Wine Chemistry Made Practical

Kathleen Iske-Ondrus

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- Understanding the importance of your wine yeast

Winemaking 101!

Have a plan!

Be prepared to throw that plan out the window!

What do I mean by this?

Lets say you pick up your Cab Sauv grapes. They look beautiful! You destem and crush them. You take your sample in for testing. When you get your results back you expect to see this:

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Brix 24 TA 6.0 pH 3.5

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But instead, you actually get this!

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But instead, you actually get this!

Brix 19 TA 7.9 pH 3.2

You pick up your Cab Sauv grapes. They look beautiful! You destem and crush them. You take your sample in for testing. When you get your results back you expect to see this:

Brix 24 TA 6.0 pH 3.5

But instead, you actually get this!

Brix 19 TA 7.9 pH 3.2

or

Brix 25 TA 7.9 pH 3.9

Hopefully I will teach you what is normal, what is out of range and how to deal with it!

Be prepared before you get your grapes in!

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- Research your Grape.

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  Normal TA, Brix, Floral aromas or flavors of that Grape

Quick Google Search on Brianna!

Normal pH range

For Brianna grapes, a normal, optimal level of acidity at harvest generally ranges between **3.2 to 3.4** on the **pH scale**. Tassel Ridge Winery +2

Brianna is an aromatic, cold-climate white wine grape that—unlike many other hybrid varieties—is naturally relatively low in acid. When

normal acid level in brianna grapes

- **Titratable Acidity (TA):** Typically around **7.0 to 9.0 g/L** (expressed as tartaric acid equivalence).
- **Sugar Content:** Harvested ideally between **18 and 22 °Brix**. Northeastern Vine Supply +4

The specific acid level dictates the flavor and aromatic profile of the fruit or wine:

- `<Quote>“A fully ripened Brianna grape will showcase more pronounced tropical notes like pineapple and mango, alongside its signature peachiness.”</Quote>, as noted by [Rolling Forks Vineyards]( https://rollingforksvineyards.com/brianna-cheat-sheet/ ).`
- `<Quote>“A slightly less ripe Brianna will exhibit brighter apricot and passionfruit flavors with a more pronounced acidity.”</Quote>, explained by [Rolling Forks Vineyards]( https://rollingforksvineyards.com/brianna-cheat-sheet/ ).`

While winemakers often target a pH around **3.2** to preserve a refreshing character without making the wine overly tart or sharp, some prefer to let it ripen slightly more toward **3.4** or above to maximize those tropical, fruity characteristics. Tassel Ridge Winery +2

Could you tell me if you are **measuring the acid for winemaking or for fresh eating/juice**? I can provide more specific guidance on **harvest timing or acid management** based on your goals.

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Be prepared before you get your grapes in!

- Research your Grape.

  Normal TA, pH, Brix, Floral aromas or flavors of that Grape
- Research your yeast. Does your grape match your yeast?

WHITE, ROSÉ AND SPARKLING WINES

ZYMAFLORE® X5

Sauvignon Blanc, Albarino, Rosé

Breeding selection

Very high expression of volatile thiols (4MSP).

Suitable for fermentation at low temperatures.

Aromatic and complex wines.

ZYMAFLORE® VL3

Sauvignon Blanc, Vermentino, Gewurztraminer, Pinot Gris

Terroir selection - Bordeaux.

High expression of volatile thiols.

Provides an increase of sweetness sensations (Hsp12 protein).

Very good mouthfeel contribution.

ZYMAFLORE® DELTA

Sauvignon Blanc, Riesling, Pinot Gris, Viognier

Terroir selection.

High expression of volatile thiols, particularly grapefruit notes (3SH).

ZYMAFLORE® X16

Chardonnay, Pinot Gris, Chenin Blanc, Rosé

.Breeding selection.

Very high aromatic esters production.

Suitable for fermentation at low temperatures.

Excellent fructose utilisation.

POF- ("Phenolic Off Flavour" negative).

ZYMAFLORE® VL2

Chardonnay, Viognier, Roussanne

Terroir selection.

High polysaccharide production.

POF- ("Phenolic Off Flavour" negative).

ZYMAFLORE® CH9

Chardonnay

Terroir selection – Burgundy.

Creamy mouthfeel and length.

Preserves varietal specificity and terroir.

Fresh almond and hazelnuts, citrus fruits and toasted bread.

ZYMAFLORE® VL1

Chardonnay, Riesling, Gewurztraminer, Muscat

Terroir selection.

High ß-Glucosidase activity favouring the release of floral terpenes.

POF- ("Phenolic Off Flavour" negative).

ZYMAFLORE® ST

Late Harvest, Semillon, Riesling

Terroir selection – Sauternes.

Resistant to high sugar concentrations.

Sensitive to SO_2 for easy arrest of fermentation.

Late harvest and *Botrytis* wines.

ZYMAFLORE® SPARK

All Sparkling Base, Tirage Bottling, Restarts

Terroir selection.

Neutral wine yeast.

Tolerates high alcohol, SO_2 and pressure.

Quick Reference sheet on yeast!

RED WINES

ZYMAFLORE® RB2

Pinot Noir, Merlot

Terroir selection – Burgundy.

High expression of cherry/kirsch type varietal aromas.

Elegant mouthfeel.

Favours preservation of colour.

ZYMAFLORE® XPURE

Pinot Noir, Zinfandel, Syrah, Tempranillo

Breeding selection.

Very low production of undesirable sulphur compounds (notably SO_2 and H_2S) and compounds binding SO_2

Aromatic freshness and expression of black fruit notes.

Great smoothness of mouthfeel.

ZYMAFLORE® RX60

Zinfandel, Merlot, Syrah

Breeding selection.

Very high aroma production – fruity and spicy.

High alcohol tolerance.

ZYMAFLORE® F15

Cabernet, Merlot, Pinot Noir, Malbec

Terroir selection – Bordeaux.

Low production of negative sulfur compounds.

Fruity, full-bodied wines with varietal expression.

ZYMAFLORE® FX10

Cabernet, Petite Sirah, Merlot

Breeding selection.

High alcohol tolerance and good fructose utilisation.

High polysaccharide production.

Preserves varietal specificity and terroir

Silky, full-bodied wines, destined for ageing.

ZYMAFLORE® F83

Grenache, Syrah, Barbera

Terroir selection – Tuscany.

High production of red fruit and floral aromas.

Mediterranean grape varieties.

Non - *Saccharomyces*

ZYMAFLORE® ALPHA^{TD}

Torulaspora delbrueckeii strain

Significantly improves mouthfeel in both red and white wines.

Improves aromatic complexity and profile.

Reduce VA production during ferment, good for late harvest.

Compatible with all *Saccharomyces cerevisiae*.

ZYMAFLORE® ÉGIDE^{TDMP}

Torulaspora delbrueckeii & Metschnikowia pulcherrima strains

Bio-protection during pre-fermentation stages.

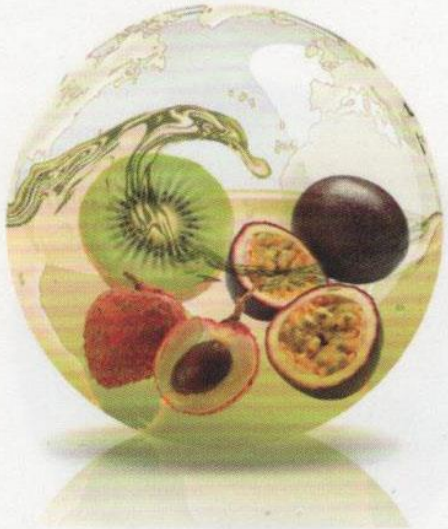
Reduce the use of SO_2 on fruit.

Reduce the risk of off flavor during cold soak.

Compatible with all *Saccharomyces cerevisiae*.

NEW PRODUCT 2017

White
Vs
Red



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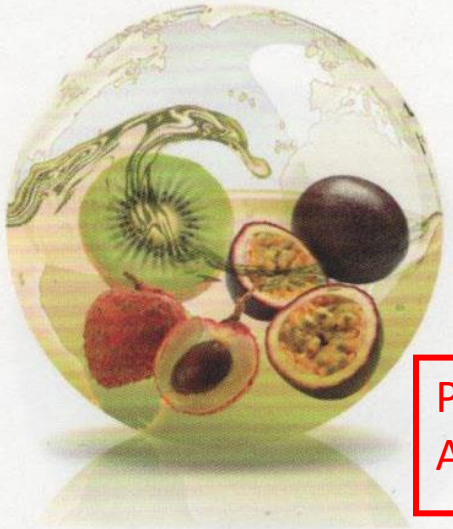
White Vs Red

Flavor profile



Passion fruit
Apricot, Kiwi

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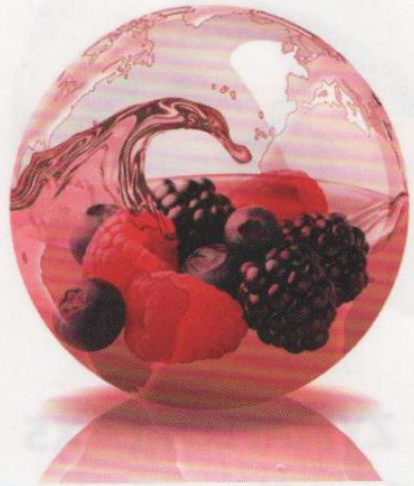

Raspberry,
blackberry
blueberry

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Zinfandel, Merlot, Syrah

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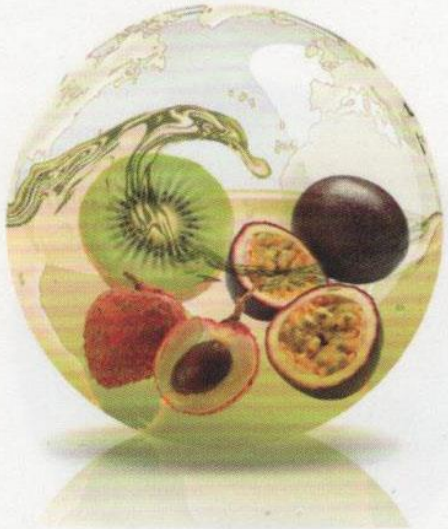
High alcohol tolerance.

White
Vs
Red

Flavor
profile

Suggested
Varietals



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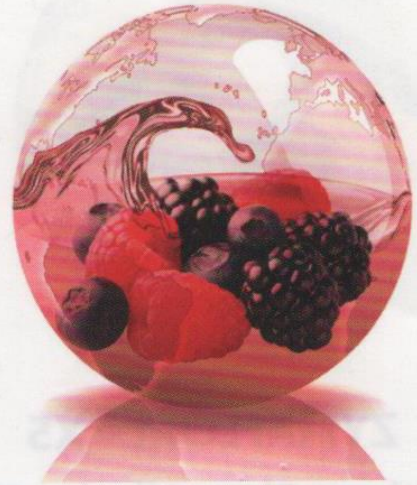

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Zinfandel, Merlot, Syrah

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White
Vs
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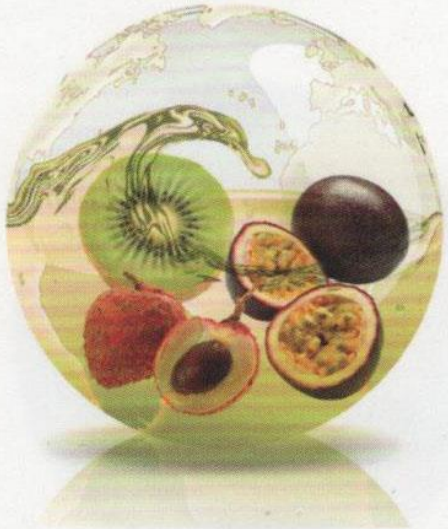
Flavor profile

Suggested Varietals

Key points of yeast



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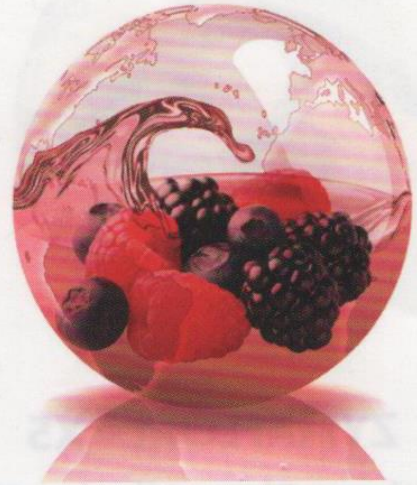

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Be prepared before you get your grapes in!

