRYSMA™ SUCCESSFULLY works best by taking an iterative approach. The most successful introductions of PRYSMA™ have begun with lower replacement and dosing rates, with brewers then working towards the “sweet spot” where they are able to replace all or a certain percentage of solid hop material, or other liquid hop products by dosing PRYSMA™ at the right point and dose rate for their beer/beverage.

PRYSMA™ can be dosed anywhere from the whirlpool, into the fermenter or lagering vessel or in the bright beer tank.



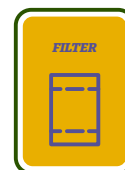
WHIRLPOOL ADDITION

DEPENDING ON YOUR SYSTEM you can either dose PRYSMA™ directly into your whirlpool or if possible dose PRYSMA™ into the beer stream during transfer to the wort cooler. The higher temperature in the whirlpool will affect the flavor intensity of PRYSMA™ in the final beer. If the addition in the Whirlpool is the sole PRYSMA™ addition, we recommend an increase of about 25% of the amount determined in benchtop trials.



FERMENTER ADDITION

ADDING PRYSMA™ DURING main fermentation (by adding PRYSMA™ into the fermentation vessel in advance or dosing it into the wort stream during transfer from wort cooling into the fermenter) might affect the fermentation performance. There is no danger of hop creep occurring, but PRYSMA™ will contribute to biotransformation reactions that automatically take place with active yeast. If you want to use PRYSMA™ during main fermentation or at maturation, we recommend bench top fermentation trials to determine the right dosing amount for the flavor profile you are looking for (e.g EBC Method 8.6.1 Fermentability, Attenuation Limit of Wort Rapid Fermentation).



LAGERING ADDITION

INSTEAD OF ADDING PRYSMA™ DURING lagering in the lagering vessel you might consider to rather dose it into the beer stream during transfer to the filter cellar or the bright beer tank, if this is an easier solution for you. Depending on your brewery set up you can also dose PRYSMA™ into the lagering vessel before transferring the beer from the fermentation vessel. For a good and moderate hop aroma add 20-40 g of PRYSMA™/hL beer with a positive displacement pump.

POST FILTRATION

THE IDEAL ADDITION POINT for PRYSMA™ is in filtration or even after filtration. Here PRYSMA™ is dosed directly into the beer stream that either goes into the filter cellar or after filtration during the transfer to the bright beer tank. For a good and moderate hop aroma add 20-40 g of PRYSMA™/hL beer with a positive displacement pump. The filtration process will impact possible turbidity at higher PRYSMA™ dosages but will not influence the intensity of the aroma.

EXAMPLES OF USAGE

When replacing T90 hop pellets in a current recipe, you can expect a 1: 7 – 1:10 replacement ratio (i.e. 1 kg of PRYSMA™ for every 7-10 kg of pellets).

We have found that it is useful to initially only partially replace around 25% – 50% of the pellet load with PRYSMA™. This allows you to understand the flavor impact that PRYSMA™ is having and adjust both the replacement ratio and the dosing rate to get the best results.



MAXIMUM DOSING RATES

WHEN USING PRYSMA™ FOR THE FIRST TIME or when replacing hopping rates above 8 g/ L pellets, we strongly recommend replacing no more than 80% of the pellet load with PRYSMA™. Stick to a replacement rate of 1:7 to 1:10 (w/w PRYSMA™ to pellets).

For any questions around using PRYSMA™ in your production our Brewing Solutions Team at BarthHaas is happy to help you.



PRYSMA™ VARIETIES AND PACK SIZES

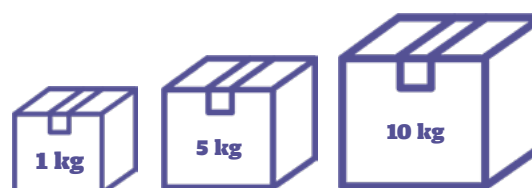
VARIETIES

PRYSMA™ is available now in a range of popular hop varieties with more becoming available all the time. Please enquire about other hop varieties.

- Citra®
- Mosaic®
- Galaxy®
- Eclipse®
- Dolcita™
- Krush®
- Cascade
- Lublin
- Spalter Select

PACK SIZES

- PRYSMA™ is available in 1kg, 5kg and 10kg sizes.
- All packaging is food safe.





APPENDIX 1 – CASE STUDY

HOW JOPEN USED PRYSMA™ TO HELP CREATE FOUR DISTINCT BEERS FROM ONE WORT

JOPEN BREWERY – HAARLEM, NETHERLANDS

They have been pushing the boundaries of beer since 1994 as one of the Netherlands' most innovative craft breweries. Jopen lives and breathes creativity, curiosity, and boldness. Their motto, "Everyone has a craftside", captures a spirit of experimentation that runs through every IPA, stout, and hybrid brew they produce. With a projected output of 35,000 hl in 2025 and an uncompromising love for surprising flavors, Jopen continues to redefine what beer can be – authentic, daring, and full of personality.



