

Aloe vera Quality Standard

The IASC aloe vera quality standard is applicable to aloe vera raw materials for use in finished products. This standard is not applicable to finished products.

Dose

Recommended total aloe vera consumption of 2-8 ounces (or 59.1 – 236.6ml) of single strength leaf juice per day.

Aloe Solids in Single Strength Juice

1% total aloe solids in aloe vera leaf juice and 0.5% total aloe solids for inner leaf juice.¹

Beta-(1,4)-acetylated mannan

Minimum of 5% acetylated mannan content by dry weight.

- Potential methods/technologies for analysis: NMR, O-acetyl method², Eberendu colorimetric method³.

Organoleptic Standards

Charcoal Filtered (decolorized, purified, filtered) Liquids (no pulp):

Visible: hazy to translucent

Color: clear to light yellow or beige

Taste: may be tasteless to mildly bitter

Smell: odorless to mildly vegetative

Feel: slippery with less friction than water, dries to be slightly tacky

Charcoal Filtered (decolorized, purified, filtered) Powders:

Color: whitish to off-white/light yellow or beige

Taste: may be tasteless to mildly bitter

Smell: odorless to mildly vegetative

¹ Solids content based on the following study: *Subtropical Plant Science*, 47:34-38, 1995 "A 2 year study monitoring several physical and chemical properties of field-grown *aloe barbadensis* miller leaves."

² Manna S, McAnalley BH. Determination of the position of the o-acetyl group in a beta-(1-->4)-mannan (acemannan) from aloe barbardensis miller. *Carbohydrate Research*. 1993 Mar 17;241:317-9.

³ Eberendu, Alexis R, Gabriela Luta, Joshua A Edwards, Bill H McAnalley, Brice Davis, Santiago Rodriguez, C Ray Henry, Quantitative Colorimetric Analysis of Aloe Polysaccharides as a Measure of *Aloe Vera* Quality in Commercial Products, *Journal of AOAC INTERNATIONAL*, Volume 88, Issue 3, 1 May 2005.

NOTE: Organoleptic standards need to be fairly flexible and cover a relatively broad range. This information is provided as an example and other descriptions for organolepsis may be used.

Aloin A&B^{4,5}

- Single strength juice (inner leaf/purified whole leaf): ≤10ppm
- Powders (inner leaf/purified whole leaf): ≤10ppm
- Potential methods of analysis: HPLC

Solids & Ash Content

Solids content: ≥0.46% solids in single strength inner leaf juice (therefore, a 10x should have at least 4.6%)

Ash content: ≤40%

Malic Acid

Must be present at a minimum.

Glucose

Must be present at a minimum.

Whole Leaf Marker (Isocitrate)

≤5% for inner leaf by dry weight. Anything above this level will be considered a whole leaf ingredient.

- Potential methods/ of analysis: recently published GC method (Charlie Metcalfe/Custom Analytics), and NMR.

Contaminants

- Microbiologic
 - Pathogens
 - To be determined as defined by USP Chapter 61 Microbiological Examination of Nonsterile Products: Microbial Enumeration Tests⁶
 - Limits to be established by individual manufacturers for the following:
 - Lactic acid
 - General APC
 - Mold
 - Yeast

⁴ Specification set to ensure no cathartic/laxative effects.

⁵ The limit for aloin A&B is applicable for aloe vera raw materials intended for oral consumption only.

⁶ USP does not define microbial pathogens. However, specific tests for *Escherichia coli*, *Salmonella*, and other microorganisms that may be pathogens are found in USP Chapter 62 Microbiological Examination of Nonsterile Products: Tests for Specified Microorganisms.

- Heavy metals (lead, cadmium, arsenic, mercury)
 - Established in accordance with current AHPA limits⁷
- Maltodextrin
 - Declared vs. undeclared
 - Declared: Must be listed on label and analysis must meet label claims
 - Undeclared: Will be considered an adulterant
 - Potential methods of analysis: NMR, AOAC Method 948.02⁸, Iodine-starch method⁹

⁷ AHPA's heavy metal limits are established for finished products, and consideration of these limits as allowable in raw materials need to be viewed in light of the delivered dose of finished products. AHPA's Guidance on Heavy Metals can be found at: <http://www.ahpa.org>.

⁸ AOAC Method 948.02, Starch in Plants

⁹ British Nutrition Foundation, 2004