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Prep Standard - Chemical Standard Summary

Order ID : P1187

Test : Pesticide-TCL

Prepbatch ID : PB158577,

Sequence ID/Qc Batch ID: PD012424,

Standard ID :
EP2439,PP22520,PP22638,PP22946,PP22947,PP22948,PP22949,PP22950,PP22951,PP22952,PP22954,PP22955,PP22956,PP22957,PP22958,PP22960,PP22961,PP22962,PP22963,PP22964,PP22965,PP22966,PP22967,PP22968,PP22969,PP22970,PP22971,PP22972,PP22973,PP22974,PP22987,PP22992,PP23020,PP23021,

Chemical ID :
E3585,E3657,E3670,E3671,E3672,E3674,E3675,E3677,E3678,P11064,P11144,P11393,P11746,P11747,P11792,P11814,P11893,P11894,P12301,P12302,P12598,P12651,P13034,P9050,W2606,W3042,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1874	10 N SODIUM HYDROXIDE SOLN	EP2439	01/19/2024	06/03/2024	Rajesh Parikh	Extraction_SCALE_2 (EX-SC-2)	None	RUPESHKUMAR SHAH 01/19/2024

FROM 1000.00000ml of W2606 + 400.00000gram of E3657 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4027	Pesticide resolution Check Mixture 8081	PP22520	08/31/2023	01/28/2024	Abdul Mirza	None	None	Ankita Jodhani 09/05/2023

FROM 1.00000ml of P12651 + 99.00000ml of W3042 = Final Quantity: 100.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
758	PEM Mix w/Surr	PP22638	10/16/2023	04/09/2024	Abdul Mirza	None	None	Ankita Jodhani 10/17/2023

FROM 1.00000ml of P11792 + 99.00000ml of E3585 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
84	Pest/PCB Surrogate Stock 20 PPM	PP22946	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 1.00000ml of P11746 + 9.00000ml of E3672 = Final Quantity: 10.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3629	20 PPM PEST stock Solution 1st source(RESTEK)	PP22947	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 1.00000ml of P11064 + 9.00000ml of E3672 = Final Quantity: 10.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1472	20 PPM Pest Stock Solution 2nd Source	PP22948	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 1.00000ml of P13034 + 9.00000ml of E3672 = Final Quantity: 10.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1273	20 PPM Mirex Stock (Primary Source)	PP22949	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 0.20000ml of P9050 + 9.80000ml of E3672 = Final Quantity: 10.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3663	20 PPM MIREX Stock STD (Secondary source)	PP22950	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 0.20000ml of P11144 + 9.80000ml of E3672 = Final Quantity: 10.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3630	100/100 PPB PEST Working std.1st Source(RESTEK)	PP22951	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 98.50000ml of E3672 + 0.50000ml of PP22946 + 0.50000ml of PP22947 + 0.50000ml of PP22949 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
80	100/100 PPB Pesticide Working Solution 2nd Source	PP22952	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 98.50000ml of E3672 + 0.50000ml of PP22946 + 0.50000ml of PP22948 + 0.50000ml of PP22950 = Final Quantity: 100.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
386	1000/100 PPB Chlordane STD (Restek)	PP22954	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 0.10000ml of P11893 + 99.40000ml of E3672 + 0.50000ml of PP22946 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3746	1000/100 ppb Chlordane STD-RESTEK 2ND SOURCE	PP22955	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 0.10000ml of P12598 + 99.40000ml of E3672 + 0.50000ml of PP22946 = Final Quantity: 100.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
777	20 PPM DRO I.BLK	PP22956	12/28/2023	06/20/2024	Yogesh Patel	None	None	Ankita Jodhani 12/28/2023

FROM 1.00000ml of P12301 + 1.00000ml of P12302 + 98.00000ml of E3670 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
383	1000/100 PPB Toxaphene STD (Restek)	PP22957	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 0.10000ml of P11393 + 99.40000ml of E3672 + 0.50000ml of PP22946 = Final Quantity: 100.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3669	1000/100 PPB TOXAPHENE STD 2nd source (RESTEK)	PP22958	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/28/2023