THE CHALLENGE

Jopen wanted to expand the variety of their beers without compromising efficiency. Traditional hop pellets, fruits, and herbs often come with trade-offs:

- **LOSSES**

Large hop additions can result in significant yield loss. For every kilogram of hop pellets used, as much as 14 litres of beer can be lost due to absorption. For a brewery focused on efficiency, this quickly adds up.

- **INCONSISTENCY**

Not all hop varieties are available in large enough volumes to allow for batch selection. This can lead to noticeable variation in finished beers depending on which lot of hops is used, creating challenges in maintaining flavor consistency across brews.

- **COMPLEXITY**

Fruit and herb additions bring aroma but often at the cost of stability or yield. Adding fruits during fermentation reduces aroma expression, while late additions increase product risk. Herbs can be inconsistent when used in raw form, requiring careful handling.

"With fruit additions you always have to do a trade-off. If you add them during fermentation, you lose aroma. If you add them later, you increase the risk of instability. With herbs, it is way easier to have a product like PRYSMA™, where you can do benchtop trials and dose the right amount to consistently get the outcome you want." – Daniel Schappert, Head Brewer at Jopen

THE INSPIRATION RANGE

AT BARTHHAAS, WE ARE always working to help brewers unlock new ways to create great beer efficiently, consistently, and sustainably. For our Inspiration Range 25/26, we partnered with Jopen Brewery to showcase the possibilities of our latest hop innovation: PRYSMA™.

Together, we set out to prove how brewers can diversify a single wort stream into multiple finished beers with impactful and stable flavor, all thanks to the flexibility of PRYSMA™.

Daniel Schappert, Head Brewer at Jopen, summed up the motivation clearly:

"We are always looking for new ways to make our products stand out in quality while being as efficient as possible. Since we have been BarthHaas customers for years and were always delighted by the quality of their products, it was only logical to trust their expertise and try PRYSMA™."



ONE WORT, FOUR BEERS

To put PRYSMA™ to the test, we designed a project with Jopen where one single wort stream was split into four beers after fermentation. Each beer highlighted a different hop technology:

1. NON-ALCOHOLIC LAGER

Using PHA® topnotes (Marynka) and PHA® water-based (Citrus), designed to deliver refreshing hop character without alcohol.

2. LAGER

Brewed with environmentally resilient hop varieties Tango, Titan, and Hüll Classic, showcasing the newest environmentally responsible options from BarthHaas.

3. WIT

Enhanced with PRYSMA™ Coriander, PRYSMA™ Bitter Orange, and HopHaze®, combining tradition with precise flavor control.

4. PALE ALE

Featuring Spectrum Dolcita™, Spectrum Eclipse®, PRYSMA™ Dolcita™, PRYSMA™ Eclipse®, and HopHaze®, to demonstrate how traditional and liquid hop products can be layered for depth and stability.

"At this point we brewed one wort, and using PRYSMA™, we were able to split that wort into four different beers. That really showed us how flexible and powerful this product can be," Daniel pointed out how impactful this was in practice.

"THE IMPLEMENTATION WAS SUPER EASY. WE ARE USED TO ADDING DIFFERENT PRODUCTS DURING LAGERING. WITH PRYSMA™ IT IS JUST THE SAME, VIA A KEG. THE PRODUCT HAS A GOOD FLOWABILITY, WHICH MAKES IT VERY EASY TO DOSE. AND THE OUTCOME IS GREAT. IT IS WAY LESS CHEMICALLY AND HAS MORE DEPTH THAN COMPARABLE PRODUCTS."

DANIEL SCHAPPERT
Head Brewer at Jopen





RESULTS

Working with PRYSMA™ allowed Jopen to achieve significant gains across efficiency, quality, and creativity:

- **REDUCED LOSSES**

Every kilogram of hop pellets replaced by PRYSMA™ saved up to 14 kilograms of beer, significantly improving yield.

- **IMPROVED CONSISTENCY**

PRYSMA™ minimized batch-to-batch variation, helping Jopen deliver reliably consistent beers despite natural variation in hop harvests.

- **SHORTENED PRODUCTION TIME**

The immediate flavor expression of PRYSMA™ reduced lagering time, accelerating turnaround from tank to tap.

- **GREATER FLEXIBILITY**

Jopen could easily diversify from a single wort stream into multiple beer styles, with precise control of aroma and flavor.

Daniel highlighted both the efficiency and creative potential:

“The beauty of PRYSMA™ is that you can get the true taste right after dosing and that you can dose it so late. This speeds up lagering time and helps if you have to troubleshoot a beer. Being able to add PRYSMA™ so late in the process and add a massive amount of flavor and aroma is amazing. The possibility to create new products downstream is a game changer.”

CONCLUSION

THE COLLABORATION WITH JOPEN DEMONSTRATED the transformative potential of PRYSMA™: enabling brewers to diversify their portfolios quickly, consistently, and with minimal losses.

For large-scale producers, the message is clear: PRYSMA™ is the simplest, most efficient way to add impactful, stable, 100% hop-derived flavor and aroma, even from a single production stream.