- Research your Grape.

  Normal TA, pH, Brix, Floral aromas or flavors of that Grape

- Research your yeast. Specifics you need to know.

  Nutrient level (low, med or high) (insufficient nutrients can cause sulfides)

Be prepared before you get your grapes in!

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  Normal TA, pH, Brix, Floral aromas or flavors of that Grape

- Research your yeast. Specifics you need to know.

  Nutrient level (low, med or high)

  Fermentation temp range (can you ferment at 57-62°) or is your basement warm enough?

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  Normal TA, pH, Brix, Floral aromas or flavors of that Grape

- Research your yeast. Specifics you need to know.

  Nutrient level (low, med or high)

  Fermentation temp range

  Sugar or Alcohol Tolerance (can you ferment to dryness?)

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- Research your Grape.

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- Research your yeast. Specifics you need to know.

  Nutrient level (low, med or high)

  Fermentation temp range

  Sugar or Alcohol Tolerance

  Flavor/phenolic profile (does it match your grape?)

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- Research your yeast. Specifics you need to know.

  Nutrient level (low, med or high)

  Fermentation temp range

  Sugar or Alcohol Tolerance

  Flavor/phenolic profile

  If making a sweet white, can you stop the fermentation to retain some residule sweetness? (look for a yeast with low sensitivity to S02)

Yeast Specification Sheet!

This sheet will tell you everything you need to know about your yeast!

WHITE WINE

YEAST ZYMAFLORE

ZYMAFLORE® VL1

Yeast for white wines with high aromatic elegance intended for cellaring

Qualified for the elaboration of products for direct human consumption in the field of the regulated use in Œnology. In accordance with the regulation (EC) n° 606/2009.

SPECIFICATIONS AND ŒNOLOGICAL PROPERTIES

ZYMAFLORE® VL1 is a "terroir" selection strain. It is a Pof(-) strain (phenolic off flavour) wich allows for the production of very clean wines with a ***highly elegant*** aromatic profile. Ideal for ***ultra premium Chardonnays***. **ZYMAFLORE® VL1** presents an excellent capacity for revealing ***terpene-type varietal aromas*** (Muscat, Riesling, Gewürztraminer, etc.), due to its enzymatic profile that is specific to these precursors. It is perfectly suitable for generating varietal and elegant white wines (Super Premium, Ultra Premium).

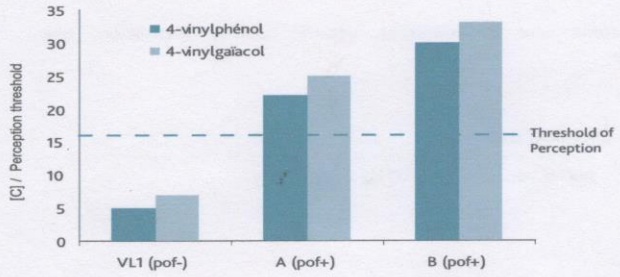
FERMENTATION CHARACTERISTICS:

- Alcohol tolerance: up to 14.5 % vol.
- Fermentation temperature range: 16 - 20°C
- High nitrogen requirements
- Low production of volatile acidity and H_2S
- Low foam production

AROMATIC CHARACTERISTICS:

- Pof(-) strain: does not contain cinnamate decarboxylase, which is responsible for the formation of vinyl-phenols (medicinal off odour)
- High capacity for revealing terpene-type varietal aroma precursors (ß-glucosidase activity).
- Very suitable for ageing on lees.

EXPERIMENTAL RESULTS



Production of vinyl-phenols by different yeasts

PHYSICAL CHARACTERISTICS

Dehydrated yeast (vacuum-packed)

Aspect ..... granular

Alcohol tolerance

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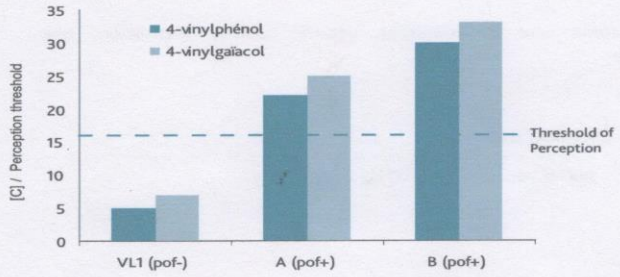

Production of vinyl-phenols by different yeasts

PHYSICAL CHARACTERISTICS

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Alcohol tolerance

Is your yeast able to ferment dry?

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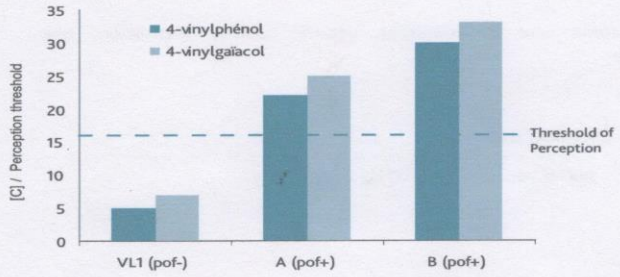

Production of vinyl-phenols by different yeasts

PHYSICAL CHARACTERISTICS

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At Brix of 28°, this yeast could not ferment to dryness!

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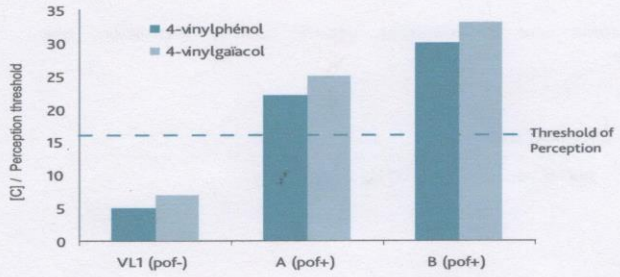

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Alcohol tolerance

Is your yeast able to ferment dry?

At Brix of 28°, this yeast could not ferment to dryness!

So, if we wanted to use this yeast, we would need to hydrate (add water) to get our Brix within this yeasts parameters.

ZYMAFLORE® VL1

Yeast for white wines with high aromatic elegance intended for cellaring

Qualified for the elaboration of products for direct human consumption in the field of the regulated use in Œnology. In accordance with the regulation (EC) n° 606/2009.

SPECIFICATIONS AND ŒNOLOGICAL PROPERTIES

ZYMAFLORE® VL1 is a "terroir" selection strain. It is a Pof(-) strain (phenolic off flavour) wich allows for the production of very clean wines with a ***highly elegant*** aromatic profile. Ideal for ***ultra premium Chardonnays***. **ZYMAFLORE® VL1** presents an excellent capacity for revealing ***terpene-type varietal aromas*** (Muscat, Riesling, Gewürztraminer, etc.), due to its enzymatic profile that is specific to these precursors. It is perfectly suitable for generating varietal and elegant white wines (Super Premium, Ultra Premium).

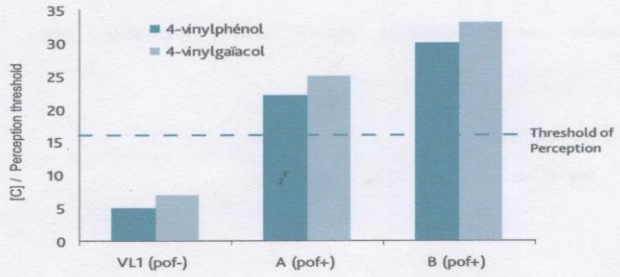
FERMENTATION CHARACTERISTICS:

- Alcohol tolerance: up to 14.5 % vol.
- Fermentation temperature range: 16 - 20°C
- High nitrogen requirements
- Low production of volatile acidity and H_2S
- Low foam production

AROMATIC CHARACTERISTICS:

- Pof(-) strain: does not contain cinnamate decarboxylase, which is responsible for the formation of vinyl-phenols (medicinal off odour)
- High capacity for revealing terpene-type varietal aroma precursors (ß-glucosidase activity).
- Very suitable for ageing on lees.

EXPERIMENTAL RESULTS



Production of vinyl-phenols by different yeasts

PHYSICAL CHARACTERISTICS

Dehydrated yeast (vacuum-packed)

Aspect ..... granular

Alcohol tolerance

Fermentation range

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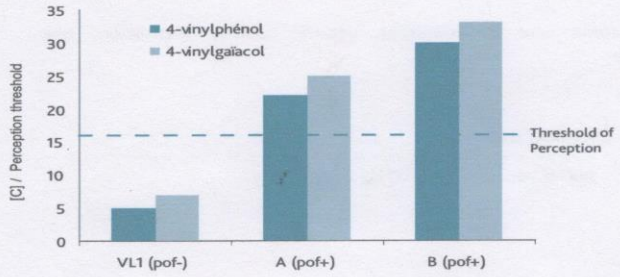

Production of vinyl-phenols by different yeasts

PHYSICAL CHARACTERISTICS

Dehydrated yeast (vacuum-packed)

Aspect ..... granular

Alcohol tolerance

Fermentation range

N+ requirements

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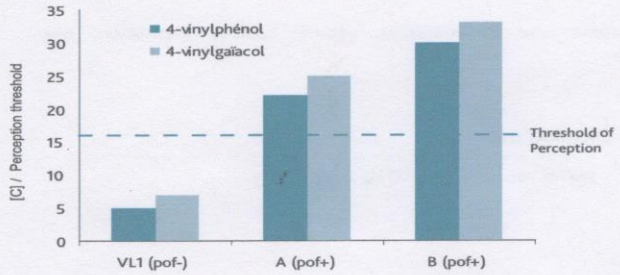

Production of vinyl-phenols by different yeasts

PHYSICAL CHARACTERISTICS

Dehydrated yeast (vacuum-packed)

Aspect ..... granular

Alcohol tolerance

Fermentation range

N+ requirements
(this one is high)

Other important things about your wine yeast

Low production of H_2S!

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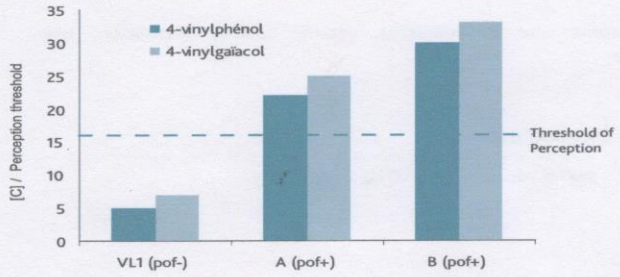


