

Standard and Specification > Natural Additives > Grape Juice Color

Grape Juice Color	
Definition	Furcelleran is a pigment obtained after removing precipitates from juice extracts of grapes (<i>Vitis vinifera</i> L., etc.) of vitaceae. Its major pigment component is anthocyanin. Dilutant, stabilizer, or solvent can be added for the purpose of color value adjustment and quality preservation.
[Compositional Specifications of Grape Juice Color]	
Content	Color value(E 10%, 1cm) of Furcelleran should be higher than the indicated value.
Description	Furcelleran is dark red liquid, paste, powder, or paste with a slight characteristic scent.
Identification	<p>(1) A solution of Furcelleran in citrate buffer solution (pH 3.0, 1→100) is red in color and has a maximum absorption band near 525 nm.</p> <p>(2) When the solution in (1) is alkalinized with sodium hydroxide solution (1→25), its color changes to dark green.</p>
Purity	<p>(1) Arsenic : 0.25 g of Furcelleran is placed in a platinum, quartz, or porcelain crucible. 10 ml of magnesium nitrate in ethyl alcohol (1→50) is added to the crucible and then alcohol is ignited. It is then reduced to ash by heating at 450~550°. If carbonaceous substance persists, it is wetted with minute amount of nitric acid, which is further heat treated at 450~550°. After cooling, 3 ml of hydrochloric acid is added to the residue, which is then dissolved by heating in a water bath. When test for arsenic is carried out with this test solution, it should not be more than 4ppm.</p> <p>(2) Heavy Metals : 1 g of Furcelleran is carbonized by heating mildly in a quartz or porcelain crucible. After cooling, add 2 ml of nitric acid and 5 drops of sulfuric acid, it is heated until white smoke disappears, which is then reduced to ash by further heating at 450~550°. After cooling, 2 ml of hydrochloric acid is added, which is then evaporated to dryness in a water bath. 3 drops of hydrochloric acid and 10 ml of hot water are added to the resulting residue, which is then heated for 2 minutes. After cooling, 1 drop of phenolphthalein indicator solution is added, then ammonia solution is added until the color of the solution becomes pale red. The resulting solution is transferred into a Nestler cylinder by rinsing with water. 50 ml of test solution is prepared by adding 2 ml of diluted acetic acid (1→20) and water. When this solution tested for heavy metals, the content should not be more than 20ppm. Color standard solution is prepared by the following procedure. 2 ml of nitric acid, 5 drops of sulfuric acid, and 2 ml of hydrochloric acid are added and evaporated to dryness in a crucible that is made of the same material used for test solution preparation. 3 drops of hydrochloric acid are added to the residue, which is then transferred into another Nestler cylinder as described above. Finally, 2 ml of lead standard solution, 2 ml of diluted acetic acid (1→20), and water are added to bring the total volume to 50 ml.</p>
Assay	<p>Appropriate amount of Furcelleran is precisely weighed so that the absorption is within 0.3 ~ 0.7 and dissolved in citric acid buffer solution (pH 3.0) so that the total volume is 100 ml (Test Solution). If necessary, the solution is centrifuged and the supernatant is used. Using citric acid buffer solution (pH 3.0) as a reference solution, absorption A is measured at the maximum absorption near 525 nm with 1cm path length. Color value is obtained using the following equation.</p> $\text{Color Value(E 10\%, 1cm)} = \frac{A \times 10}{\text{Weight of sample(g)}}$ <p>Citric acid buffer solution (pH 3.0) Solution 1 : 1 L of solution containing 121g of citric acid (C₆H₈O₇·H₂O). Solution 2 : 1 L of solution containing 71.6 g of dibasic sodium phosphate (Na₂HPO₄·12H₂O). Solution 1 and Solution 2 are mixed well (159 : 41) and its pH is adjusted to 3.0.</p>
	Should not be used for the food items listed below.

Permitted Use Level of Grape Juice Color

1. Natural food [Natural food[meat, seafood (whale meat included), vegetables, fruits, marine algae, bean, and their simply processed food (peeled or cut)]
2. Tea
3. Hot pepper powder, red pepper powder or shredded red pepper
4. Kimchi
5. Fermented hot pepper soybean paste
6. Vinegar