

## BRS GALLIC ACID STANDARD (BIOLOGICAL SAMPLES)

### ST08002-01

#### DESCRIPTION AND USE

Gallic Acid (GA) is a well-known natural antioxidant that is commonly used as reference to measure polyphenol concentration. GA can also be used as standard in total antioxidant capacity (TAC) assays.

TAC measurements obtained with BRS device are given in Q<sub>T</sub> (μC). This value can be easily converted into Gallic Acid Equivalents (GAE) by simply performing a standard curve with the device using GA as standard. TAC measurements expressed as GAE allow for a better comparison between different TAC assays.

#### MATERIALS SUPPLIED

Item	Storage
Gallic Acid standard (3 vials)	RT

#### STORAGE AND STABILITY

Store unopened standard vials at RT. Prepare a fresh set of standards for every use. Do not use after the expiration date stated on the packaging.

#### BRS Q<sub>T</sub> CONVERSION TO GAE

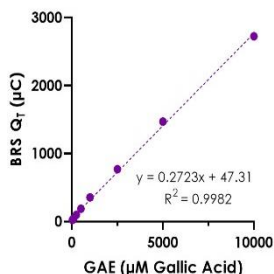
The protocol to perform the GA standard curve required to convert BRS Q<sub>T</sub> to GAE is described below. BQC recommends measuring the standards and samples in triplicate.

**Standard curve.** Add 2 mL of 0.1 M phosphate buffer (PB) pH 7 to the GA vial to obtain a 10000 μM solution. Prepare GA standards for the calibration curve from the 10000 μM GA solution according to the following Table. Discard GA solutions after use.

GAE (μM)	Standard (μL)	PB (μL)
0	0	1000
30	3	997
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 Q<sub>T</sub> 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 Q<sub>T</sub> 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

**Undiluted samples.** Calculate TAC from a sample in GAE (μM GA) using the equation shown below.

$$\text{TAC (GAE, } \mu\text{M GA)} = \left[ \frac{(\text{BRS Q}_T \text{ Sample} - \text{intercept})}{\text{slope}} \right]$$

If the Q<sub>T</sub> from a sample falls outside the standard curve, samples should be diluted appropriately in PB and re-tested. When working with diluted samples measure BRS Q<sub>T</sub> from:

**Diluted samples.** Calculate TAC from a diluted sample in GAE (μM GA) using the equation shown below.

$$\text{TAC (GAE, } \mu\text{M GA)} =$$

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

\*Standard 0

When working with diluted samples the calculated values must be multiplied by the dilution factor.

#### PERFORMANCE CHARACTERISTICS

Linear range: 30-10000 μM GA. Precision: ≤10 %.

#### RELATED PRODUCTS

Product	Reference
BRS strips	BRS-strips-TAC
Measuring Pack	ST08009-01

#### FOR RESEARCH USE ONLY