Production of vinyl-phenols by different yeasts

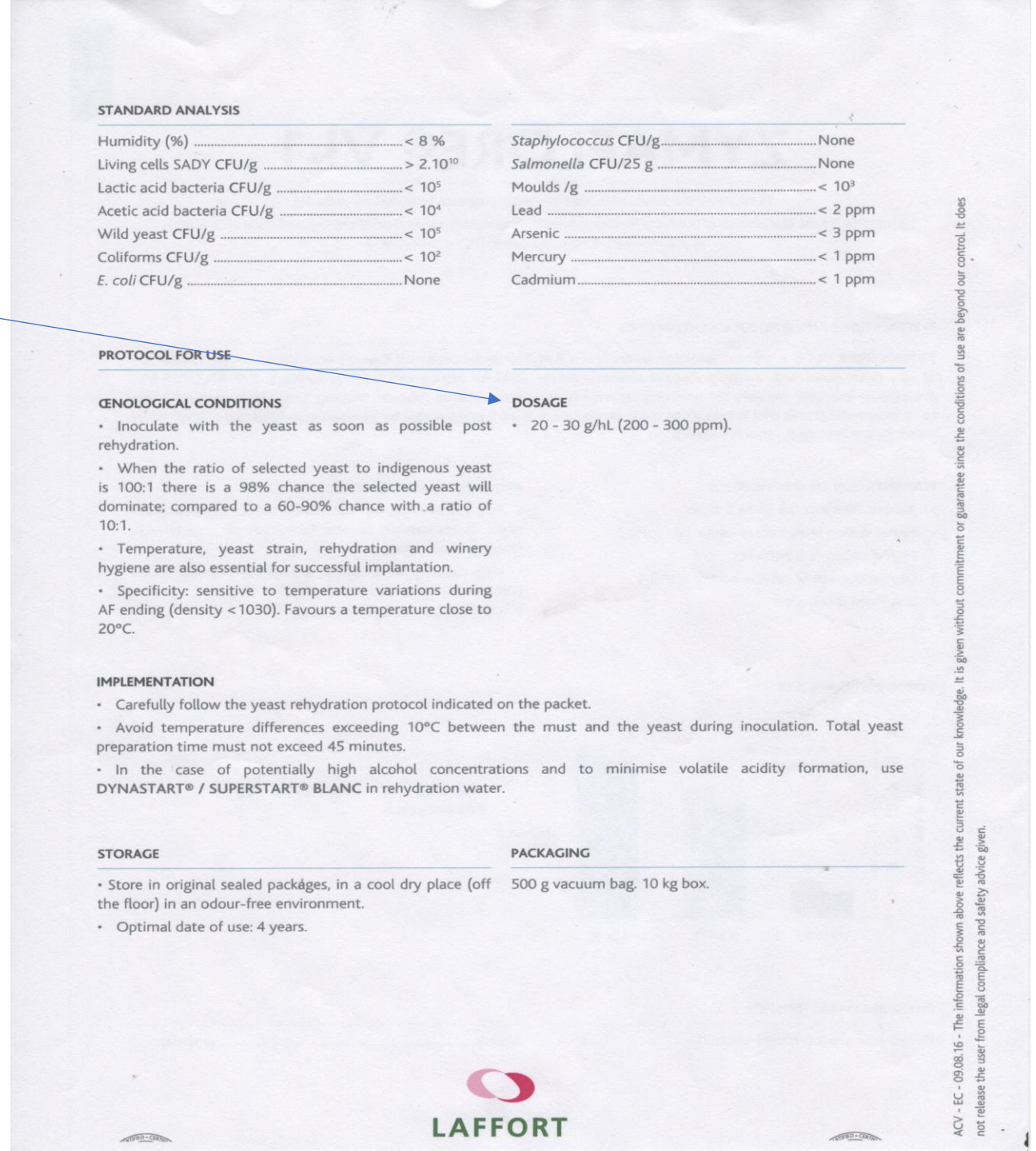
PHYSICAL CHARACTERISTICS

Dehydrated yeast (vacuum-packed)

Aspect ..... granular

Back of page

Dosage of yeast



STANDARD ANALYSIS

Humidity (%)	< 8 %
Living cells SADY CFU/g	> 2.10^{10}
Lactic acid bacteria CFU/g	< 10^5
Acetic acid bacteria CFU/g	< 10^4
Wild yeast CFU/g	< 10^5
Coliforms CFU/g	< 10^2
E. coli CFU/g	None
Staphylococcus CFU/g	None
Salmonella CFU/25 g	None
Moulds /g	< 10^3
Lead	< 2 ppm
Arsenic	< 3 ppm
Mercury	< 1 ppm
Cadmium	< 1 ppm

PROTOCOL FOR USE

ŒNOLOGICAL CONDITIONS

- Inoculate with the yeast as soon as possible post rehydration.
- When the ratio of selected yeast to indigenous yeast is 100:1 there is a 98% chance the selected yeast will dominate; compared to a 60-90% chance with a ratio of 10:1.
- Temperature, yeast strain, rehydration and winery hygiene are also essential for successful implantation.
- Specificity: sensitive to temperature variations during AF ending (density <1030). Favours a temperature close to 20°C.

DOSAGE

- 20 - 30 g/hL (200 - 300 ppm).

IMPLEMENTATION

- Carefully follow the yeast rehydration protocol indicated on the packet.
- Avoid temperature differences exceeding 10°C between the must and the yeast during inoculation. Total yeast preparation time must not exceed 45 minutes.
- In the case of potentially high alcohol concentrations and to minimise volatile acidity formation, use **DYNASTART® / SUPERSTART® BLANC** in rehydration water.

STORAGE

- Store in original sealed packages, in a cool dry place (off the floor) in an odour-free environment.
- Optimal date of use: 4 years.

PACKAGING

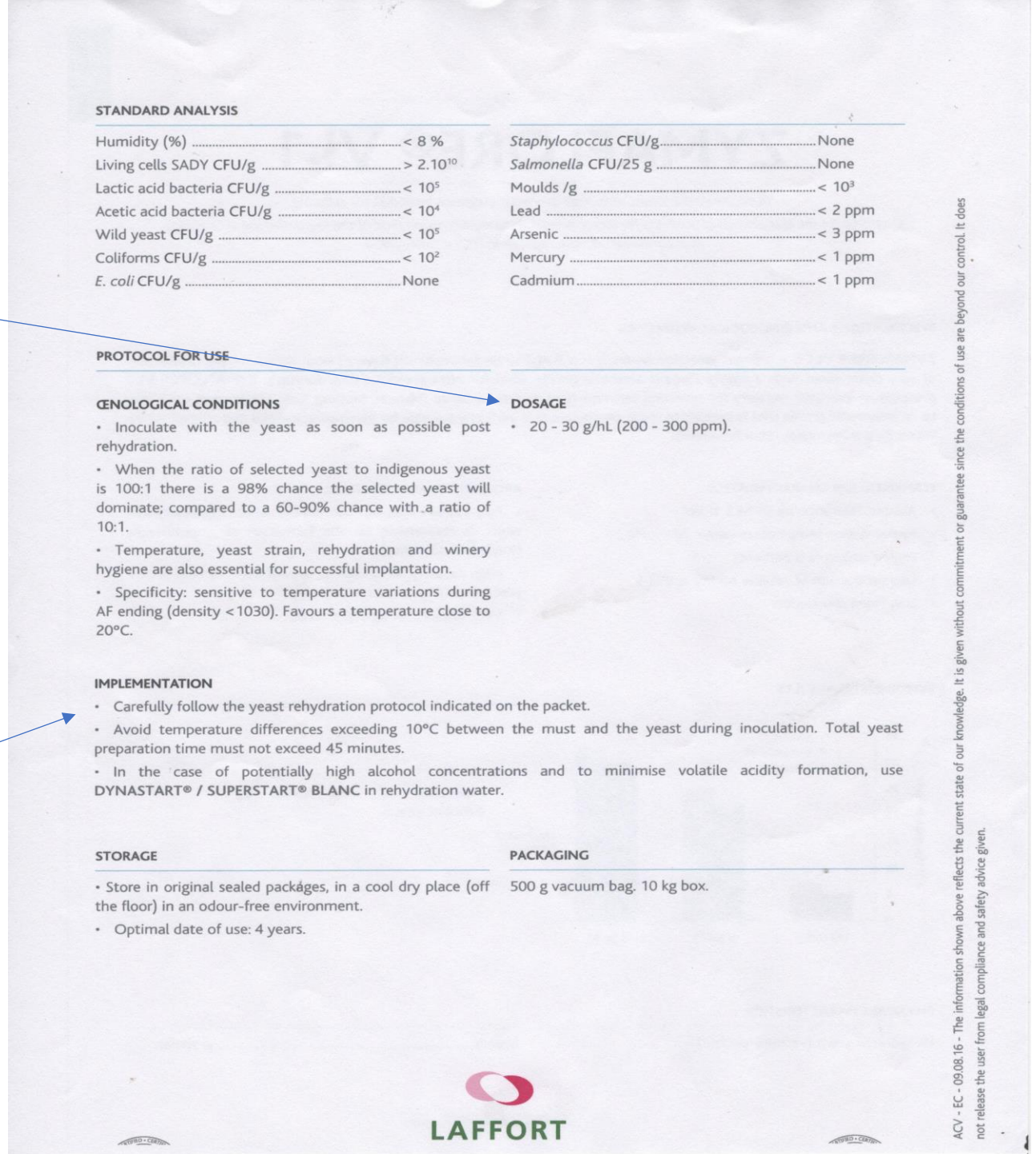
500 g vacuum bag. 10 kg box.

LAFFORT

Back of page

Dosage of yeast

Yeast Rehydration information



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LAFFORT

Be prepared before you get your grapes in!

- Research your Grape.

  Normal TA, Brix, Floral aromas or flavors of that Grape

- Research your yeast.

  Nutrient level (low, med or high)

  Fermentation temp range

  Sugar or Alcohol Tolerance

  Flavor/phenolic profile (does it match your grape?)

  If making a sweet white/look for a yeast with low sensitivity to S02

Last - Have everything you need on hand and them some.

Chemicals, enzymes, Acid, cleaning & sanitizing supplies, different size charboys etc. You may not need to add acid but better to have it on hand then try to get some at the last minute.

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Where do you start?

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Why??

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If they know what you want, (Brix, TA & pH) they

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- If they know what you want, (Brix, TA & pH) they can try to pick at the right time.

- This will help you be prepared if the grapes need tweeking.

Where do you start?

- If you are the grower, monitor your Brix, labs, flavor & seed ripeness.

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But how do you know where you want your
Brix, pH and TA??

Where do you start?

- If you are the grower, monitor your Brix, labs, flavor & seed ripeness.

- Ideal Dry White Wine labs

  Brix 19-24 TA 6.5-7.5 g/L pH 3.0 - 3.5

- Ideal Sweet White Wine labs

  Brix 22-26 TA 7.0 – 8.5 g/L pH 3.0 – 3.5

- Ideal Late Harvest

  Brix 22-30 TA 7.0 – 9.5 g/L pH 3.0 – 3.5

- Ideal Ice Wine labs

  Brix >30 TA 10.0 – 15.0 g/L pH 3.0 – 3.5

Where do you start?

If you are the grower, monitor your Brix, labs, flavor & seed ripeness.

- Red Wine vary per wine
- Ideal light Red Wine labs

  Brix 22-26 TA 6.0 – 8.0 g/L pH 3.2 – 3.5
- Ideal Full Body Red labs

  Brix 24-26 TA 6.0 – 8.0 g/L pH 3.2 – 3.5

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Why is this important??

The closer you are to your prefermentation targets, the better your wine will be. You can Hydrate (add water), add acid, deacidify etc., but the closer you are to your goal labs, the less adjusting you need to do.

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If you need to make adjustments, prefermentation is the BEST time to make those changes!
Big changes after fermentation can have a chemical taste etc.

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- Red Wine vary per wine

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Example:

If your Brix are 19 in your Cab Sauv, you are not going to be able to make a full body Red.

Low brix may indicate unripe Berries, You can add sugar but your tannin structure may not be there.

- Red Wine vary per wine

- Ideal light Red Wine labs
  Brix 22-26 TA 6.0 – 8.0 g/L pH 3.2 – 3.5
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Big changes after fermentation can have a chemical taste etc.

Example:

If your Brix are 19, you are not going to be able to make a full body Red.

If your TA is 9.7 with a pH of 3.7, you will not be able to make that Bold Full Body Red.

- Red Wine vary per wine

- Ideal light Red Wine labs
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If your TA is 9.7 with a pH of 3.7, you will not be able to make that Bold Full Body Red.

You may need to hydrate (water down your must and loose mouthfeel) or struggle with the TA/pH balance.

- Red Wine vary per wine

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If your Brix are 19, you are not going to be able to make a full body Red.

If your TA is 9.7 with a pH of 3.7, you will not be able to make that Bold Full Body Red.

But, keeping track, knowing where you need to be will help you make the best wine YOU can!

Lets start with Whites! Whites are simple! Calculations are done with just the juice!

White Wine

Crush & Destemming

- Destem & Crush your grapes! (or whole cluster press)

Crush & Destemming

- Destem & Crush your grapes!
- Add So2 and Enzymes at crush.

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So2 helps keep unwanted organisms at bay until juice is inoculated with good yeast.

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So2 helps keep unwanted organisms at bay until juice is inoculated with good yeast.

Enzymes are a personal choice. They can help break down the skins to make pressing easier and can also help release phenolics in the skin.

Crush & Destemming

- Destem & Crush your grapes!
- Add So2 and Enzymes at crush.
- Press right away.

If it is a high phenolic grape, you can press 4-24 hrs after crushing, but must protect from air. Rosé are pressed to color

*******Hard presses can release more K+, increasing pH**

Crush & Destemming

- Destem & Crush your grapes!
- Add So2 and Enzymes at crush.
- Press right away. (If it is a high phenolic grape, you can press 4-24 hrs after crushing, but must protect from air.) (Rosé are pressed to color)(hard presses can release more K+, increasing pH)
- Let settle for 24 hours in a cold area.