FROM 0.10000ml of P11814 + 99.40000ml of E3672 + 0.50000ml of PP22946 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3631	75 PPB ICAL PEST STD(RESTEK)	PP22960	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.25000ml of E3672 + 0.75000ml of PP22951 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3632	50 PPB ICAL PEST STD(RESTEK)	PP22961	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.50000ml of E3672 + 0.50000ml of PP22951 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3633	25 PPB ICAL PEST STD(RESTEK)	PP22962	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.75000ml of E3672 + 0.25000ml of PP22951 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3634	5 PPB ICAL PEST STD(RESTEK)	PP22963	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.90000ml of E3672 + 0.10000ml of PP22961 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3988	50 PPB PEST ICV STD(RESTEK)	PP22964	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.50000ml of E3672 + 0.50000ml of PP22952 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
528	CHLOR 750 PPB STD	PP22965	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.25000ml of E3672 + 0.75000ml of PP22954 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
529	CHLOR 500 PPB STD	PP22966	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.50000ml of E3672 + 0.50000ml of PP22954 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
530	CHLOR 250 PPB STD	PP22967	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.75000ml of E3672 + 0.25000ml of PP22954 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3408	CHLOR 50 PPB STD	PP22968	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.90000ml of E3672 + 0.10000ml of PP22966 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
532	CHLOR 500 PPB ICV STD	PP22969	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.50000ml of E3672 + 0.50000ml of PP22955 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
528	CHLOR 750 PPB STD	PP22970	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.25000ml of E3672 + 0.75000ml of PP22954 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
529	CHLOR 500 PPB STD	PP22971	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.50000ml of E3672 + 5.00000ml of PP22954 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
535	TOX 250 PPB STD	PP22972	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.75000ml of E3672 + 0.25000ml of PP22957 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2217	TOX 100 PPB STD	PP22973	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.90000ml of E3672 + 0.10000ml of PP22957 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3670	TOX 500 PPB ICV std (RESTEK)	PP22974	12/28/2023	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 12/29/2023

FROM 0.50000ml of E3672 + 0.50000ml of PP22958 = Final Quantity: 1.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2156	100 PPB Pest Spike for LOD-LOQ (Restek)	PP22987	01/03/2024	06/23/2024	Abdul Mirza	None	None	Ankita Jodhani 01/08/2024

FROM 99.00000ml of E3671 + 0.50000ml of PP22948 + 0.50000ml of PP22950 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
465	200 PPB Pest/PCB Surrogate Spike	PP22992	01/05/2024	07/03/2024	Abdul Mirza	None	None	Ankita Jodhani 01/08/2024

FROM 1.00000ml of P11747 + 999.00000ml of E3674 = Final Quantity: 1000.000 ml

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Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1501	1000 ppb CHLORDANE SPIKE (RESTEK)	PP23020	01/18/2024	07/03/2024	Abdul Mirza	None	None	Ankita Jodhani 01/19/2024

FROM 0.10000ml of P11894 + 99.90000ml of E3674 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3878	1000 PPB TOXAPHENE SPIKE (RESTEK)	PP23021	01/18/2024	06/28/2024	Abdul Mirza	None	None	Ankita Jodhani 01/19/2024

FROM 0.10000ml of P11393 + 99.90000ml of E3674 = Final Quantity: 100.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	23C2462011	04/09/2024	10/09/2023 / Rajesh	10/05/2023 / Rajesh	E3585

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	23B1556310	06/03/2024	12/04/2023 / Rajesh	12/01/2023 / Rajesh	E3657

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	23j1162022	06/20/2024	12/20/2023 / Rajesh	12/15/2023 / Rajesh	E3670

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	23H1462005	06/23/2024	12/23/2023 / Rajesh	12/21/2023 / Rajesh	E3671

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	23G1262009	06/23/2024	12/23/2023 / Rajesh	12/21/2023 / Rajesh	E3672

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9254-03 / Acetone, Ultra Resi (cs/4x4L)	23H1462005	07/03/2024	01/03/2024 / Rajesh	01/03/2024 / Rajesh	E3674

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agela Technologies Inc.	FS0006 / Cleanert Florisil cartridge	Y0307-2	04/13/2024	11/13/2023 / Rajesh	11/13/2023 / Rajesh	E3675