APPENDIX 2 – CASE STUDY

THREE SPIRIT ELEVATES ‘BOTANICAL ALCHEMY’ WITH PRYSMA™:
100% HOP-BASED, NATURALLY EXCEPTIONAL, FLOWABLE AND VERY CONSISTENT.

THREE SPIRIT – LONDON, UK

They are redefining non-alcoholic drinks through botanical innovation. After years of research, they have created award-winning, plant-based alternatives to alcohol celebrating what you put into a drink, rather than what you take out. Created by a blend of plant scientists, bartenders, winemakers, herbalists, and alchemists, each Three Spirit elixir delivers functional, flavorful and mood-supporting experiences using active adaptogens, nootropics, herbs, distillates, and ferments.



THE CHALLENGE

THREE SPIRIT'S NIGHTCAP is a non-alcoholic botanical elixir for winding down. Hops are central to its signature: subtle fruit and a gentle, lingering bitterness. Early on, the team prepared hops as a separate infusion (“tea”) – steeping hop flowers or pellets in another vessel, then dosing that infusion into Nightcap. It worked for flavor but added time, filtration, and complexity when scaling production across sites. Nightcap is also pasteurized and must remain shelf-stable, so any new hop input had to disperse fully, behave through heat, and stay in solution.

“Nightcap is all about relaxation... hops bring a subtle but substantial hit of fruit and a bit of bitterness,” said Dash Lilley, Co Founder, Three Spirit. „We made a side hop infusion and blended it in. We captured a lot of aroma, but it slowed production and made it harder to manufacture elsewhere.”

THE SOLUTION: PRYSMA™

THREE SPIRIT EXPLORED HOP EXTRACTS from many suppliers and flavor houses for years, but most options felt artificial-tasting or one-dimensional. After initial trials with an earlier extract, a scale-up revealed an unexpected interaction with other botanicals – an off-note and precipitation – which forced a pause and a return to the hop-tea method.

FROM THERE, Three Spirit approached BarthHaas R&D and laid out the problem. A close working relationship formed. Over three years of development, PRYSMA™ evolved through collaboration with more than 20 breweries and beverage producers worldwide. It was a step up to shape PRYSMA™ while listening to the needs of a spirit producer, not just brewers, ensuring it would disperse cleanly, survive pasteurization, and deliver Nightcap's target finish.

“I was looking at various hop extracts from various suppliers for quite a long time and was never that impressed – things seemed artificial or too one-dimensional,” explained Dash. “That was the beginning of working more closely with BarthHaas’ technical department to trial new prototype extracts. I felt supported to do this the right way, and the results have been really good.”



EXPERIENCES USING PRYSMA™

- **FLOWABILITY & EASY DOSING**

Because PRYSMA™ disperses quickly and evenly, Three Spirit can hit target intensity without pre-mixing steps and keep lines moving.

- **CONSISTENCY ONCE DIALED IN**

After a brief dose-finding phase, the batches behaved consistently from one run to the next.

“Once we developed it and did various tests, it has been stable ever since, it’s very consistent,” stated Dash.

- **BRAND STORYTELLING: MAKING ‘BOTANICAL ALCHEMY’ TANGIBLE**

As PRYSMA™ is made using only natural, hop derived ingredients, it still allows Three Spirit to stay true to their dedication to using only the best, most premium natural botanics.

Dash explained: “We use the term botanical alchemy – the transformation of plant material into a concentrated extract that disperses into the end product.”

CONCLUSION

- **PRECISION SENSORY DELIVERY**

PRYSMA™ helped Three Spirit hit the aroma and the finish, especially the lingering bitterness that was hardest to reproduce with hop tea alone.

- **OPERATIONAL EFFICIENCY**

Eliminated the separate hop-tea vessel and filtration step, saving time and simplifying multi-site production.

- **CONSISTENCY AT SCALE**

Once dialed in, batches remained stable through pasteurization and consistent across runs.

- **NPD RUNWAY**

With a precise hop platform in Nightcap, the team is exploring limited-edition twists and alternative hop/terpene profiles aligned to relaxation.

“The bitter profile was really hard to recreate perfectly, we played with different extracts and inclusion rates and finally landed on something perfect.” – Dash Lilley

**“PRYSMA™ IS A VERY
PRECISE TOOL THAT
GIVES US CONSISTENCY
AND EASE. IT’S ENABLED
US TO HIT THE AROMA
AND THE FINISH, THE
LINGERING BITTERNESS,
PERFECTLY, WHILE SAVING
TIME AND OFFERING MORE
CONSISTENCY.”**

DASH LILLEY
Co Founder at Three Spirit





PUBLISHED BY

BarthHaas
GmbH & Co. KG
Freiligrathstr. 7-9
90482 Nürnberg

September 2025

TECHNICAL SUPPORT At BarthHaas we have a dedicated team that are able to advise customers on all hop related brewing matters. If you have any further questions about introducing PRYSMA™ into your brewing we will be happy to help.

Please visit BarthHaas.com for more information or contact Brewing Solutions directly at brewingsolutions@barthhaas.de



BarthHaas®

www.barthhaas.com