

Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

OPP Standard Solution 19 components (EN 12918) 10ug/ml each of Azinphos-ethyl [CAS:2642-71-9] ; Azinphos-methyl [CAS:86-50-0] ; Bromophos-methyl (Bromophos) [CAS:2104-96-3] ; Chlorfenvinphos [CAS:470-90-6] ; Chlorpyrifos (Chlorpyrifos-ethyl) [CAS:2921-88-2] ; Chlorpyrifos methyl [CAS:5598-13-0] ; Diazinon [CAS:333-41-5] ; Dichlorvos [CAS:62-73-7] ; Dimethoate [CAS:60-51-5] ; Fenitrothion [CAS:122-14-5] ; Fenthion [CAS:55-38-9] ; Malathion [CAS:121-75-5] ; Mevinphos [CAS:7786-34-7] ; Parathion (Parathion-ethyl) [CAS:56-38-2] ; Parathion-methyl [CAS:298-00-0] ; Phosalone [CAS:2310-17-0] ; Propetamphos [CAS:31218-83-4] ; Triadimefon [CAS:43121-43-3] ; Triazophos [CAS:24017-47-8] in Methanol

Lot N: XXXXXX Barcode: XXXXXXXX Ref N: F131371

Certification Date:XXXXXX

Component	Certified Value* and uncertainty [µg/ml]	CAS	Chemical Formula
Azinphos-ethyl	10.100 ± 0.149	2642-71-9	C ₁₂ H ₁₆ N ₃ O ₃ PS ₂
Azinphos-methyl	10.052 ± 0.120	86-50-0	C ₁₀ H ₁₂ N ₃ O ₃ PS ₂
Bromophos (Bromophos-methyl (Bromophos))	10.106 ± 0.120	2104-96-3	C ₈ H ₈ BrCl ₂ O ₃ PS
Chlorfenvinphos	10.184 ± 0.161	470-90-6	C ₁₂ H ₁₄ Cl ₃ O ₄ P
Chlorpyrifos-ethyl (Chlorpyrifos (Chlorpyrifos-ethyl))	10.045 ± 0.116	2921-88-2	$C_9H_{11}CI_3NO_3PS$
Chlorpyrifos methyl	10.089 ± 0.176	5598-13-0	C ₉ H ₁₁ Cl ₃ NO ₃ PS
Diazinon	10.017 ± 0.151	333-41-5	C ₁₂ H ₂₁ N ₂ O ₃ PS
Dichlorvos	10.022 ± 0.114	62-73-7	C ₄ H ₇ Cl ₂ O ₄ P
Dimethoate	10.075 ± 0.147	60-51-5	C ₅ H ₁₂ NO ₃ PS ₂
Fenitrothion	10.129 ± 0.156	122-14-5	C ₉ H ₁₂ NO ₅ PS
Fenthion	10.112 ± 0.128	55-38-9	C ₁₀ H ₁₅ O ₃ PS ₂
Malathion	10.101 ± 0.114	121-75-5	C ₁₀ H ₁₉ O ₆ PS ₂
Mevinphos	10.076 ± 0.153	7786-34-7	C ₇ H ₁₃ O ₆ P
Parathion-ethyl (Parathion (Parathion- ethyl))	10.072 ± 0.171	56-38-2	$C_{10}H_{14}NO_5PS$
Parathion-methyl	10.063 ± 0.139	298-00-0	C ₈ H ₁₀ NO ₅ PS
Phosalone	10.018 ± 0.121	2310-17-0	C ₁₂ H ₁₅ CINO ₄ PS ₂
Propetamphos	10.103 ± 0.122	31218-83-4	C ₁₀ H ₂₀ NO ₄ PS
Triadimefon	10.049 ± 0.115	43121-43-3	C ₁₄ H ₁₆ CIN ₃ O ₂
Triazophos	10.047 ± 0.144	24017-47-8	$C_{12}H_{16}N_{3}O_{3}PS$

* WQP 5.15.1/2 The certified value was obtained gravimetrically and confirmed experimentally by GC/MS or HPLC

Density 0.7916 g/cm³ at 20°C

Starting Material	Purity, Batch
Azinphos-ethyl	99.45% (41318904)
Azinphos-methyl	99.61% (41299296)
Bromophos (Bromophos-methyl (Bromophos))	98.54% (41309131)
Chlorfenvinphos	98.3% (41304242)
Chlorpyrifos-ethyl (Chlorpyrifos (Chlorpyrifos-ethyl))	99.6% (41317556)
Chlorpyrifos methyl	99.5% (41295878)
Diazinon	98.91% (41313244)
Dichlorvos	98.2% (41300923)
Dimethoate	99.37% (41301791)
Fenitrothion	98.66% (41317297)





