

Certificate of Analysis

Issue Date: 04.09.2019

STD-No. : A01269-1
Product name Caffeine
Concentration : 5 µg/ml
Solvent : Water

Volume ≥ 1,2 ml
Lot-No. : 18293-001
Expiry date : 03/2021¹
Storage : 20°C and dark

only for information purposes

Component	Conc. µg/ml	Purity	CAS	Formula	M [g/Mol]
1 Caffeine	5 ± 3,5 % ²	99,9 % ³	58-08-2	C ₈ H ₁₀ N ₄ O ₂	194,19

This Reference Material was processed under ISO 9001:2015 registered quality system.

This Reference Material is intended as working reference sample for identification of the contained compounds and their quantification in methods of analysis in residue or environmental analysis.

Traceability to the International System of Units (SI) has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on convenient physical or chemical measurements, including gravimetric or volumetric dilution. The balances used for these measurements are calibrated by an accredited calibration service.

The homogeneity is determined according to an in-house procedure. There is no minimum sub-sample required.

Sample aliquots for analysis should be withdrawn at roomtemperature and should be processed without delay for the certified values to persist.

¹ The certification of this reference material is valid within the stated uncertainty until the above specified expiration date assumed the reference material is stored in the originally closed flask in accordance with the instructions given in this certificate. No warranty is given until the expiry date for the certificated values after opening. The long term stability may be monitored over the lifetime of the certification according to an in-house procedure. If substantive changes are determined that effect the certification before the expiration of this certificate, the company will notify the purchaser.

² Expanded Uncertainty according to EURACHEM / CITAC „Quantifying Uncertainty in Analytical Measurement“ with coverage factor k=2 for a confidence level of 95 %.

³ Stated purity of the neat material is considered in the production of the solution.

The production was coordinated by:

Dipl.-Ing. A. Werner (Technical Manager)

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Certificate of Analysis

Issue Date: 04.09.2019

STD-No. : A01269-2
Product name Caffeine
Concentration : 10 µg/ml
Solvent : Water

Volume ≥ 1,2 ml
Lot-No. : 18293-002
Expiry date : 03/2021¹
Storage : 20°C and dark

only for information purposes

Component	Conc. µg/ml	Purity	CAS	Formula	M [g/Mol]
1 Caffeine	10 ± 3,5 % ²	99,9 % ³	58-08-2	C ₈ H ₁₀ N ₄ O ₂	194,19

This Reference Material was processed under ISO 9001:2015 registered quality system.

This Reference Material is intended as working reference sample for identification of the contained compounds and their quantification in methods of analysis in residue or environmental analysis.

Traceability to the International System of Units (SI) has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on convenient physical or chemical measurements, including gravimetric or volumetric dilution. The balances used for these measurements are calibrated by an accredited calibration service.

The homogeneity is determined according to an in-house procedure. There is no minimum sub-sample required.

Sample aliquots for analysis should be withdrawn at roomtemperature and should be processed without delay for the certified values to persist.

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Certificate of Analysis

Issue Date: 04.09.2019

STD-No. : A01269-3
Product name Caffeine
Concentration : 30 µg/ml
Solvent : Water

Volume ≥ 1,2 ml
Lot-No. : 18293-003
Expiry date : 03/2021¹
Storage : 20°C and dark

only for information purposes

Component	Conc. µg/ml	only for information purposes			
		Purity	CAS	Formula	M [g/Mol]
1 Caffeine	30 ±3,5 % ²	99,9 % ³	58-08-2	C ₈ H ₁₀ N ₄ O ₂	194,19

This Reference Material was processed under ISO 9001:2015 registered quality system.

This Reference Material is intended as working reference sample for identification of the contained compounds and their quantification in methods of analysis in residue or environmental analysis.

Traceability to the International System of Units (SI) has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on convenient physical or chemical measurements, including gravimetric or volumetric dilution. The balances used for these measurements are calibrated by an accredited calibration service.

The homogeneity is determined according to an in-house procedure. There is no minimum sub-sample required.

Sample aliquots for analysis should be withdrawn at roomtemperature and should be processed without delay for the certified values to persist.

