

Fruit Juice, Concord and Red Grape, Concentrate

Revised 2018

Storage Conditions

	Refrigerated	Frozen
Temperature	40-45°F (4.4-7.2°C)	-10 to 0°F (-23.2 to -17.8°C)
Storage Period	2 years	3 years

The loss of quality attributes and nutritive loss in frozen concentrated Concord or California Red is negligible, provided it remains at 0°F (-18°C) or below. When concentrating grape juice, crystals of potassium tartrate will begin to drop out as the single strength juice is concentrated. All of the crystals will not drop out during concentrating, and 2-3 months or longer may be necessary for the crystals to fully precipitate and settle out due to the cold storage temperature and the viscosity developed in the concentrated juice. The volatile recovery system and temperatures reached in concentrating provide adequate heat sterilization (high temp-short time) to reduce microbial loads, and the concentration process to 68-70° Brix further assures quality maintenance from fermentation if held under sanitary conditions. Most Concord and California Red grape concentrates of 68° Brix or higher are stored in large bulk stainless steel tanks and then shipped in bulk truck tankers or 55-gal (208-L) drums for manufacturing use. Bulk tankers or rail tankers are normally shipped at 28-30°F (-2.2 to -1.1°C), while drum shipment may be at 0°F (-17.8°C).

Freezing of concentrates may result in additional precipitation of tartaric acid and dextrose in the drum product. Issues with graininess could occur unless the product is reheated to at least 120°F (49°C) in use or is thoroughly mixed when used in batching.

Manufacturing scheduled use of the concentrated grape juice will often determine the temperature for storage on receipt of shipment. If products to be manufactured are to be held for longer than 3 days, storage temperatures should be between 30 and 32°F (-1.1 to 0°C).

Grape concentrate packed in 6 or 12 oz. (178 or 355 ml) containers for retail consumer drink consumption normally contains some sugar addition and is reduced to a Brix level of approximately 45°. It must be transported and stored at 0°F (-17.7°C) prior to consumer thawing and preparation for a grape juice drink.

Packaging

Modern packaging of juice concentrates utilizes some form of aseptic totes. There are a number of different styles, including stainless steel totes that can be sterilized and reused; reusable plastic totes

with disposable aseptic liners; or large (275 to 300 gallon) fiberboard disposable totes. It is important to note that none of these container types are designed for frozen use. Freezing and thawing destroys the integrity of the disposable fiberboard totes, and the plastics can become brittle and/or break. Stainless steel totes can burst with freezing due to internal gas pressure. As a result, containers should be stored in either ambient or refrigerated areas using similar storage length as drums under the same conditions. This limits their use to aseptic products. After opening, the items either need to be used immediately or transferred into another container for refreezing and storage.

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