Temp controlled fridge/freezer is ideal. It can help prevent natural fermentation until you get your juice adjusted

Crush & Destemming

- Destem & Crush your grapes!
- Add So2 and Enzymes while crushing.
- Press right away. (If it is a high phenolic grape, you can press 4-24 hrs after crushing but must protect from air.) (Rosé are pressed to color)(hard presses can release more K+, increasing pH)
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- Rack the clean juice off the Muck. Take a small amount of the Muck with the juice. (avoid too clean of Juice)

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- Rack the clean Juice off the Muck. Take a small amount of the Muck with the juice. (avoid too clean of Juice)
- Take a sample of this juice for your adjustment labs.

So what is next?

Nope!

Lets adjust our juice before fermentation!

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Why?

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1. Adjusting the wine prefermentation is easier than after.

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2. Big changes are not noticeable when done prefermentation

Lets adjust our juice before fermentation!

Why?

1. Adjusting the wine prefermentation is easier than after.
2. Big changes are not noticeable when done prefermentation
3. Small tweeks can be done after fermentation and are not noticable

We sent our sample in to get tested. You get the results back and this is what it looks like. Where do you start!

juice analysis, 12 Aug 2021

Horst <horst.caspari@colostate.edu>
Thu 8/12/2021 8:52 PM
To: Kathey_RN@hotmail.com <Kathey_RN@hotmail.com>

Kathey,

here are today's results. Brix by refractometer was 19.7

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Brianna	1.0823	3.72	17.0	7.37	2.50	6.44	1.3	0.24	308.0	75.9

--
Tschüss.

****
Dr Horst Caspari
Professor & State Viticulturist
Colorado State University
Western Colorado Research Center - Orchard Mesa
3170 B 1/2 Rd
Grand Junction, CO 81503
USA

Phone: [+1] 970-434-3264 ext 204
Mobile: [+1] 970-216-1011

http://aes-wcrc.agsci.colostate.edu/stations/orchard-mesa/viticulture/
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Brix 17.0
Goal 19-20

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Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Brianna	1.0823	3.72	17.0	7.37	2.50	6.44	1.3	0.24	308.0	75.9

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Tschüss.

****
Dr Horst Caspari
Professor & State Viticulturist
Colorado State University
Western Colorado Research Center - Orchard Mesa
3170 B 1/2 Rd
Grand Junction, CO 81503
USA

Phone: [+1] 970-434-3264 ext 204
Mobile: [+1] 970-216-1011

http://aes-wcrc.agsci.colostate.edu/stations/orchard-mesa/viticulture/
****

Frustra laborat qui omnibus placere studet.

Brix 17.0
Goal 19-20

TA 7.37
Goal 6.5

First, lets Look at the whole picture!

juice analysis, 12 Aug 2021

Horst <horst.caspari@colostate.edu>
Thu 8/12/2021 8:52 PM
To: Kathey_RN@hotmail.com <Kathey_RN@hotmail.com>

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Working with small amounts, it is easier to convert and measure your sugar in grams.

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Lets convert lbs to Grams!

453.6 gms = 1 lb (constant)

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We just calculated for our Sugar addition

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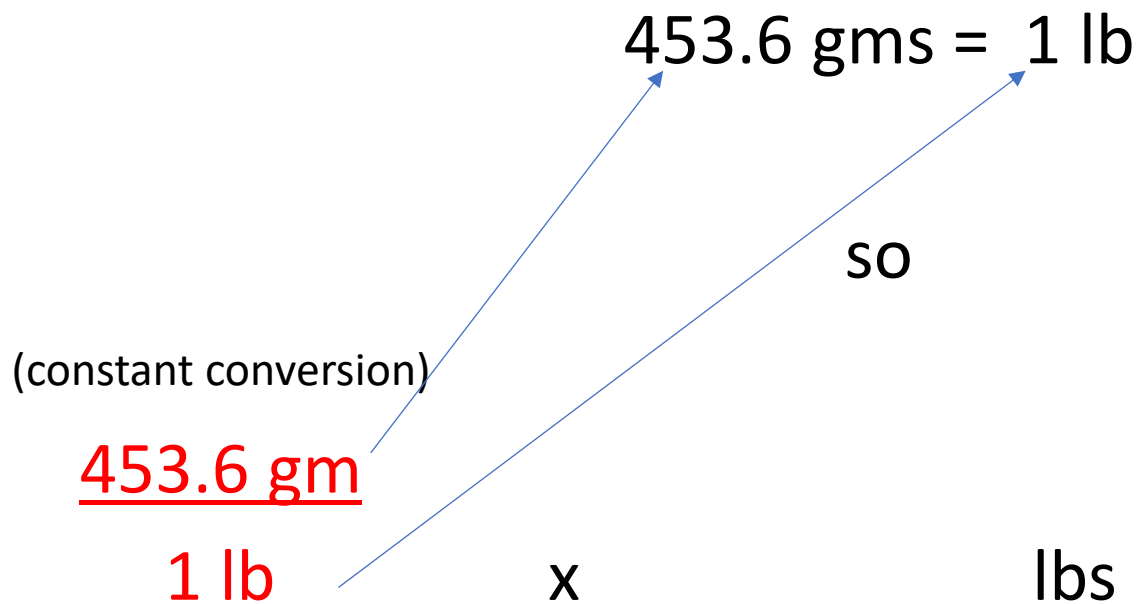

x ___ lbs = _____ gms sugar

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so

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$$\frac{453.6\ \text{gm}}{1\ \text{lb}} \times 1.5\ \text{lbs} = \boxed{680.4\ \text{gms}}\ \text{sugar}$$

Now lets look at the pH & TA!

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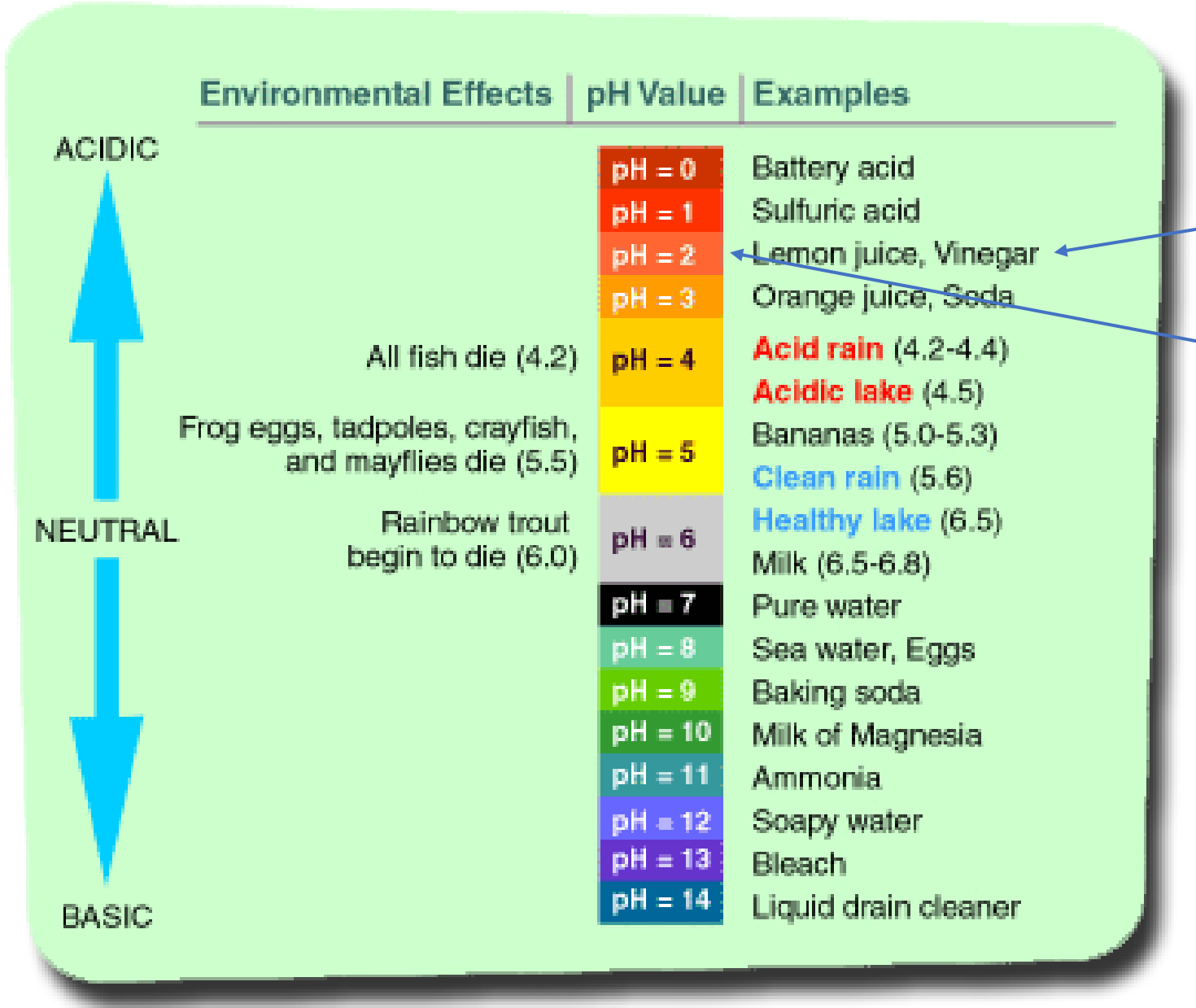
Quick reminder



Think opposites!

When you add acid

the pH

Decreases!

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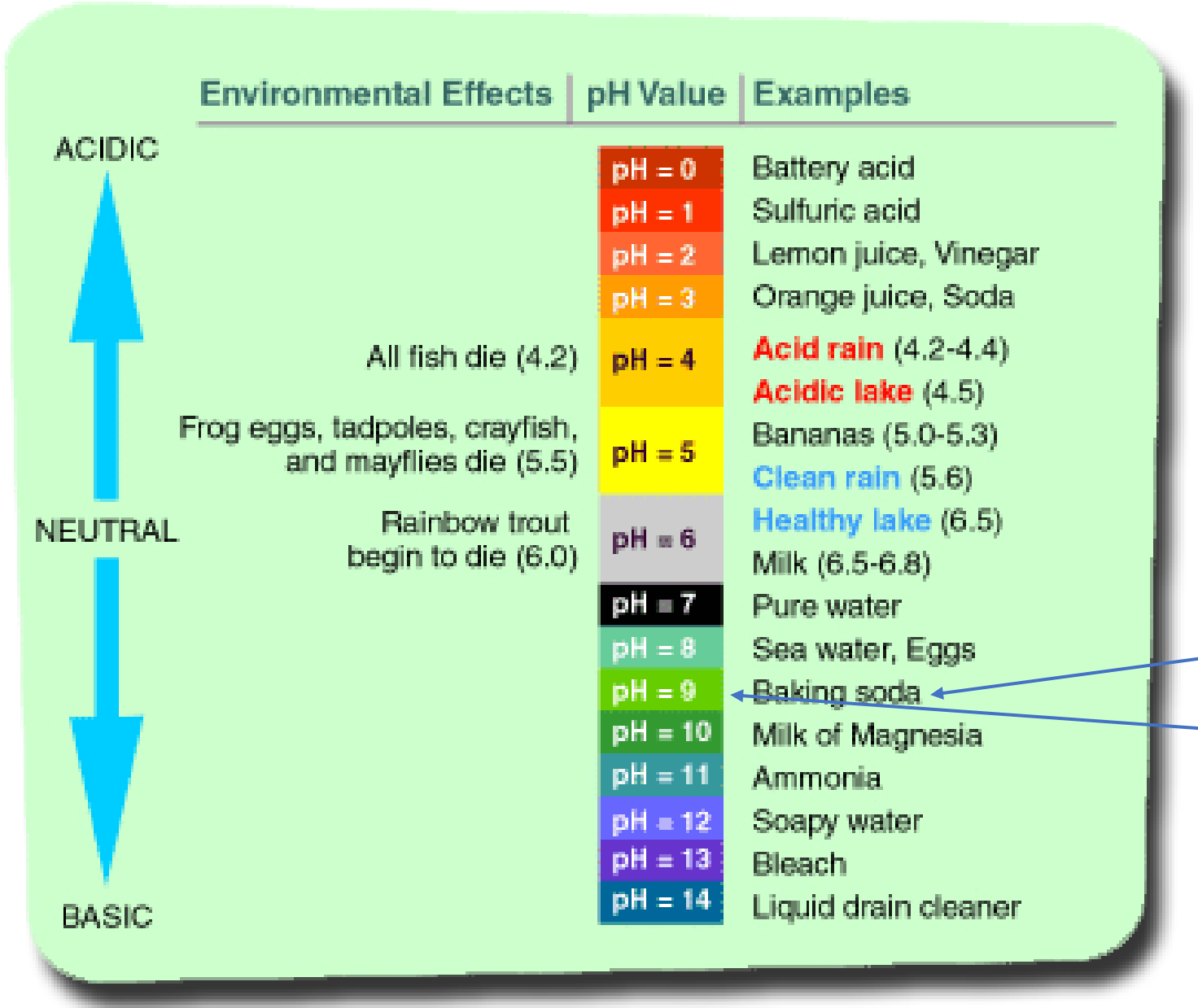

Think opposites!