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	23G1262009	07/22/2024	01/22/2024 / Rajesh	01/16/2024 / Rajesh	E3677

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L)	23K0962009	07/16/2024	01/16/2024 / Rajesh	01/11/2024 / Rajesh	E3678

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32291 / Pesticide Mix, CLP method, organochlorine Std AB#1, 200ug/mL, hexane/toluene, 1mL/ampul	A0168439	06/28/2024	12/28/2023 / Abdul	09/29/2021 / Abdul	P11064

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	79136 / Mirex, 1000 ug/ml	102821	06/28/2024	12/28/2023 / Abdul	10/29/2021 / Abdul	P11144

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32005 / Toxaphene Standard	A0176614	06/28/2024	12/28/2023 / Abdul	02/09/2022 / Ankita	P11393

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32000 / Pesticide Mix, CLP method, Pesticide Surrogate Mix, 200ug/mL, Acetone, 1mL	A0179404	06/28/2024	12/28/2023 / Abdul	05/27/2022 / Sohil	P11746

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32000 / Pesticide Mix, CLP method, Pesticide Surrogate Mix, 200ug/mL, Acetone, 1mL	A0179404	07/05/2024	01/05/2024 / Abdul	05/27/2022 / Sohil	P11747

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32074 / Pesticide Performance Evaluation Mix w/Surrogate	A0183168	04/16/2024	10/16/2023 / Abdul	05/27/2022 / Sohil	P11792

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32005 / Toxaphene Standard	A0177326	06/28/2024	12/28/2023 / Abdul	06/17/2022 / Ankita	P11814

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32021 / Chlordane Std.	A0181737	06/28/2024	12/28/2023 / Abdul	06/17/2022 / Abdul	P11893

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32021 / Chlordane Std.	A0181737	07/18/2024	01/18/2024 / Abdul	06/17/2022 / Abdul	P11894

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	72072 / n-Tetracosane-d50, 1000 ug/ml	101122	06/28/2024	12/28/2023 / yogesh	02/22/2023 / Yogesh	P12301

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	72072 / n-Tetracosane-d50, 1000 ug/ml	101122	06/28/2024	12/28/2023 / yogesh	02/22/2023 / Yogesh	P12302

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32021 / Chlordane Std.	A0193299	06/28/2024	12/28/2023 / Abdul	07/03/2023 / Abdul	P12598

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards,Inc	19161 / 8081 pesticide resolution check mixture	012819	01/28/2024	08/31/2023 / Ankita	07/07/2023 / Ankita	P12651

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32291 / Pesticide Mix, CLP method, organochlorine Std AB#1, 200ug/mL, hexane/toluene, 1mL/ampul	A0200423	06/28/2024	12/28/2023 / Abdul	12/26/2023 / Abdul	P13034

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	79136 / Mirex, 1000 ug/ml	112018	06/28/2024	12/28/2023 / Abdul	11/01/2019 / Stephen	P9050

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	10/24/2024	10/24/2019 / apatel	10/24/2019 / apatel	W2606

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L)	23C2462011	08/06/2024	07/12/2023 / JIGNESH	07/11/2023 / JIGNESH	W3042

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ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

P12596 (7)
↓
P12602

7/3/2023

Catalog No. : 32021 **Lot No.:** A0193299

Description : Chlordane Standard

Chlordane Standard 1000µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 30, 2029 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Chlordane 10% trans-Chlordane; 9% cis-Chlordane; 81% other isomers	57-74-9	978545	----%	1,010.0 µg/mL	+/- 56.0475

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Hexane
CAS # 110-54-3
Purity 99%

Tech Tips:
CAS #57-74-9 nomenclature is based on EPA method 8081B.

