

## CERTIFIED REFERENCE MATERIAL

RD0261061.5: KIT of 21 components - part 1 of 3;  
7 components; 10ug/ml each of Metolachlor [CAS:51218-45-2] ; Isofenphos [CAS:25311-71-1] ; Oxadiazon [CAS:19666-30-9] ; Tris(2-chloroethyl)phosphate [CAS:115-96-8] ; Molinate [CAS:2212-67-1] ; Propanil [CAS:709-98-8] ; Dichlorvos [CAS:62-73-7] in Acetone

Lot N: 756551  
Barcode: 92761025

Ref N: RD0264771.5

Certification Date: 14.06.2021

Component	Certified Value* and uncertainty [µg/ml]	CAS	Chemical Formula
Metolachlor	10.112 ± 0.126	51218-45-2	C <sub>15</sub> H <sub>22</sub> ClNO <sub>2</sub>
Isofenphos	10.016 ± 0.346	25311-71-1	C <sub>15</sub> H <sub>24</sub> NO <sub>4</sub> PS
Oxadiazon	9.954 ± 0.142	19666-30-9	C <sub>15</sub> H <sub>18</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>3</sub>
Tris(2-chloroethyl)phosphate	10.036 ± 0.121	115-96-8	C <sub>6</sub> H <sub>12</sub> Cl <sub>3</sub> O <sub>4</sub> P
Molinate	10.010 ± 0.164	2212-67-1	C <sub>9</sub> H <sub>17</sub> NOS
Propanil	9.991 ± 0.158	709-98-8	C <sub>9</sub> H <sub>9</sub> Cl <sub>2</sub> NO
Dichlorvos	9.917 ± 0.121	62-73-7	C <sub>4</sub> H <sub>7</sub> Cl <sub>2</sub> O <sub>4</sub> P

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

Density 0.7869 g/cm<sup>3</sup> at 20°C

Starting Material	Purity, Batch
Metolachlor	98.5% (41388808)
Isofenphos	99.2% (41389850)
Oxadiazon	99.7% (41394724)
Tris(2-chloroethyl)phosphate	98.5% (41388747)
Molinate	99.5% (41406946)
Propanil	98.64% (41359938)
Dichlorvos	98.3% (41348475)

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

Expiry Date: 14.07.2022

### Concept of Certification and traceability statement:

This certified reference material is produced by gravimetric measurement and dissolving the individual substances in Acetone. 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. The metrological traceability is defined as the "property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty". The metrological traceability is ensured through gravimetric measurement and dissolving of certified reference material/s (traceable to SI) from laboratories/producers, accredited according to ISO 17034. 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  $\pm 5\%$  of the certified concentration for a period of 12 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:**

Laboratory:  Margarita Dimitrova

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, $\text{kg} \cdot 10^{-3}$	Bulk/Standard Solution lot No	Concentration mg/kg	Chemist ID
Metolachlor	98.5	41388808	0.02203	2.9197	91744142	7432.1	AS
		91744142	0.136	7.8479	92761803	128.795	ER
		92761803	1.5702	15.7369	92761025	12.8507	ER
Isofenphos	99.2	41389850	0.00547	1.6145	91740472	3360.9	AS
		91740472	0.2979	7.8479	92761803	127.578	ER
		92761803	1.5702	15.7369	92761025	12.7294	ER
Oxadiazon	99.7	41394724	0.01679	2.0609	91727763	8122.6	AS
		91727763	0.1225	7.8479	92761803	126.788	ER
		92761803	1.5702	15.7369	92761025	12.6506	ER
Tris(2-chloroethyl)phosphate	98.5	41388747	0.02424	3.0988	91740465	7705.0	AS
		91740465	0.1302	7.8479	92761803	127.829	ER
		92761803	1.5702	15.7369	92761025	12.7544	ER
Molinate	99.5	41406946	0.01443	2.5943	91740489	5534.4	AS
		91740489	0.1808	7.8479	92761803	127.502	ER

		92761803	1.5702	15.7369	92761025	12.7217	ER
Propanil	98.64	41359938	0.01452	3.0431	91736512	4706.6	AS
		91736512	0.2122	7.8479	92761803	127.261	ER
		92761803	1.5702	15.7369	92761025	12.6977	ER
Dichlorvos	98.3	41348475	0.031	3.5320	91735577	8627.6	AS
		91735577	0.1149	7.8479	92761803	126.315	ER
		92761803	1.5702	15.7369	92761025	12.6034	ER

