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Date manufactured: 30-Jun-2017  
Original issue date: 30-Jun-2017

## Certificate of Analysis

Date Received: \_\_\_\_\_  
Page 1 of 2 Rev 0

Catalog No.:	Lot No.:	Storage:	Solvent:	Expiration Date:	Description:
DRE- GS09000424 DI	313768	≤ -10 Degrees C	Methylene Chloride	30-Jun-2019	8270 BNA Matrix Spike Solution, (10,000 mg/L), 5 x 1 ml (RM, ISO GUIDE 34)

### Certified Values:

The certified value is based on gravimetric and volumetric preparation of this CRM. This CRM has been confirmed by gas chromatography (GC), gas chromatography/mass spectrometry (GC/MS), or High Performance Liquid Chromatography (HPLC) using an internally developed method against an independent source. The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

Compound	CAS No.	Purity (%)	Neat Material Lot No.	Concentration, mg/L
acenaphthene	83-32-9	99	13.1.4P	10020 +/-500
4-chloro-3-methylphenol	59-50-7	99.9	102.7.1P	10020 +/-500
2-chlorophenol	95-57-8	99.6	103.9.1P	10060 +/-510
1,4-dichlorobenzene	106-46-7	99.9	45.29.2P	10010 +/-500
2,4-dinitrotoluene	121-14-2	100	87.7.2.1P	10010 +/-510
4-nitrophenol	100-02-7	100	109.7.1P	9998 +/-500
N-nitrosodi-n-propylamine	621-64-7	99.5	59.7.3P	9992 +/-500
pentachlorophenol	87-86-5	99.9	110.1.6P	10000 +/-510
phenol	108-95-2	100	112.9.4P	9998 +/-510
pyrene	129-00-0	97.5	28.29.2P	9998 +/-500
1,2,4-trichlorobenzene	120-82-1	99.6	54.29.1P	10000 +/-500

### Intended Uses:

This Certified Reference material (CRM) is intended for use as a calibration standard or a quality control standard for Chromatography Equipment such as GC, GC/MS, HPLC, and HPLC/MS. It may also be used for various EN, ISO, EPA, and ASTM methods.

### Method of Preparation:

All weights are traceable through N. I. S. T. Test No. 822/264157-00. Concentration (correct for purity) and

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uncertainty (95% confidence) values listed are determined gravimetrically.

## Packaging and Storage:

The solution should be stored according to the following storage requirements:  $\leq -10$  Degrees C  
Once the product is opened, it should be transferred to a vial with minimum head space if the product was in a sealed ampoule. Once opened, the expiration is determined by user specifications.

## Glassware Calibration:

Only Class A glassware is used in the manufacture and quality control of Standards. All glassware is calibrated using NIST traceable weights.

## Weights and Balance Calibration:

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO Guide 34:2009 accredited metrology service.

## Homogeneity:

Random replicate samples of the final packaged CRM have been analyzed to prove homogeneity in accordance with internal procedures. This is consistent with the intended use of this CRM. The homogeneity of this product has been confirmed by procedures consistent with ISO/IEC guide 17025:2005 and ISO guide 34:2009.

## Hazardous information:

Refer to MSDS

## Calculation of Uncertainty

The following equations are used to calculate the value of the expanded uncertainty:  $U = k u_c$ ;  $U = \text{Expanded Uncertainty}$ ,  $k =$  the coverage factor at the 95% confidence level,  $k=2$ ,  $u_c =$  the combined uncertainty  $u_c = \sqrt{\sum u_i^2}$  where  $u_i$  are the individual uncertainty components for characterization, transportation, homogeneity, and shelf life.

## Expiration Information:

The stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. These tests include the effect of temperature and packaging on the product. This standard is guaranteed until 30-Jun-2019

## Accreditation:

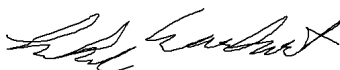
This standard was manufactured by an ISO 17025 Chemical Testing Lab (Certificate number 3031.01) and ISO Guide 34 Reference Material Producer (RMP) Certificate number 3031.02 accredited by The American Association of Laboratory Accreditation (A2LA). Manufacturer's Quality System audited and registered by NSF-ISR to ISO 9001:2008 (Certificate number IZ391-IS4).

Manufactured By:



Christina Elder  
Chemist I

Certified By:



Lukas Earhart  
Chemist I

Released By:



HuiChen Stavros, Ph.D.  
Quality Control Manager

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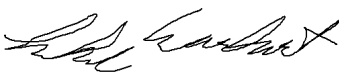
Manufactured By:



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Christina Elder  
Chemist I


Certified By:



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Lukas Earhart  
Chemist I

Released By:



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HuiChen Stavros, Ph.D.  
Quality Control Manager