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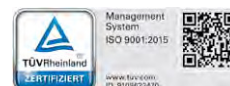
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Certificate of Analysis

Issue Date: 04.09.2019

STD-No. : A01269-4
Product name Caffeine
Concentration : 60 µg/ml
Solvent : Water

Volume ≥ 1,2 ml
Lot-No. : 18293-004
Expiry date : 03/2021¹
Storage : 20°C and dark

only for information purposes

Component	Conc. µg/ml	only for information purposes			
		Purity	CAS	Formula	M [g/Mol]
1 Caffeine	60 ±3,5 % ²	99,9 % ³	58-08-2	C ₈ H ₁₀ N ₄ O ₂	194,19

This Reference Material was processed under ISO 9001:2015 registered quality system.

This Reference Material is intended as working reference sample for identification of the contained compounds and their quantification in methods of analysis in residue or environmental analysis.

Traceability to the International System of Units (SI) has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on convenient physical or chemical measurements, including gravimetric or volumetric dilution. The balances used for these measurements are calibrated by an accredited calibration service.

The homogeneity is determined according to an in-house procedure. There is no minimum sub-sample required.

Sample aliquots for analysis should be withdrawn at roomtemperature and should be processed without delay for the certified values to persist.

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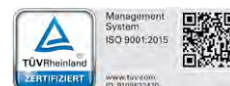
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Certificate of Analysis

Issue Date: 04.09.2019

STD-No. : A01269-5
Product name Caffeine
Concentration : 100 µg/ml
Solvent : Water

Volume ≥ 1,2 ml
Lot-No. : 18293-005
Expiry date : 03/2021¹
Storage : 20°C and dark

only for information purposes

Component	Conc. µg/ml	Purity	CAS	Formula	M [g/Mol]
1 Caffeine	100 ±3,5 % ²	99,9 % ³	58-08-2	C ₈ H ₁₀ N ₄ O ₂	194,19

This Reference Material was processed under ISO 9001:2015 registered quality system.

This Reference Material is intended as working reference sample for identification of the contained compounds and their quantification in methods of analysis in residue or environmental analysis.

Traceability to the International System of Units (SI) has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on convenient physical or chemical measurements, including gravimetric or volumetric dilution. The balances used for these measurements are calibrated by an accredited calibration service.

The homogeneity is determined according to an in-house procedure. There is no minimum sub-sample required.

Sample aliquots for analysis should be withdrawn at roomtemperature and should be processed without delay for the certified values to persist.

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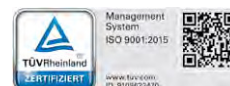
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Certificate of Analysis

Issue Date: 04.09.2019

STD-No. : A01269-9
Product name Caffeine
Concentration : 2000 µg/ml
Solvent : Water

Volume ≥ 1,2 ml
Lot-No. : 18293-009
Expiry date : 03/2021¹
Storage : 20°C and dark

only for information purposes

Component	Conc. µg/ml	only for information purposes			
		Purity	CAS	Formula	M [g/Mol]
1 Caffeine	2000 ±3,5 % ²	99,9 % ³	58-08-2	C ₈ H ₁₀ N ₄ O ₂	194,19

This Reference Material was processed under ISO 9001:2015 registered quality system.

This Reference Material is intended as working reference sample for identification of the contained compounds and their quantification in methods of analysis in residue or environmental analysis.

Traceability to the International System of Units (SI) has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on convenient physical or chemical measurements, including gravimetric or volumetric dilution. The balances used for these measurements are calibrated by an accredited calibration service.

The homogeneity is determined according to an in-house procedure. There is no minimum sub-sample required.

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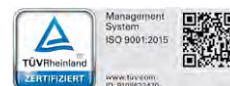
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Certificate of Analysis

Issue Date: 04.09.2019

STD-No. : A01269-11
Product name Caffeine
Concentration : 3000 µg/ml
Solvent : Water

Volume ≥ 1,2 ml
Lot-No. : 18293-010
Expiry date : 03/2021¹
Storage : 20°C and dark

only for information purposes

Component	Conc. µg/ml	Purity	CAS	Formula	M [g/Mol]
1 Caffeine	3000 ±3,5 % ²	99,9 % ³	58-08-2	C ₈ H ₁₀ N ₄ O ₂	194,19

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The homogeneity is determined according to an in-house procedure. There is no minimum sub-sample required.

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