Quality Confirmation Test

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

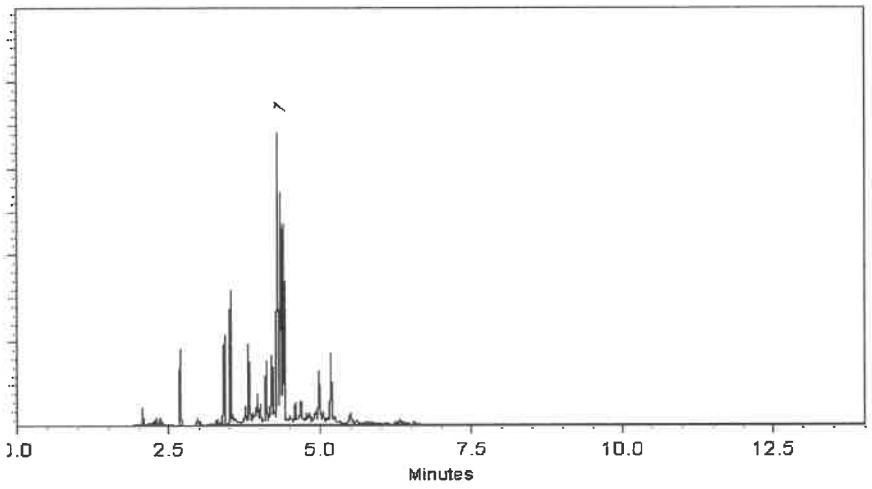
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
300 ml/min.

Inj. Vol
0.2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Bryan Snyder - Operations Tech I

Date Mixed: 06-Jan-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 09-Jan-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

Hexanes (95% n-hexane)
BAKER RESI-ANALYZED® Reagent

avantor™ | J.T.Baker®

Material No.: 9262-03
Batch No.: 23C2462011
Manufactured Date: 2023-03-10
Expiration Date: 2024-06-08
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1
ECD-Sensitive Impurities (as Ethylene Dibromide) - Single Impurity Peak (ng/mL)	≤ 5	< 1
Assay (Total Saturated C_6 Isomers) (by GC, corrected for water)	≥ 99.5 %	99.7 %
Assay (as n-Hexane) (by GC, corrected for water)	≥ 95 %	97 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Darkened by H_2SO_4	Passes Test	Passes Test
Water (by KF, coulometric)	≤ 0.05 %	< 0.01 %

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Recd. by RP on 10/5/23

E 3585

James T Ethier
Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

VWR®

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: 0583
Grade: ACS GRADE
Batch Number: 23B1556310

Chemical Formula: NaOH
Molecular Weight: 40
CAS #: 1310-73-2
Appearance:

Pellets

Manufacture Date: 12/14/2022
Expiration Date: 12/31/2025

Storage: Room Temperature

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	<= 0.005 %	<0.005 %	PASS
Chloride	<= 0.005 %	0.002 %	PASS
Heavy Metals	<= 0.002 %	<0.002 %	PASS
Iron	<= 0.001 %	<0.001 %	PASS
Magnesium	<= 0.002 %	<0.002 %	PASS
Mercury	<= 0.1 ppm	<0.1 ppm	PASS
Nickel	<= 0.001 %	<0.001 %	PASS
Nitrogen Compounds	<= 0.001 %	<0.001 %	PASS
Phosphate	<= 0.001 %	<0.001 %	PASS
Potassium	<= 0.02 %	<0.02 %	PASS
Purity	>= 97.0 %	99.2 %	PASS
Sodium Carbonate	<= 1.0 %	0.5 %	PASS
Sulfate	<= 0.003 %	<0.003 %	PASS

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

This document has been electronically produced and is valid without a signature.

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

E 3657	E 3659
E 3654	E 3660

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

Material No.: 9254-03
Batch No.: 23H1462005
Manufactured Date: 2023-07-26
Expiration Date: 2026-07-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected for water)	≥ 99.4 %	99.7 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	≤ 0.3	0.1
Titrable Base (µeq/g)	≤ 0.6	< 0.1
Water (H_2O)	≤ 0.5 %	0.3 %
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Recd by RP on 12/2/23

E3671

Ken Koehnlein
Sr. Manager, Quality Assurance

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker®

Material No.: 9254-03
Batch No.: 23H1462005
Manufactured Date: 2023-07-26
Expiration Date: 2026-07-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected for water)	≥ 99.4 %	99.7 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Reducing Permanganate	Passes Test	Passes Test
Titrable Acid (µeq/g)	≤ 0.3	0.1
Titrable Base (µeq/g)	≤ 0.6	< 0.1
Water (H_2O)	≤ 0.5 %	0.3 %
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Recd. by RP on 1/3/24

