

Fundamentals of Winemaking

Acid Addition and Acid Reduction

Always run a trial sample of your wine or juice before adjusting the entire batch. Verify the increase or decrease in acid by titration. Checking the adjusted juice or wine with a pH meter is essential.

Acid Addition

To increase acid in wine or juice, you may add citric acid or acid blends containing citric, malic and tartaric acids. If however, you plan to have the wine go through malolactic fermentation, tartaric acid is the preferred acid. ML bacteria may metabolize the citric acid, creating acetic acid. There are two types of malic acid, each molecule is identical with the exception that the atoms are arranged in either a clockwise or counter clockwise fashion. ML bacteria can only metabolize one of these. Therefore only half of the malic acid will be consumed making chromatography useless.

To increase acid by 0.1 % or 0.1 g/100 ml add:

3.8 grams tartaric acid per gallon

18.9 grams tartaric acid per 5 gallons

3/4 teaspoon of tartaric acid = approx. 3.9 grams

1 Tablespoon = approx. 16.6 grams

1 teaspoon tartaric acid will raise the total acidity:

1 quart of must approximately 0.58 %

1 gallon of must approximately 0.14 %

1 tablespoon tartaric will raise the total acidity:

1 gallon of must approximately 0.43 %

5 gallons of must approximately 0.08 %

4 teaspoons (22 grams) will raise 5 gallons of must approximately 0.12 %

A word of advice from experience: when making acid additions, only add half the calculated amount. Taste the wine and run TA test. Only then should you make any subsequent additions. You can always add more acid, but once added you take it out!

Note: The addition of 0.1 grams of tartaric acid will lower the pH in wine by approximately 0.1.

Acid Reduction

Potassium carbonate is the preferred chemical for acid reduction. Over a typical range of acidity found in grape juice, potassium carbonate reduces acidity by an approximately equal amount. Calcium carbonate can impart a chalk-like taste if too much has been added. The calcium bi-tartrate subsequently form by the acid reduction takes considerably longer to precipitate out than potassium bi-tartrate formed by adding potassium carbonate to wine or juice.

To decrease acidity by approximately 0.1 % or 0.1 grams/100 ml, add:

1 gram potassium carbonate per 100 ml of juice or wine

3.8 grams potassium carbonate per gallon

1 teaspoon potassium carbonate per gallon

1 1/3 oz potassium carbonate per 10 gallons