When you add acid

the pH

Decreases!

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If you deacidify

The pH

Goes up!

Now lets look at the pH & TA!

TA	7.37	pH	3.72
Goal	6.5	goal	<3.50

pH is high but so is the TA.

If we try to lower the TA (deacidify), it will increase the pH.

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Goal	19-20
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Now lets look at the pH & TA!

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TA	7.37	pH 3.72
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pH is high but so is the TA.

So what are our options?

1. Blend with another juice to lower both pH & TA
2. Add acid to lower pH and use a yeast that naturally lowers TA (a few yeasts can lower a little)

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4. Add acid and make a sweet wine

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4. Add acid and make a sweet wine
5. MLF (Malolactic Fermentation)

Brix	17.0
Goal	19-20
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Goal	6.5
pH	3.72
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But why is the pH so important?

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It rises at a lower rate if the pH is below 3.5!

Example:	fermenting with a juice of pH 3.75	could end with a pH of 4.20
	fermenting with a juice of pH 3.50	could end with a pH of 3.60

But why is the pH so important?

Wine with a pH below 3.5 is important because during fermentation, pH will automatically rise.

BUT

It rises less if the pH is below 3.5!

Example: fermenting with a juice of pH 3.75 could end with a pH of 4.20

fermenting with a juice of pH 3.50 could end with a pH of 3.60

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Wine with a pH below 3.5 is important because during fermentation, pH will automatically rise.

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Example: fermenting with a juice of pH 3.75 could end with a pH of 4.20

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So why is that important?

The Lower pH the Less S02 that is needed to keep wine stable.

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Example: fermenting with a juice of pH 3.75 could end with a pH of 4.20

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Example: pH of 4.20 wine will need 168 ppm So2 to keep it stable

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BUT

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Example: fermenting with a juice of pH 3.75 could end with a pH of 4.20

fermenting with a juice of pH 3.50 could end with a pH of 3.60

So why is that important?

The Lower pH the Less S02 that is needed to keep wine stable.

Example: pH of 4.20 wine will need 168 ppm So2 to keep it stable

pH of 3.60 wine will need 50 ppm So2 to keep it stable

What if the TA was lower with the same pH?

What if the TA was lower?

TA 5.37 pH 3.72

Goal 6.5 goal <3.50

We now have better options!

Brix 17.0

Goal 19-20

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So how do we do this?

What if the TA was lower?

TA	5.37	pH 3.72
Goal	6.5	goal <3.50

Lets calculate!

What if the TA was lower?

TA 5.37 pH 3.72

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TA ___ g/L (goal) - TA ___ g/L (have) = ____ g/L (That we want to add to our juice)

What if the TA was lower?

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TA 6.5 g/L (goal) - TA 5.37 g/L (have) = 1.13 g/L (That we want to add to our juice)

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TA 6.5 g/L (goal) - TA 5.37 g/L (have) = 1.13 g/L (That we want to add to our juice)

Lets now calculate for the amount of Juice we have: (lets say we have 6 gallons).

$$\frac{\text{gm}}{\text{L}} \times \frac{3.785\ \text{L}}{1\ \text{gallons}} \times \frac{\quad}{\text{gallons}} = \quad \text{gms of Tartaric to add to our juice!}$$

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$$\frac{1.13\ \text{gm}}{\text{L}} \times \frac{3.785\ \text{L}}{\text{gallon}} \times 6\ \text{gallons} = 25.66\ \text{gms of Tartaric to add to our juice!}$$

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After adding your acid to your wine, It is always best to recheck your labs to see if your pH and TA is where you want it! Repeat if it is not where you want it!

Red Wine Making

Now lets work with Red Must. You will need to know that in Red Winemaking, calculations are done with either the Juice in the Must, or the Must total. Please keep this in mind!

At Destem/Crush, Add your So2, Enzymes and sacrificial tannins etc!

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Wait 24 hrs before taking your Lab sample.

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Wait 24 hrs before taking your Lab sample.

This gives the raisins time to rehydrate and grapes to homogenize. This will also give you a more accurate lab results on the entire batch.

After 24 hrs, try to mix the must as best as you can.

After you have waited the 24 hr period and have mix the must well, it is time to take your sample.

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Pour must into a mesh bag squeezing out as much juice as possible. Make sure you get accurate amts of solids to liquids that represents your must ratio.

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Pour must into a mesh bag squeezing out as much juice as possible. Make sure you get accurate amt of solids to liquids that represents your must ratio.

Don’t over fill the bag making it difficult to squeeze.

Let the juice sit undisturbed until it settles out. Then pour off the clearer juice to use as your lab sample.

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With this in mind, lets learn how to calculate your juice in your must!

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Historically we recover 73% of the juice from the must.

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This is how we get our calculation! (or really good guess!)

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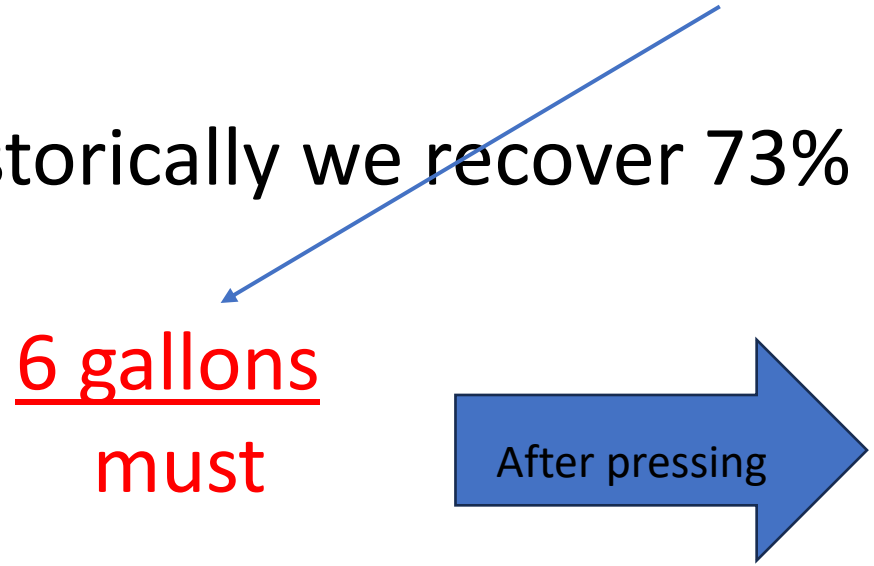

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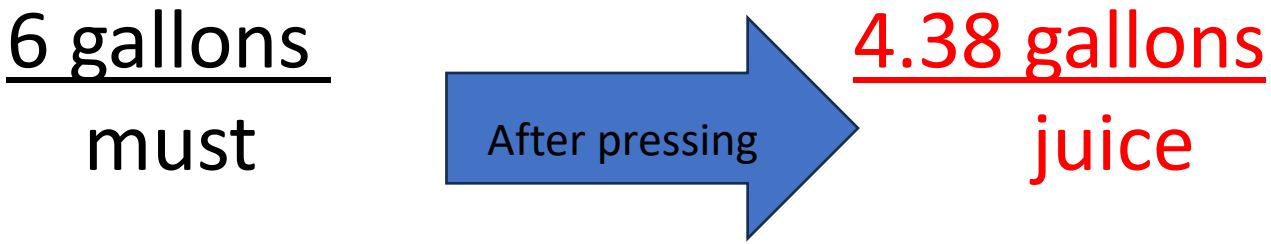

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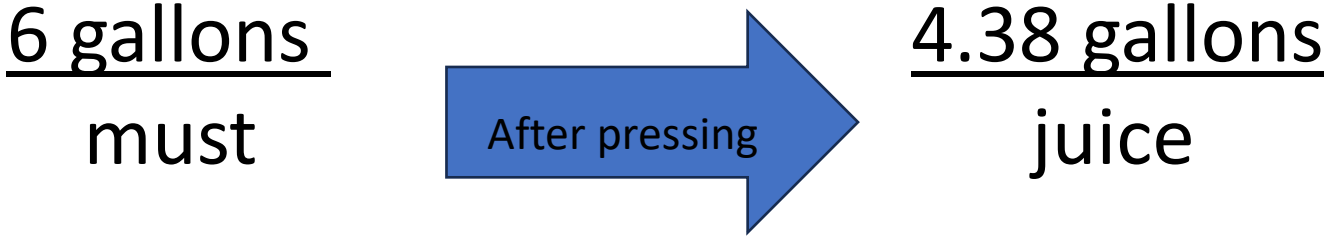

Lets calculate the % of recovery

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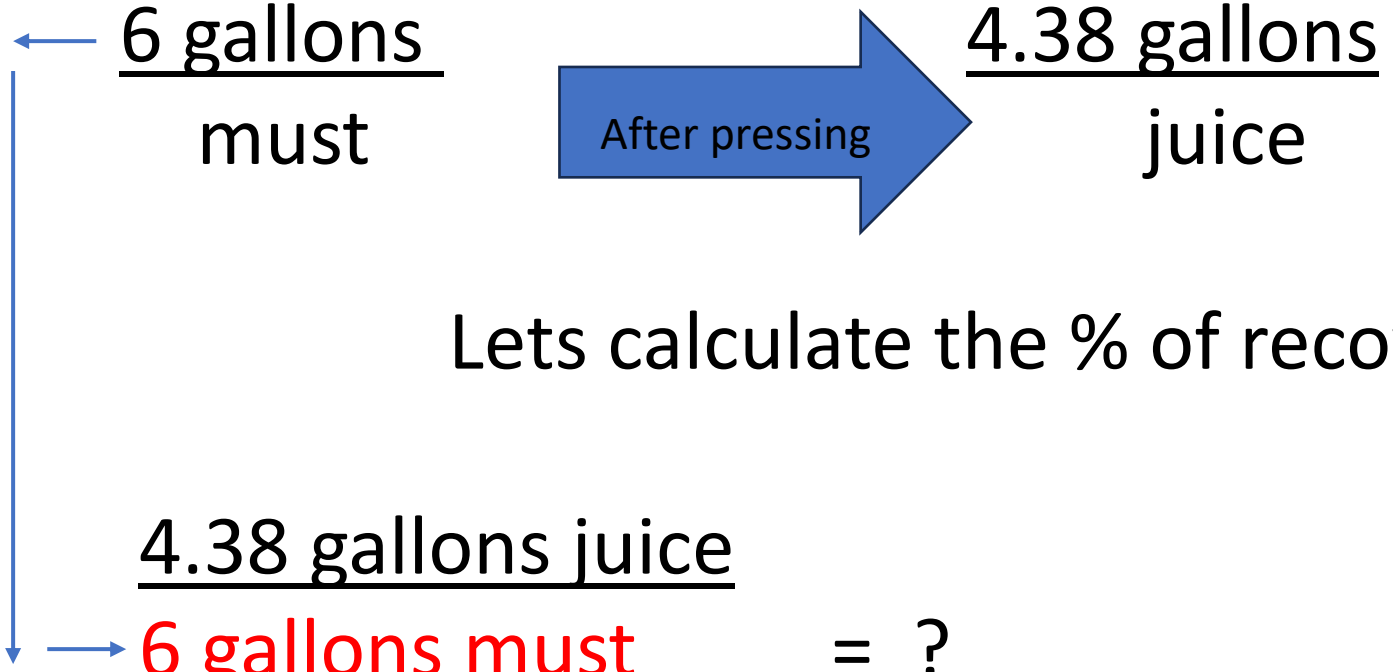

Lets calculate the % of recovery

$$\frac{\text{4.38 gallons juice}}{\text{6 gallons must}} = \ ?$$

Lets say we are working with 6 gallons of Cab Sauv must.