E 367H

Ken Koehnlein
Sr. Manager, Quality Assurance

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700


Cleanert Floris
1g/6ml 30/pkg
E 3675
LOT#:Y0307-2
MFG#:F00549
CAT# FS0006
Made in China
Agela Technologies

Hexanes (95% n-hexane)
BAKER RESI-ANALYZED® Reagent

avantor™ | J.T.Baker®

Material No.: 9262-03
Batch No.: 23G1262009
Manufactured Date: 2023-06-01
Expiration Date: 2024-08-30
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1
ECD-Sensitive Impurities (as Ethylene Dibromide) - Single Impurity Peak (ng/mL)	≤ 5	3
Assay (Total Saturated C_6 Isomers) (by GC, corrected for water)	≥ 99.5 %	99.6 %
Assay (as n-Hexane) (by GC, corrected for water)	≥ 95 %	98 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Darkened by H_2SO_4	Passes Test	Passes Test
Water (by KF, coulometric)	≤ 0.05 %	0.01 %

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Recd. by RP on 1/16/24

E 3677

Ken Koehnlein
Sr. Manager, Quality Assurance

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Methylene Chloride
ULTRA RESI-ANALYZED
For Organic Residue Analysis
(dichloromethane)

avantor™ | J.T.Baker®

Material No.: 9266-A4
Batch No.: 23K0962009
Manufactured Date: 2023-10-05
Expiration Date: 2025-01-03
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	3
Assay (CH_2Cl_2) (by GC, exclusive of preservative, corrected for water)	≥ 99.8 %	100.0 %
Color (APHA)	≤ 10	10
Residue after Evaporation	≤ 1.0 ppm	0.2 ppm
Titrable Acid (µeq/g)	≤ 0.3	< 0.1
Chloride (Cl)	≤ 10 ppm	< 5 ppm
Water (by KF, coulometric)	≤ 0.02 %	< 0.01 %

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC
Manufacturer source batch: MG23J05873

E 3678

Ken Koehnlein
Sr. Manager, Quality Assurance

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32021 **Lot No.:** A0181737

Description : Chlordane Standard

Chlordane Standard 1000µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : May 31, 2028 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Chlordane	1,006.0 µg/mL	+/- 5.9753	µg/mL	Gravimetric
	CAS # 57-74-9 (Lot 978545)		+/- 31.8975	µg/mL	Unstressed
	Purity ----%		+/- 41.6615	µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

P 11892 ↓ P 11896 (5)

06/17/2022

Tech Tips:
CAS #57-74-9 nomenclature is based on EPA method 8081B.

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

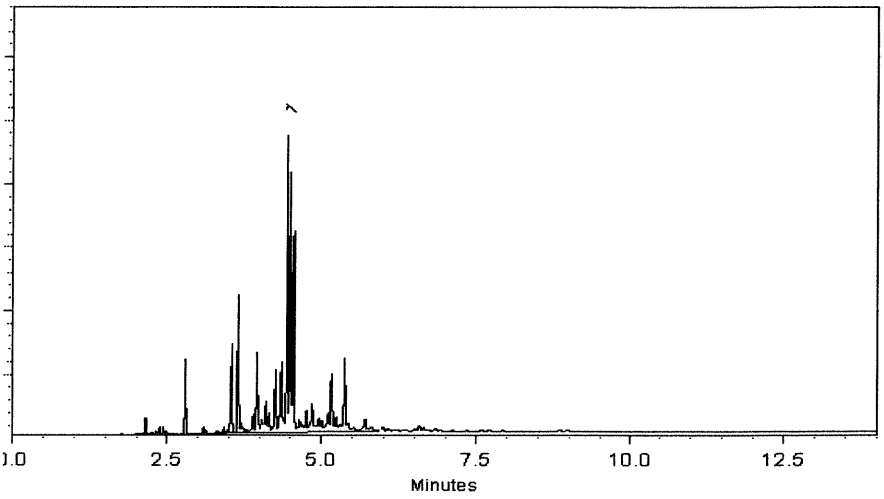
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Josh McCloskey - Operations Technician I