CPAchem Ltd www.cpachem.com e-mail: info@cpachem.com; tel.:+359 42 60 77 16 for France, Belgium and Switzerland: e-mail: acsd2@wanadoo.fr; tel.:01 30 57 57 32 / fax: 01 30 57 57 33

C.P.A. chem Ltd is accredited to ISO 17034 and ISO/IEC 17025

Fenthion	98.4% (41304570)
Malathion	99.3% (41300121)
Mevinphos	97.7% (41313022)
Parathion-ethyl (Parathion (Parathion-ethyl))	98.4% (41316931)
Parathion-methyl	99.9% (41296059)
Phosalone	98.0% (41319819)
Propetamphos	98.6% (41300763)
Triadimefon	98.5% (41281307)
Triazophos	98.95% (41315989)

Storage Conditions: Store in a freezer at -18°C or below

Expiry Date: XXXXXXXXXX

Concept of Certification and traceability statement:

This certified reference material is produced by gravimetric measurement and dissolving the individual substances in Methanol .

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02 and incorporates the uncertainties of the raw-material purity, the mass and the volume.

Property of the result of a measurement whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties (ISO VIM)

The metrological traceability is assured through gravimetric measurement and dissolving the certified reference material from accredited, according to ISO 17034, laboratories/producers and traceable to SI.

The measurement results are traceable to SI. All analytical balances used for the preparation of the solution are calibrated yearly under an in-house procedure with class E1 and class E2 analytical weights, traceable to SI (DKD), and are checked daily. Class A laboratory glassware is used

The results from temperature measurement are traceable to SI. The thermometers used for solution's calibration are calibrated from an ISO 17025 accredited laboratory. The ambient conditions are controlled with a hygrometer calibrated from an ISO 17025 accredited laboratory. Both, purity of the starting materials and solvent, were checked using appropriate analytical instrument.

Intended use: For Laboratory Use Only

This CRM is intended for Calibration of TLC, GC/FID, GC/TCD, GC/ECD, GC/MS, GC/MS/MS, LC/UV, LC/MS and LC/MS/MS Validation of analytical methods Preparation of "working reference samples" Detection limit and linearity studies This statement is not intended to restrict the use for other purposes.

Instructions for the correct use of this certified reference material:

This CRM can be used directly or can be diluted in an appropriate solvent. Only a clean class A glassware should be used. Do not pipet from container. Obtained concentration (in mg/l) after dilution is a result from the multiplication of certified value of CRM concentration and the CRM's volume used for dilution and divided into the flask's volume used for dilution. For quantitative analysis, we recommend analyzing this mixture separately, without mixing it with other solutions, to ensure accurate results for every compound.

Stability and storage:

This CRM is with a guaranteed stability until ±5% of the certified concentration for a period of 24 months. Stability is guaranteed of an unopened original packaging stored, as written in the section: Storage Conditions. Even if the product is stable at normal laboratory conditions, in order to increase its stability, we highly recommend it to be stored in a refrigerator

The product should be used shortly after opening to avoid concentration changes due to evaporation. Warranty does not apply to a product stored after opening.

Hazardous situation:

The normal laboratory safety precautions should be observed when working with this RM. Further details for the handling of this RM are available in a safety data sheet.

Level of homogeneity

This solution was mixed according to an in-house procedure (MQP 5.13.1) and is guaranteed to be homogeneous. To ensure sufficient homogeneity of the sample prior to use thoroughly mix by inversion or sonicate.

Names of certifying officers: Margarita Dimitrova Laboratory: >

Manager:

Krassimira Taralova

This document QF 5.17.1/1 version 1 is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31, ISO Guide 35 and Eurachem / CITAC Guides

This certificate relates solely to the lot number given above. All processes (including generating of this certificate) are completely controlled by the specialized Computer-Aided-Manufacturing (CAM) software.