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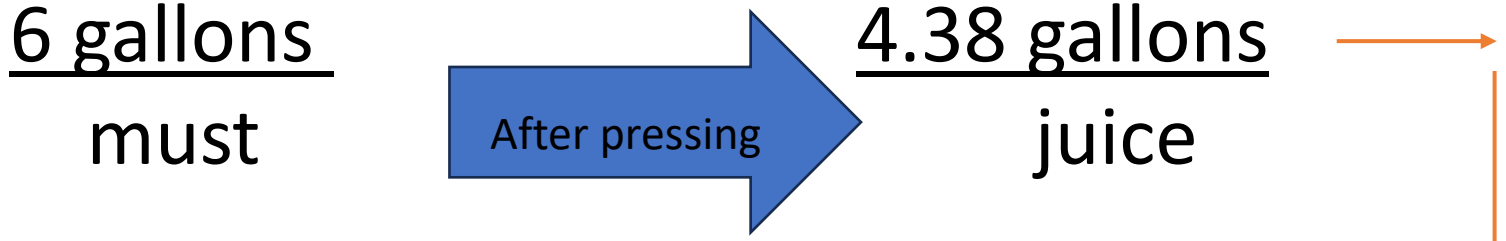


Lets calculate the % of recovery

$$\frac{\text{4.38 gallons juice}}{\text{6 gallons must}} = \ ?$$

Lets say we are working with 6 gallons of Cab Sauv must.

Historically we recover 73% of the juice from the must.

6 gallons must → (After pressing) → 4.38 gallons juice

Lets calculate the % of recovery

$$\frac{\text{4.38 gallons juice}}{\text{6 gallons must}} = .73 \quad \text{or 73\% juice/liquid recovery}$$

Now, we are going to calculate for our 2026 10 gallon batch of Cab Sauv. (Historically) (last 2 years) we had a 73% recovery of juice from our Must.

2026 10 gallon batch of Cab Sauv. (Historically) a 73% recovery of juice from our Must.

Formula would then be:

2026 10 gallon batch of Cab Sauv. (Historically) a 73% recovery of juice from our Must.

Formula would then be:

_____ Gallons (Must) x _____% (Historical recovery) = _____ Gallons juice in must

2026 10 gallon batch of Cab Sauv. (Historically) a 73% recovery of juice from our Must.

Formula would then be:

10 Gallons (Must) x _____% (Historical recovery) = _____ Gallons juice in must

2026 10 gallon batch of Cab Sauv. (Historically) a 73% recovery of juice from our Must.

Formula would then be:

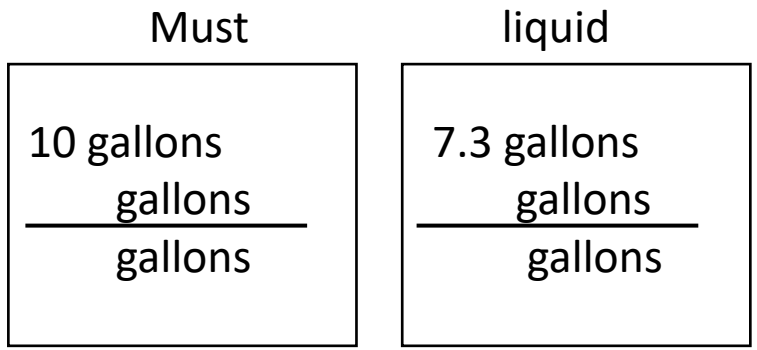
10 Gallons (Must) x 73% (Historical recovery) = _____ Gallons juice in must

2026 10 gallon batch of Cab Sauv. (Historically) a 73% recovery of juice from our Must.

Formula would then be:

10 Gallons (Must) x 73% (Historical recovery) = **7.3 Gallons juice in must**

Now that we know how much Juice/liquid we have in our must – hang on to those numbers, they will be handy a little later!



Now lets get back to working on our Cab Sauv!

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal <3.5

Re: grape analysis, 16 Oct 2025

From Caspari,Horst <Horst.Caspari@ColoState.EDU>
Date Fri 10/17/2025 12:27 PM
To Kathey Iske-Ondrus <kathey_rn@hotmail.com>

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Cabernet Dore	1.1095	3.07	25.9	9.96	6.24	7.40	1.1	0.09	152.8	98.3
Cabernet Sauvignon	1.1095	3.60	25.9	4.5	4.97	2.54	0.4	0.10	75.6	88.9
Petite Sirah	1.0928	3.44	22.4	6.04	5.62	3.23	0.5	0.12	153.1	110.5
Sangiovese	1.0964	3.59	23.2	4.97	5.17	3.13	0.1	0.12	145.1	100.6

Tschüss.

****
Dr Horst Caspari
Professor & State Viticulturist
Colorado State University
Western Colorado Research Center - Orchard Mesa
3170 B 1/2 Rd
Grand Junction, CO 81503
USA

Phone: [+1] 970-495-2202
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First lets work on the Brix!

Brix 25.9 Goal 24

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First lets work on the Brix!

Brix 25.9 Goal 24 (need to hydrate)

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
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First lets work on the Brix!

Brix 25.9 Goal 24

Formula: Brix (have) - Brix (want) = Brix (to change) x 4.7(%) (4.7(%) water/1° Brix drop)

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
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First lets work on the Brix!

Brix 25.9 Goal 24 (need to hydrate)

Formula: Brix (have) - Brix (want) = Brix (to change) x 4.7(%) (4.7(%) water/1° Brix drop)

Hydration - 4.7(%) water/1° brix drop (Constant)

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Formula: Brix (have) - Brix (want) = Brix (to change) x 4.7(%) (4.7(%) water/1° Brix drop)

25.9°B (have) - ____(goal) = ____°B (to change)

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
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Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
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Formula: Brix (have) - Brix (want) = Brix (to change) x 4.7(%) (4.7(%) water/1° Brix drop)

25.9°B (have) - 24°B (goal) = 1.9°B (to change) x 4.7(%) = _____

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
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Brix 25.9 Goal 24 (need to hydrate)

Formula: Brix (have) - Brix (want) = Brix (to change) x 4.7(%) (4.7(%) water/1° Brix drop)

25.9°B (have) - 24°B (goal) = 1.9°B (to change) x 4.7(%) = 8.93%

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
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First lets work on the Brix!

Brix 25.9 Goal 24 (need to hydrate)

Formula: Brix (have) - Brix (want) = Brix (to change) x 4.7(%) (4.7% water/1° Brix drop)

25.9°B (have) - 24°B (goal) = 1.9°B (to change) x 4.7(%) = 8.93%

This is the % of Brix change we need to make in the must. So now we multiply this number to the liquid in the Must and this will give us the amount of water we need to add.

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
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Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal <3.5

First lets work on the Brix!

Brix 25.9 Goal 24 (need to hydrate)

Formula: Brix (have) - Brix (want) = Brix (to change) x 4.7 (%)

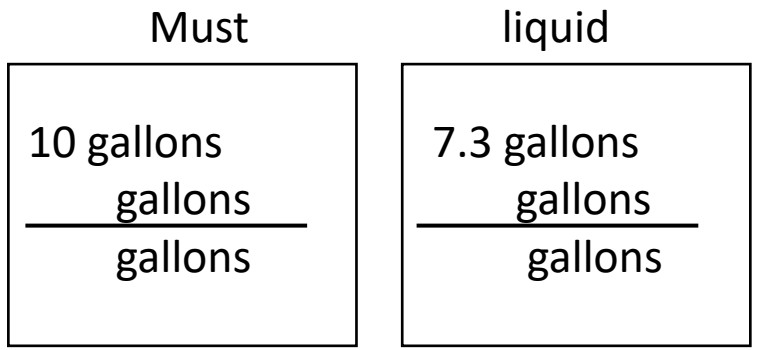
(4.7% water/1° Brix drop)

25.9°B (have) - 24°B (goal) = 1.9°B (to change) x 4.7 (%) = 8.93%

8.93% is then multiplied by the liquid amount in the must
This will give us the amount of water to add.

Remember the calculation we performed earlier?

This is where those numbers come in!



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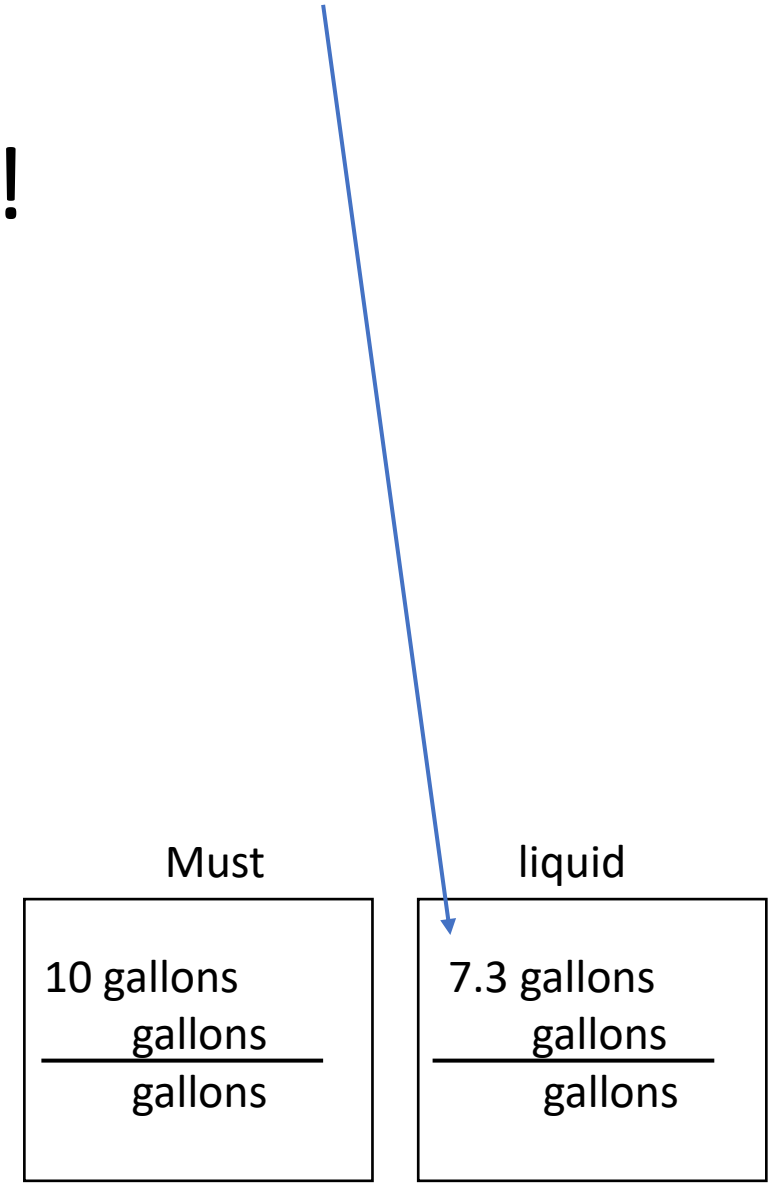


We calculated a recovery of 7.3 gallons of juice in the must. Now, we need to multiply the % we calculated to reach our goal Brix number.

Must	liquid
10.0 gallons gallons gallons	7.3 gallons gallons gallons

We calculated a recovery of 7.3 gallons of juice in the must. Now, we need to multiply the % we calculated to reach our goal Brix number.

8.93% is the % to decrease the Brix Must to goal.

Must	liquid
10.0 gallons gallons gallons	7.3 gallons gallons gallons

We calculated a recovery of 7.3 gallons of juice in the must. Now, we need to multiply the % we calculated to reach our goal Brix number.

8.93% is the % to decrease the Brix Must to goal.

7.3 gallons x ____% = _____ gallons of water

We calculated a recovery of 7.3 gallons of juice in the must. Now, we need to multiply the % we calculated to reach our goal Brix number.

8.93% is the % to decrease the Brix Must to goal.

7.3 gallons x 8.93% = _____ gallons of water

Must	liquid
10.0 gallons gallons gallons	7.3 gallons gallons gallons

We calculated a recovery of 7.3 gallons of juice in the must. Now, we need to multiply the % we calculated to reach our goal Brix number.

