

BRS ASCORBIC ACID STANDARD (AGRI-FOOD SAMPLES) ST08001-02

DESCRIPTION AND USE

Ascorbic Acid (AA), also known as L-Ascorbic Acid or Vitamin C, is a powerful water-soluble antioxidant, commonly used as reference to measure total antioxidant capacity (TAC).

TAC measurements obtained with the BRS device are given in BRS Value. This value can be easily converted into Vitamin C Equivalents (CEAC, Vitamin C Equivalents Antioxidant Capacity) by simply performing a standard curve with the device using AA as standard. TAC measurements expressed as CEAC allow for a better comparison between different TAC assays.

MATERIALS SUPPLIED

Item	Storage
Ascorbic Acid standard (3 vials)	RT
BRS Electrolyte (3 bottles)	4 °C

STORAGE AND STABILITY

Store unopened standard vials at RT. Prepare a fresh set of standards for every use. Store BRS Electrolyte at 4 °C. Allow the BRS Electrolyte to reach RT before use. Do not use after the expiration date stated on the packaging.

BRS VALUE CONVERSION TO CEAC

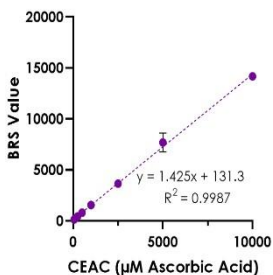
The protocol to perform the AA standard curve required to convert BRS Value to CEAC is described below. BQC recommends measuring the standards and samples in triplicate.

Standard curve. Add 2 mL of BRS Electrolyte to the AA vial to obtain a 10000 µM solution. Prepare AA standards for the calibration curve from the 10000 µM AA solution according to the following Table. Discard AA solutions after use.

CEAC (µM)	Standard (µL)	BRS Electrolyte (µL)
0	0	1000
50	5	995
100	10	990
250	25	975
500	50	950
1000	100	900
2500	250	750
5000	500	500
10000	1000	0

Calculate the average BRS Value of the standards. Subtract the average value of the Standard 0 (Blank)

from the remaining standards. Create a standard curve ($y = \text{slope} \times x \pm \text{intercept}$) by plotting the corrected BRS Value of the standards as a function of the standard concentration. A typical standard curve for this assay is shown below.



! DO NOT USE this standard curve to calculate the TAC values of your samples. A new standard curve must be performed by the end user.

SAMPLE ANALYSIS

Mix the sample 1:1 with the BRS Electrolyte. Measure BRS Value from:

BRS Sample Value	Average of the BRS Value recorded for the diluted sample
BRS Blank Value	Average of the BRS Value recorded for the BRS Electrolyte

Calculate TAC from a sample in CEAC (µM AA) using the equation shown below.

$$\text{TAC (CEAC, } \mu\text{M AA)} =$$

$$\left[\frac{(\text{BRS Sample Value} - \text{BRS Blank Value}) - (\text{intercept})}{\text{slope}} \right] \times \text{Dilution factor}$$

Dilution factor is 2 working with the 1:1 mixture

If the BRS Value from a sample falls outside the standard curve, samples should be diluted appropriately with BRS Electrolyte and re-tested. When working with diluted samples the calculated TAC values must be multiplied by the dilution factor.

PERFORMANCE CHARACTERISTICS

Linear range: 50-1000 µM AA. Precision: ≤10 %.

RELATED PRODUCTS

Product	Reference
BRS strips	BRS-strips-TAC
BRS Electrolyte	ST08007

FOR RESEARCH USE ONLY