This Certified Reference Material was produced under a quality management system that is:

Registered to ISO 9001 Quality Management System (Lloyd's Register Quality Assurance Ltd Cert No 0039638)
Accredited according to ISO/IEC 17025 – Testing (ANAB Cert No AT-1836)

- Accredited according to ISO 17034 - Reference Material Producer (ANAB Cert No AR-1835)

Additional Information Gravimetric Data

Component	Purity %	Source Lot No	Weighed quantity, g	Final quantity, kg.10 ⁻³	Bulk/ Standard Solution lot No	Concen- tration mg/kg	Chemist ID
Azinphos-ethyl	99.45	41318904	0.02808	2.9728	91524256	9393.7	AS
		91524256	0.2141	15.7426	92522992	127.755	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.7587	PA
Azinphos-methyl	99.61	41299296	0.02637	2.3595	91520494	11132.7	AS
		91520494	0.1798	15.7426	92522992	127.153	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.6986	PA
Bromophos (Bromophos-methyl (Bromophos))	98.54	41309131	0.02896	2.9666	91518828	9619.5	AS
		91518828	0.2092	15.7426	92522992	127.831	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.7664	PA
Chlorfenvinphos	98.3	41304242	0.01417	2.3112	91525147	6026.8	AS
		91525147	0.3365	15.7426	92522992	128.824	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.8655	PA
Chlorpyrifos-ethyl (Chlorpyrifos (Chlorpyrifos-ethyl))	99.6	41317556	0.02643	3.0915	91529763	8515.1	AS
		91529763	0.2349	15.7426	92522992	127.057	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.6890	PA
Chlorpyrifos methyl	99.5	41295878	0.013	1.7950	91527981	7206.1	AS
Chiorpythos methyl		91527981	0.2788	15.7426	92522992	127.619	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.7452	PA
Diazinon	98.91	41313244	0.03216	3.3824	91529992	9404.4	AS
		91529992	0.2121	15.7426	92522992	126.706	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.6540	PA
Dichlorvos	98.2	41300923	0.044	3.2087	91524331	13466.0	AS
		91524331	0.1482	15.7426	92522992	126.768	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.6602	PA
Dimethoate	99.37	41301791	0.0211	2.4038	91528513	8722.5	AS
		91528513	0.23	15.7426	92522992	127.436	PA
		92522992	1.9764	19,7901	XXXXXXXX	12.7269	PA
Fenitrothion	98.66	41317297	0.01519	3.1963	91529749	4688.7	AS
		91529749	0.4302	15.7426	92522992	128,129	PA
		92522992	1.9764	19,7901	XXXXXXXX	12,7961	РА
Fenthion	98.4	41304570	0.02584	2.9649	91525055	8576.0	AS
		91525055	0.2348	15.7426	92522992	127.910	PA
		92522992	1.9764	19.7901	XXXXXXXX	12,7743	PA
Malathion	99 3	41300121	0.02876	3 4659	91526465	8239.8	AS
	,,,,,	91526465	0 2441	15 7426	92522992	127 764	PA
		92522992	1 9764	19 7901	XXXXXXXXX	12 7596	РА
Mevinnhos	97 7	41313022	0.0167	1 7360	91526649	9398.3	AS
We wiiphos	<i>)1.1</i>	91526649	0.2135	15 7426	92522992	127 459	PA
		925220042	1.9764	19.7420	XXXXXXXXX	127.459	PΔ
Parathion-ethyl (Parathion (Parathion-ethyl))	98.4	41316931	0.01351	2 7036	91523488	4917.1	
	20 t	91523/88	0 4079	15 7426	925229400	127 405	PΔ
		0252200	1 9764	10.7420	XXXXXXXXX	127.403	DA
Parathion-methyl	90.0	41296050	0.0178	1 9.7901	91528520	8965 5	
r aramon metry	<i>,,</i> ,,	91528520	0.2235	15 7426	92522020	127 284	PΔ
		92522992	1.9764	19.7901	XXXXXXXXX	12,7117	PA

Phosalone	98.0	41319819	0.02362	2.3127	91520517	10008.9	AS
		91520517	0.1993	15.7426	92522992	126.714	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.6547	PA
Propetamphos	98.6	41300763	0.03062	3.3451	91506405	9025.6	AS
		91506405	0.2229	15.7426	92522992	127.793	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.7626	PA
Triadimefon	98.5	41281307	0.02863	3.2060	91529756	8796.2	AS
		91529756	0.2275	15.7426	92522992	127.116	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.6949	PA
Triazophos	98.95	41315989	0.01743	1.7982	91523426	9591.4	AS
		91523426	0.2086	15.7426	92522992	127.092	PA
		92522992	1.9764	19.7901	XXXXXXXX	12.6925	PA