



DDS CALORIMETERS

Scientific Analytical Calorimeter Solutions

Digital Data Systems (Pty) Ltd.

Reg. No. 1995/001201/07

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Certificate of Analysis

CERTIFIED REFERENCE MATERIAL – CRM and BENZOIC ACID CALORIMETRIC STANDARD

0.5g BENZOIC ACID TABLETS

Part Number:	3K-4-084
Bottle (Glass):	0.5g x 150 Tablets
Size:	10mm diameter x 2.5 mm thick (Approximately)
Identification:	BA stamped on one side of a white tablet
Batch Number:	15/07/2023

Application: This certified reference material is intended for calibrating bomb calorimeters and or the continued quality verification of combustion calorimetric methods. Visit <https://www.ddscalorimeters.com/application-notes/> for a list of applications.

Process: The quantity of energy evolved by combusting Digital Data Systems benzoic acid in a Cal3K-A Bomb Calorimeter, where the value is the average of 70 combustions of benzoic acid samples (Batch July 2023).

Allocated value:

Energy of combustion:	26.4379 MJ/Kg	± 0.042 MJ/Kg
	26 437.9 J/g	± 42 J/g
	11366.26 Btu/lb	± 18.05 Btu/lb
	6309.761 kcal/g	± 12.480 cal/g

Average Mass per pill: 0.4980g

Traceability: The energy of combustion of a sample of Benzoic Acid was measured using a Cal3k-A bomb calorimeter calibrated using the Standard Reference Material NIST SRM 39j with a certified value of 26 434 J/g based on the mass.

The certification was done in accordance with ISO 1928-1995 and EURACHEM CITAC Guide (Second Edition) with the initial absolute pressure of oxygen at 3000KPa and a temperature of 22°C in the combustion chamber of the bomb vessel.

Material Safety Data Sheet: Large doses of Benzoic Acid can cause a sore throat, nausea and vomiting. Benzoic acid is also a possible irritant if inhaled. Prolonged skin contact can cause irritation, redness and pain. Eye contact can cause irritan and pain. For more information and a complete copy of the MSDS please contact Digital Data Systems on calo@ddsystems.co.za.

Expiry Date / Shelf Life: Benzoic Acid has no expiry date if stored and sealed properly. As a precautionary measure, discard after 2 years after opening. Although Benzoic Acid is not hygroscopic, we have found that the quality of the Benzoic Acid is best if exposure to normal laboratory conditions of humidity and temperature is minimised. The Benzoic Acid maintains its quality when stored in its original container, with the cap tightly closed.

Date manufactured: 15 July 2023

Reference material Manager: Mr Rolf Ludwig, CEO, Digital Data Systems Pty Ltd

Directors
K.F. Ludwig
R.H. Ludwig

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