Date Mixed: 11-Feb-2022 **Balance:** B442140311

Marlina Cowan - Operations Tech I

Date Passed: 24-Feb-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

P 11892 | (5)
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P 11896
1

06/17/2022

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Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32021 **Lot No.:** A0181737

Description : Chlordane Standard

Chlordane Standard 1000µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : May 31, 2028 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Chlordane	1,006.0 µg/mL	+/- 5.9753	µg/mL	Gravimetric
	CAS # 57-74-9 (Lot 978545)		+/- 31.8975	µg/mL	Unstressed
	Purity ----%		+/- 41.6615	µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

P 11892 ↓ P 11896 (5)

06/17/2022

Tech Tips:
CAS #57-74-9 nomenclature is based on EPA method 8081B.

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

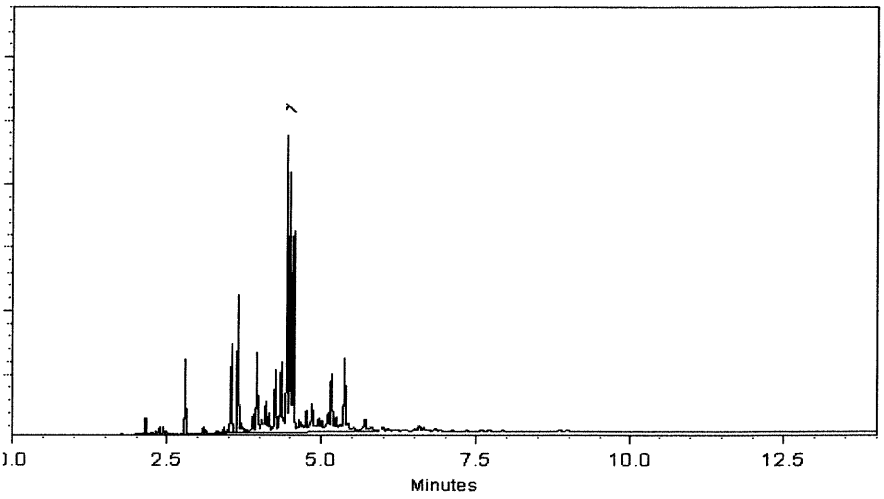
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Josh McCloskey - Operations Technician I

Date Mixed: 11-Feb-2022 **Balance:** B442140311

Marlina Cowan - Operations Tech I

Date Passed: 24-Feb-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

P 11892 | (5)
↓
P 11896
1

06/17/2022

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Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

P11061
↓
P11065
AR 9/30/2024

Catalog No. : 32291 **Lot No.:** A0168439

Description : Organochlorine Pesticide Mix AB #1

Organochlorine Pesticide Mix AB #1 200µg/mL, Hexane/Toluene(50:50), 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)		
1	alpha-BHC		200.5	µg/mL	+/- 1.4217	µg/mL	Gravimetric
	CAS # 319-84-6	(Lot 0012018BHC)			+/- 9.1674	µg/mL	Unstressed
	Purity 99%				+/- 13.2104	µg/mL	Stressed
2	gamma-BHC (Lindane)		200.8	µg/mL	+/- 1.4238	µg/mL	Gravimetric
	CAS # 58-89-9	(Lot 10972000)			+/- 9.1807	µg/mL	Unstressed
	Purity 97%				+/- 13.2295	µg/mL	Stressed
3	beta-BHC		200.0	µg/mL	+/- 1.4182	µg/mL	Gravimetric
	CAS # 319-85-7	(Lot SL210106)			+/- 9.1446	µg/mL	Unstressed
	Purity 99%				+/- 13.1774	µg/mL	Stressed
4	delta-BHC		199.9	µg/mL	+/- 1.4176	µg/mL	Gravimetric
	CAS # 319-86-8	(Lot ER02101401)			+/- 9.1409	µg/mL	Unstressed
	Purity 98%				+/- 13.1722	µg/mL	Stressed
5	Heptachlor		200.0	µg/mL	+/- 1.4182	µg/mL	Gravimetric
	CAS # 76-44-8	(Lot 0006540595)			+/- 9.1446	µg/mL	Unstressed
	Purity 99%				+/- 13.1774	µg/mL	Stressed
6	Aldrin		199.8	µg/mL	+/- 1.4169	µg/mL	Gravimetric
	CAS # 309-00-2	(Lot 11129800)			+/- 9.1363	µg/mL	Unstressed
	Purity 97%				+/- 13.1656	µg/mL	Stressed
7	Heptachlor epoxide (isomer B)		200.5	µg/mL	+/- 1.4217	µg/mL	Gravimetric
	CAS # 1024-57-3	(Lot 10039000)			+/- 9.1674	µg/mL	Unstressed
	Purity 99%				+/- 13.2104	µg/mL	Stressed

