



Stainless Steel Tanks

Stainless steel tanks provide a versatile alternative for the home winemaker as well as small wineries. Utilizing a floating lid, variable size batches of wine may be processed when the availability of ingredients is limited. Normal processing as well as long term storage and aging may be accomplished in these tanks.

The variable capacity tanks are supplied with a floating lid which is held in place and sealed with an inflatable gasket similar to a bicycle tube. When inflated, the gasket seals the lid against the sides of the tank to provide a dust free and oxygen free environment. The tank is also supplied with a stainless steel ball valve with a tapered nozzle and a two stage air lock which is threaded into the lid.

Tank Preparation

Before using the tank for the first time, inspect the lid and inside the tank for any burrs or rough edges that may prevent a seal or may cause damage to the inflatable gasket causing failure. Correct any deficiencies by filing the rough edges or by sanding lightly with abrasive paper. Flush all loose filings or metal shavings with water before proceeding with the sanitizing. Stainless steel tanks are easy to maintain and clean, and sanitized before each use. The tank should be thoroughly cleaned.

The tank should have a hot water rinse on the inside surface. Soak with a solution of PBW (2 oz / 5 gal warm water), one step or straight A for thirty minutes followed by a warm water rinse. Lastly a solution of citric acid (3TBSP/Gal) is applied to the inside of the tank, and again thoroughly rinsed. The lid, valve, air lock and other components should be sanitized at this time.

DO NOT USE -sulfite or bleach, these chemicals attack the stainless steel (especially AISI 304) and will cause pitting, weakening the tank and making it more difficult to clean thoroughly as well as reducing the ability of the tank to seal properly.

DO NOT USE -abrasive cleaners, powders or detergents on the tank or any of the stainless steel components.

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The tank should be mounted on a stainless steel stand available from the supplier or on a fabricated platform of sufficient strength to support the weight of the must. As an example, a 100 liter tank filled to the top can weigh over 220 lbs, so it is very important to have the tank placed on a substantial base. The location must be in an easily accessible location for cleaning, service and pump-over operations. Since the tanks are in a permanent position when in use, purchase of or having access to a suitable wine transfer pump is highly recommended.

After the tank has been filled, do not attempt to move or push against the tank. Injury may result as well as rendering the tank unserviceable.

If the tank becomes dented or distorted, the lid will not seal properly and thus the tank may be rendered useless as a floating lid tank.

Tank Use

After the tank has been cleaned and prepared for use, the ingredients may be added in the usual manner for winemaking and processing. Stainless steel tanks may be used from the primary stage through long term storage and bottling. The tank may be utilized for maceration of red grapes, as the lid is removable; access to the cap is simplified. If you are preparing a batch from a kit, you need only to follow the instructions for filling the tank. Generally SOL tank would be adequate for a single or double batch from kits. Otherwise, when a batch is prepared from fruit or grapes, a determination must be made of the volume of wine in the tank. This is necessary to properly measure the correct amount of ingredients for the batch.

To determine the volume of the must, the following formula applies:

$$\text{VOL(lit)} = 0.0007854 \times \text{tank dia. (cm)} \times \text{tank dia. (cm)} \times \text{tank depth}$$

$$\text{VOL(gal)} = \text{Litres} / 3.79$$

Example: Tank dia. 40cm (15 3/4") , Tank depth 70cm (27 1/2")
 $V(\text{lit}) = 0.0007854 \times 40\text{cm} \times 40\text{cm} \times 70\text{cm} = 88 \text{ litres}$
 $V(\text{gal}) = 88 / 3.79 = 23 \frac{1}{4} \text{ GAL}$

After the juice and ingredients have been placed into the tank, place the lid over the must and partially inflate the gasket. Raise the lid one inch to clear the juice before fully inflating the gasket. This will prevent backflow of the must thru the airlock, especially during the primary stage. Be sure to follow the manufacturer's recommendation for maximum inflation of the gasket. (See manufacturer's instructions - "Assembly of variable capacity tank").

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The air lock uses two marbles to release CO₂ gas while keeping dust and contamination out. The marbles seal the lock in such a manner that a vacuum may be created whenever wine is extracted from the ball valve. It is important to release the lid when the ball valve is opened. If the seal is not relieved, the sides of the tank may buckle, and the tank may collapse causing possible failure.

When utilized for long term storage of wine it is best to first wipe the inside of the lid with alcohol such as Vodka or a strong 100 ppm sulfite solution. This will repress wild yeast or similar spoilage organisms from propagating. Repeat the procedure whenever the lid is disturbed or removed. In this instance, the lid should be placed directly on top of the wine to prevent, or at least minimize the growth of wild yeast film on the wine.

Long Term Storage

When the tank is placed into seasonal storage, care should be taken to prevent denting or crushing the container. Do not lay the container on its side or place foreign objects on the container when it is in the upright position. Failure to follow these recommendations may prevent the lid from sealing properly.

Cover the tank with a suitable cover such as polyethylene sheeting to prevent dust and debris from accumulating inside the tank.

Ref: Techniques in Home Winemaking, Daniel Pambianchi, Winemaker Magazine

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