Alpha Resources, Inc.
Certificate Of Analysis

AR-1790C

BENZOIC ACID CALORIMETRIC STANDARD

LOT # 82906S

The quantity of energy evolved by combustion of Alpha Resources, Inc. benzoic acid, when burned under standard bomb conditions [1] is given below, where the mass is against brass weights in air [2].

26454 J/g +/- 4 J/g
6318 IT cal/g +/- 10 IT cal/g
11373 Btu/lb +/- 17 Btu/lb

This value is based on a comparison of the combustion energy with NIST Standard Reference Material (SRM) 39j benzoic acid under identical experimental conditions. The results of at least 30 tests using an equal number of interleaved Alpha samples and 39j control samples demonstrate no significant difference (95% CF) between the two heat of combustion values.

Handling and Storage: Benzoic acid will not adsorb moisture from the atmosphere if the relative humidity does not exceed 90%. The heat of combustion of the sample will not change with time if adequate precautions are taken to avoid the introduction of impurities.

Expiration of Certification: This material has an indefinite expiration date.

[1] Certificate of Analysis SRM 39j Benzoic Acid, National Institute of Standards and Technology.
[2] The reduction of weight in air to weight in vacuum results in a heat of combustion value of 26434 J/g for benzoic acid. This value uses the following assumptions:

- The density of benzoic acid at 25C is 1.320 g/cc.
- The density of dry air (1 atm and 20C) is 0.0012 g/cc.
- The density of brass is 8.4 g/cc.

In routine fuel testing with the bomb calorimeter, where an accuracy of not better than 0.1% is required, this buoyancy correction is generally not used.

Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Alpha Resources be liable for incidental or consequential damages.

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