8	trans-Chlordane		200.5	µg/mL	+/-	1.4217	µg/mL	Gravimetric
	CAS # 5103-74-2	(Lot 32095)			+/-	9.1674	µg/mL	Unstressed
	Purity 99%				+/-	13.2104	µg/mL	Stressed
9	cis-Chlordane		200.0	µg/mL	+/-	1.4182	µg/mL	Gravimetric
	CAS # 5103-71-9	(Lot 31707)			+/-	9.1446	µg/mL	Unstressed
	Purity 99%				+/-	13.1774	µg/mL	Stressed
10	Endosulfan I		200.5	µg/mL	+/-	1.4217	µg/mL	Gravimetric
	CAS # 959-98-8	(Lot BCBS8631)			+/-	9.1674	µg/mL	Unstressed
	Purity 99%				+/-	13.2104	µg/mL	Stressed
11	4,4'-DDE		200.0	µg/mL	+/-	1.4182	µg/mL	Gravimetric
	CAS # 72-55-9	(Lot GHYQG)			+/-	9.1446	µg/mL	Unstressed
	Purity 99%				+/-	13.1774	µg/mL	Stressed
12	Dieldrin		200.4	µg/mL	+/-	1.4211	µg/mL	Gravimetric
	CAS # 60-57-1	(Lot 10714300)			+/-	9.1633	µg/mL	Unstressed
	Purity 98%				+/-	13.2045	µg/mL	Stressed
13	Endrin		199.9	µg/mL	+/-	1.4176	µg/mL	Gravimetric
	CAS # 72-20-8	(Lot 11129700)			+/-	9.1409	µg/mL	Unstressed
	Purity 98%				+/-	13.1722	µg/mL	Stressed
14	4,4'-DDD		200.5	µg/mL	+/-	1.4217	µg/mL	Gravimetric
	CAS # 72-54-8	(Lot HAN02)			+/-	9.1674	µg/mL	Unstressed
	Purity 99%				+/-	13.2104	µg/mL	Stressed
15	Endosulfan II		201.0	µg/mL	+/-	1.4253	µg/mL	Gravimetric
	CAS # 33213-65-9	(Lot 11129400)			+/-	9.1903	µg/mL	Unstressed
	Purity 99%				+/-	13.2433	µg/mL	Stressed
16	4,4'-DDT		200.0	µg/mL	+/-	1.4182	µg/mL	Gravimetric
	CAS # 50-29-3	(Lot S37912V)			+/-	9.1446	µg/mL	Unstressed
	Purity 99%				+/-	13.1774	µg/mL	Stressed
17	Endrin aldehyde		200.9	µg/mL	+/-	1.4245	µg/mL	Gravimetric
	CAS # 7421-93-4	(Lot 30455)			+/-	9.1857	µg/mL	Unstressed
	Purity 98%				+/-	13.2367	µg/mL	Stressed
18	Endosulfan sulfate		200.0	µg/mL	+/-	1.4182	µg/mL	Gravimetric
	CAS # 1031-07-8	(Lot BCCB0424)			+/-	9.1446	µg/mL	Unstressed
	Purity 99%				+/-	13.1774	µg/mL	Stressed
19	Methoxychlor		199.8	µg/mL	+/-	1.4169	µg/mL	Gravimetric
	CAS # 72-43-5	(Lot 10720900)			+/-	9.1363	µg/mL	Unstressed
	Purity 97%				+/-	13.1656	µg/mL	Stressed
20	Endrin ketone		199.8	µg/mL	+/-	1.4169	µg/mL	Gravimetric
	CAS # 53494-70-5	(Lot 11129600)			+/-	9.1363	µg/mL	Unstressed
	Purity 97%				+/-	13.1656	µg/mL	Stressed