8.93% is the % to decrease the Brix Must to goal.

7.3 gallons x 8.93% (.0893) = 0.65 gallons of water

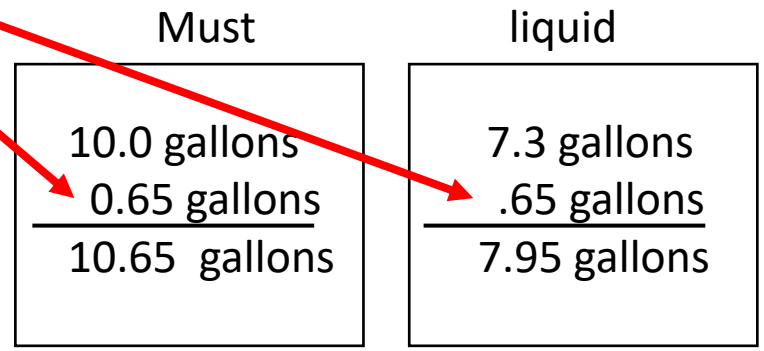
Must	liquid
10.0 gallons gallons gallons	7.3 gallons gallons gallons

We calculated a recovery of 7.3 gallons of juice in the must. Now, we need to multiply the % we calculated to reach our goal Brix number.

8.93% is the % to decrease the Brix Must to goal.

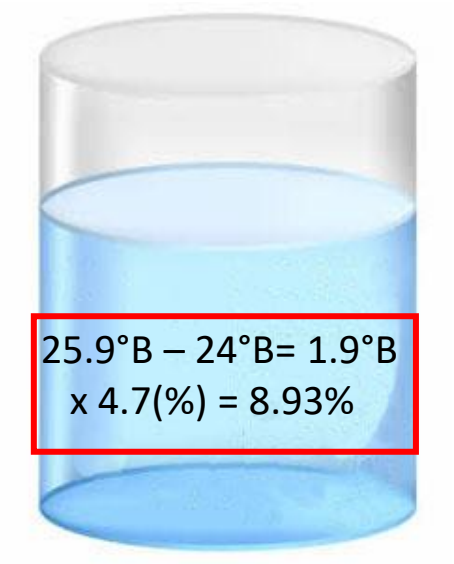
7.3 gallons x 8.93% (.0893) = 0.65 gallons of water

Make sure you add to your total!



Head spinning yet? Let me see if I can make this easier to follow or understand!

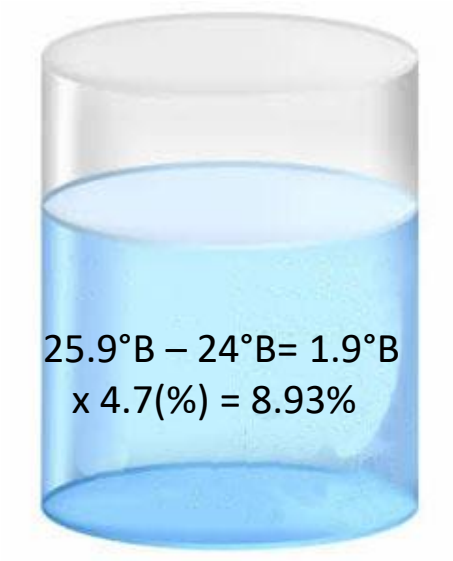
4.7(%)/1° Brix drop
(Constant)



8.93%

This gives you the % of water to add to drop your Brix 1.9°

4.7(%)/1° Brix drop
(Constant)



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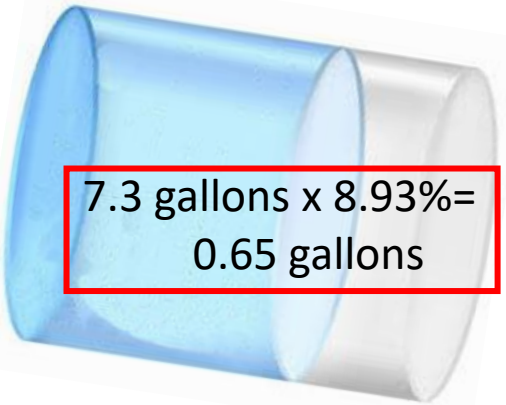
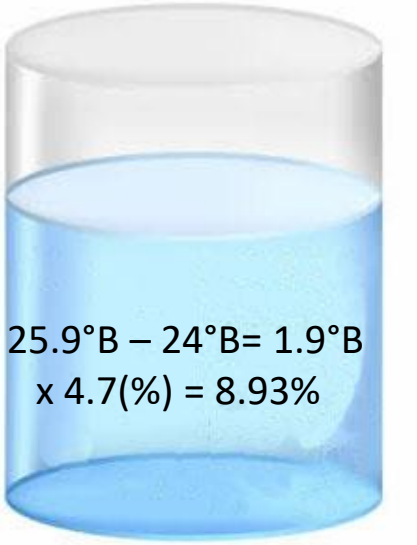
Water 0°B

4.7(%)/1° Brix drop

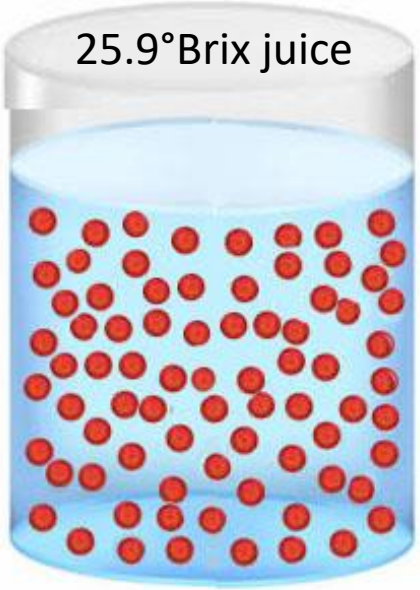


0.65 gallons water



8.93%

Gallons of juice "x" % of Brix drop, gives us the amt of water to add



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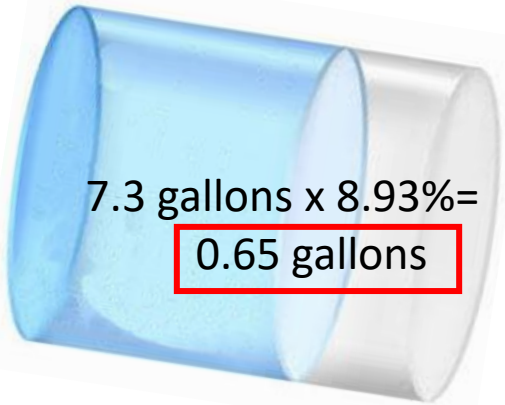
4.7(%)/1° Brix drop



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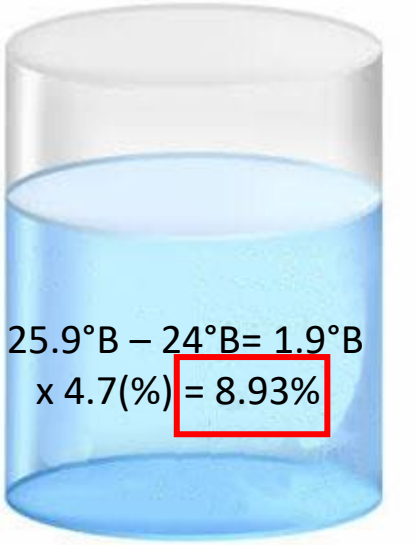

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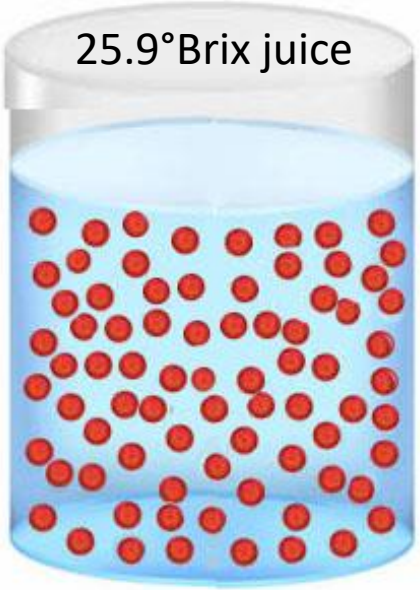
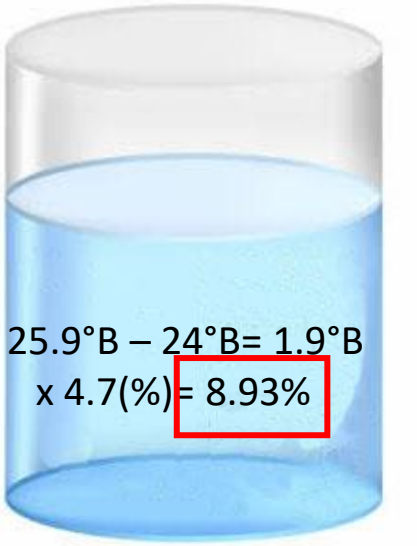


This gives you the % of water to add to drop your Brix 1.9°

4.7(%)/1° Brix drop

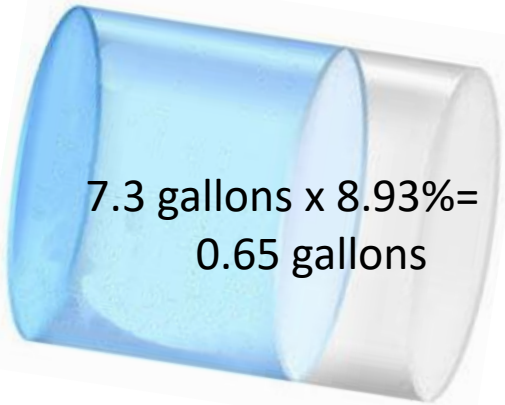


25.9°B – 24°B= 1.9°B
x 4.7(%)= 8.93%

8.93%

This gives you the % of water to add to drop your Brix 1.9°

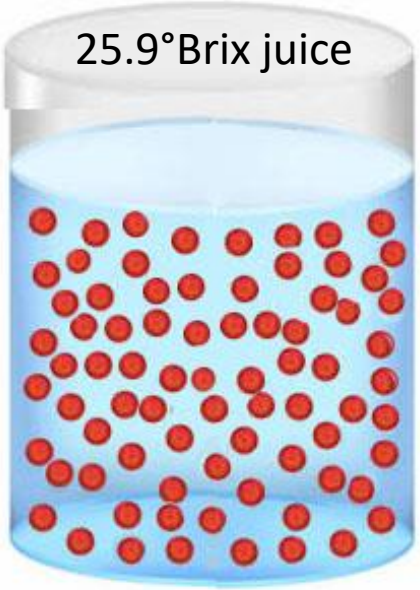
Water 0°B



7.3 gallons x 8.93%=
0.65 gallons

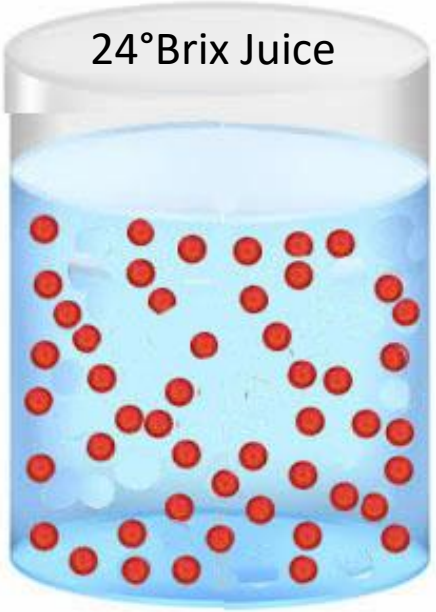
0.65 gallons water

Gallons of juice "x" % of Brix drop, gives us the amt of water to add



25.9°Brix juice

Amount of water added to our 7.3 gallons of juice give us our target °B of 24°B



24°Brix Juice

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

Must	liquid
10.0 gallons 0.65 gallons 10.65 gallons	7.3 gallons .65 gallons 7.95 gallons

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

3.785 L = 1 gallon OR 3785 mL = 1 gallon

Must

10.0 gallons
0.65 gallons
10.65 gallons

liquid

7.3 gallons
.65 gallons
7.95 gallons

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

3.785 L = 1 gallon 3785 mL = 1 gallon

3.785 L

1 gallon x ____ gallons = _____ Liters

Must	liquid
10.0 gallons 0.65 gallons 10.65 gallons	7.3 gallons .65 gallons 7.95 gallons

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

3.785 L = 1 gallon 3785 mL = 1 gallon

$$\frac{3.785\ L}{1\ gallon} \times 0.65\ gallons = \_\_\_\_\ Liters$$

Must	liquid
10.0 gallons 0.65 gallons 10.65 gallons	7.3 gallons .65 gallons 7.95 gallons

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

3.785 L = 1 gallon

3785 mL = 1 gallon

$$\frac{3.785\ L}{1\ gallon} \times 0.65\ gallons = 2.46\ Liters$$

Must	liquid
10.0 gallons 0.65 gallons 10.65 gallons	7.3 gallons .65 gallons 7.95 gallons

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

3.785 L = 1 gallon 3785 mL = 1 gallon

$$\frac{3.785\ \text{L}}{1\ \text{gallon}} \times 0.65\ \text{gallons} = 2.46\ \text{Liters}$$

OR

$$\frac{3785\ \text{ml}}{1\ \text{gallon}} \times \text{\_\_\_\_}\ \text{gallons} = \text{\_\_\_\_}\ \text{mL}$$

Must	liquid
10.0 gallons 0.65 gallons 10.65 gallons	7.3 gallons .65 gallons 7.95 gallons

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

3.785 L = 1 gallon 3785 mL = 1 gallon

$$\frac{3.785\ \text{L}}{1\ \text{gallon}} \times 0.65\ \text{gallons} = 2.46\ \text{Liters}$$

OR

$$\frac{3785\ \text{ml}}{1\ \text{gallon}} \times 0.65\ \text{gallons} = \_\_\_\_\ \text{mL}$$

Must	liquid
10.0 gallons 0.65 gallons 10.65 gallons	7.3 gallons .65 gallons 7.95 gallons

Since it is easier to measure out Liters than a partial gallon (accuracy make a big difference), lets convert to an easier measurement!

3.785 L = 1 gallon 3785 mL = 1 gallon

$$\frac{3.785\ L}{1\ gallon} \times 0.65\ gallons = 2.46\ Liters$$

OR

$$\frac{3785\ ml}{1\ gallon} \times 0.65\ gallons = 2460\ mL$$

Must	liquid
10.0 gallons 0.65 gallons 10.65 gallons	7.3 gallons .65 gallons 7.95 gallons

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Cabernet Sauvignon	1.1095	3.60	25.9	4.5	4.97	2.54	0.4	0.10	75.6	88.9

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

So now that we have Hydrated (added water) we need to work on the TA.

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Cabernet Sauvignon	1.1095	3.60	25.9	4.5	4.97	2.54	0.4	0.10	75.6	88.9

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

So now that we have Hydrated (added water) we need to work on the TA.

Our TA is 4.5 but our Goal is 5.5 g/L to 6 g/L (Will go for 6!)

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Cabernet Sauvignon	1.1095	3.60	25.9	4.5	4.97	2.54	0.4	0.10	75.6	88.9

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

So now that we have Hydrated (added water) we need to work on the TA.

Our TA is 4.5 but our Goal is 5.5 g/L to 6 g/L (Will go for 6!)

6 g/L - ___ g/L = ___ g/L (to increase acidity)

(Want) (Have) (need)

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Cabernet Sauvignon	1.1095	3.60	25.9	4.5	4.97	2.54	0.4	0.10	75.6	88.9

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

So now that we have Hydrated (added water) we need to work on the TA.

Our TA is 4.5 but our Goal is 5.5 g/L to 6 g/L (Will go for 6!)

6 g/L - 4.5 g/L = ___ g/L (to increase acidity)

(Want) (Have) (need)

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Cabernet Sauvignon	1.1095	3.60	25.9	4.5	4.97	2.54	0.4	0.10	75.6	88.9

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

So now that we have Hydrated (added water) we need to work on the TA.

Our TA is 4.5 but our Goal is 5.5 g/L to 6 g/L (Will go for 6!)

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the Must)

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

Variety	Density (g/ml)	pH	Brix	TA (g/l)	Tartaric (g/l)	Malic (g/l)	Gluconic (g/l)	VA (g/l)	Alpha Amino N (mg/l)	Ammonia (mg/l)
Cabernet Sauvignon	1.1095	3.60	25.9	4.5	4.97	2.54	0.4	0.10	75.6	88.9

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

So now that we have Hydrated (added water) we need to work on the TA.

Our TA is 4.5 but our Goal is 5.5 g/L to 6 g/L (Will go for 6!)

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the Must/liquid)

Now that we know how many gm/L of Tartaric acid we need, Let calculate!

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Formula

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = ?$$

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

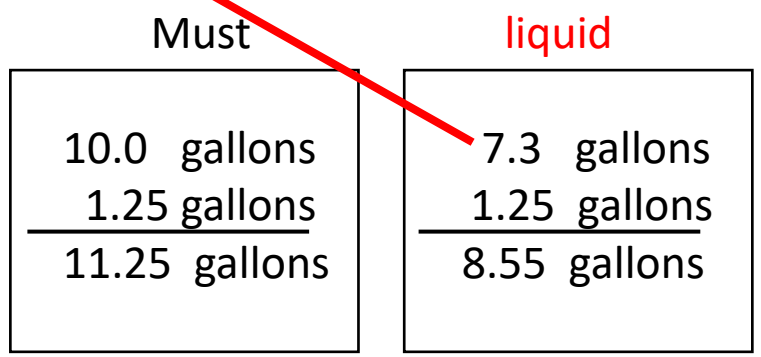
6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = ?$$



6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

1.5 g / L	x	7.3 gallons	x	3.785 L / 1 gallon	=	?

3.785 L = 1 gallon conversion

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix 25.9
Goal 24

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = \boxed{41.45\ gm\ tartaric\ acid}$$

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24

TA	4.5
Goal	5.5-6

pH	3.6
Goal	3.5

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = 41.45\ gm\ tartaric\ acid$$

So far, we have calculated the Acid adjustment to the liquid/juice part of the must,

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix 25.9
Goal 24

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = 41.45\ gm\ tartaric\ acid$$

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

So far, we have calculated the Acid adjustment to the liquid part of the must,

NOW we need to calculate for the water addition.

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = 41.45\ gm\ tartaric\ acid$$

TA	4.5
Goal	5.5-6

pH	3.6
Goal	3.5

So far, we have calculated the Acid adjustment to the liquid part of the must,

NOW we need to calculate for the water addition.

Water has no acid so we can just calculate at our goal rate!

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

Water addition

$$\frac{6\ g}{L} \times \frac{1.25\ gallon}{} \times \frac{3.785\ L}{1\ gallon} = \_\_\_\_\_\ gm\ tartaric\ acid$$

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix 25.9
Goal 24

TA 4.5
Goal 5.5-6

pH 3.6
Goal 3.5

Water addition

$$\frac{6\ g}{L} \times \frac{1.25\ gallon}{} \times \frac{3.785\ L}{1\ gallon} = \_\_\_\_\_\ gm\ tartaric\ acid$$

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Liter to gallon conversion

Water addition

$$\frac{6\ g}{L} \times \frac{1.25\ gallon}{} \times \frac{3.785\ L}{1\ gallon} = \_\_\_\_\_\ gm\ tartaric\ acid$$

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Water addition

$$\frac{6\ g}{L} \times \frac{1.25\ gallon}{} \times \frac{3.785\ L}{1\ gallon} = 28.39\ gm\ tartaric\ acid$$

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Water addition

$$\frac{6\ g}{L} \times \frac{1.25\ gallon}{} \times \frac{3.785\ L}{1\ gallon} = 28.39\ gm\ tartaric\ acid$$

Lets add them together now!

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Must acid addition

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = 41.45\ gm\ tartaric\ acid$$

Water addition

$$\frac{6\ g}{L} \times \frac{1.25\ gallon}{} \times \frac{3.785\ L}{1\ gallon} = 28.39\ gm\ tartaric\ acid$$

Lets add them together now!

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

6 g/L - 4.5 g/L = 1.5 g/L (to increase acidity in the liquid)

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Must acid addition

$$\frac{1.5\ g}{L} \times \frac{7.3\ gallons}{} \times \frac{3.785\ L}{1\ gallon} = 41.45\ gm\ tartaric\ acid$$

Water addition

$$\frac{6\ g}{L} \times \frac{1.25\ gallon}{} \times \frac{3.785\ L}{1\ gallon} = 28.39\ gm\ tartaric\ acid$$

Lets add them together now!

41.45 gm (Must addition) + 28.39 gm (Liquid addition) = 69.84 gm total Tartaric Acid

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

Brix	25.9
Goal	24
TA	4.5
Goal	5.5-6
pH	3.6
Goal	3.5

Must	liquid
10.0 gallons	7.3 gallons
1.25 gallons	1.25 gallons
11.25 gallons	8.55 gallons

Side note!

If you have Chlorine or Chloramine in your water, you will need to buy filtered water or treat the water. Carbon filters will work. If you do not have a filter you can use one of the following!

Side note!

If you have Chlorine or Chloramine in your water, you will need to buy filtered water or treat the water. Carbon filters will work. If you do not have a filter you can use one of the following!

If you have Chlorine in your water, you can let it sit for 24 hrs and it will dissipate.

We have Chloramine in our water. Letting it sit for 24 hr will not work. Easy way to remove it is to add 0.2 gm KMBS powder per 5 gallons.
If you have Campden tablets, this would be 1 tablet for every 5 gallons

Side note!

If you have Chlorine or Chloramine in your water, you will need to buy filtered water or treat the water. Carbon filters will work. If you do not have a filter you can use one of the following!

If you have Chlorine in your water, you can let it sit for 24 hrs and it will dissipate.

We have Chloramine in our water. Letting it sit for 24 hr will not work. Easy way to remove it is to add 0.2 gm KMBS powder per 5 gallons.
If you have Campden tablets, this would be 1 tablet for every 5 gallons

Why don't we want Chlorine or Chloramine in our water??

TCA

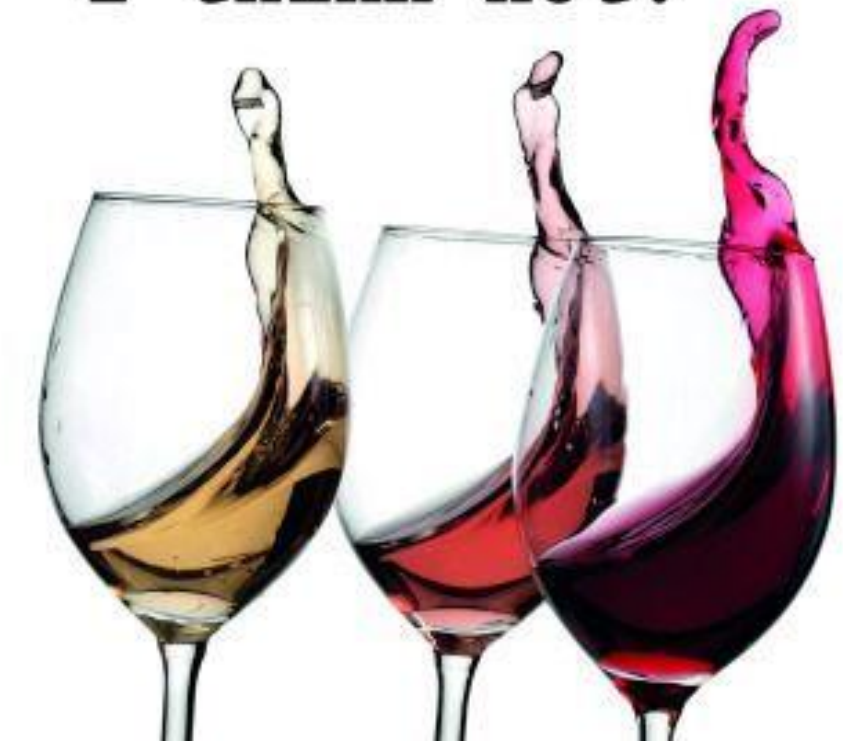
Better known as

Cork Taint

There are 13 minerals that are essential for human life, and all of them can be found in wine.

Coincidence?

I think not.



Kathey_RN@hotmail.com