Solvent: Hexane/Toluene (50:50)
CAS # 110-54-3/108-88-3
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

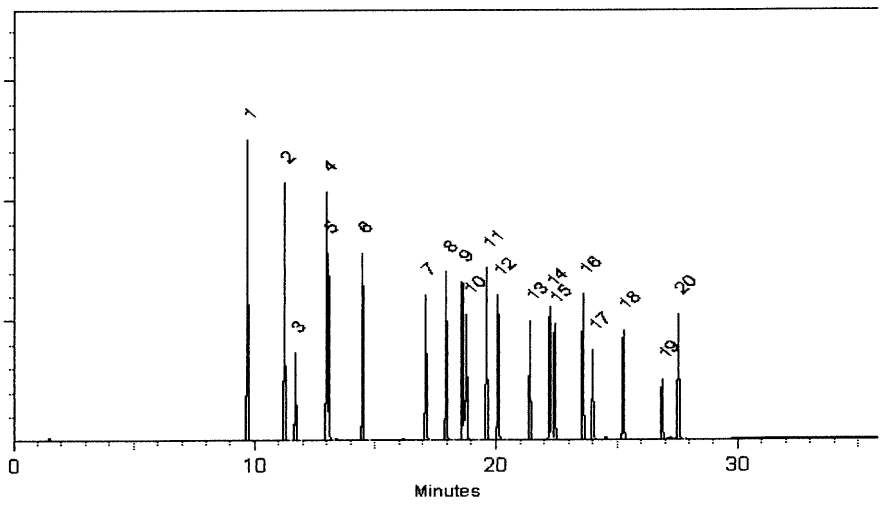
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
150°C to 300°C
@ 4°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Matt Fragassi - Mix Technician

Date Mixed: 25-Jan-2021 **Balance:** 1128342314

Marlina Cowan - Operations Tech I

Date Passed: 29-Jan-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

P11061
↓
P11065

AR 9/30/2021

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 79136
Lot Number: 102821
Description: Mirex

Expiration Date: 102826
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

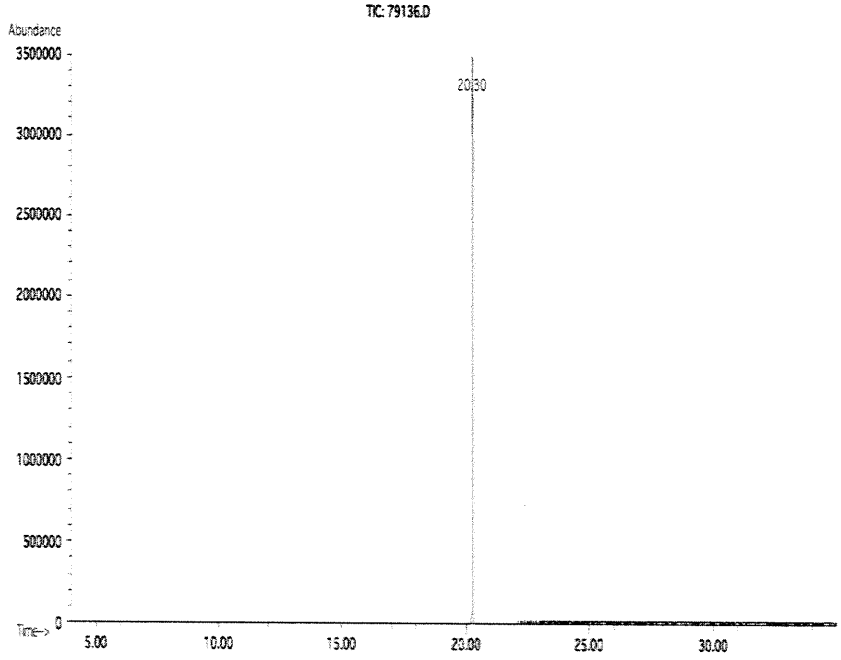
Solvent(s): **Lot#**
Acetone 81025

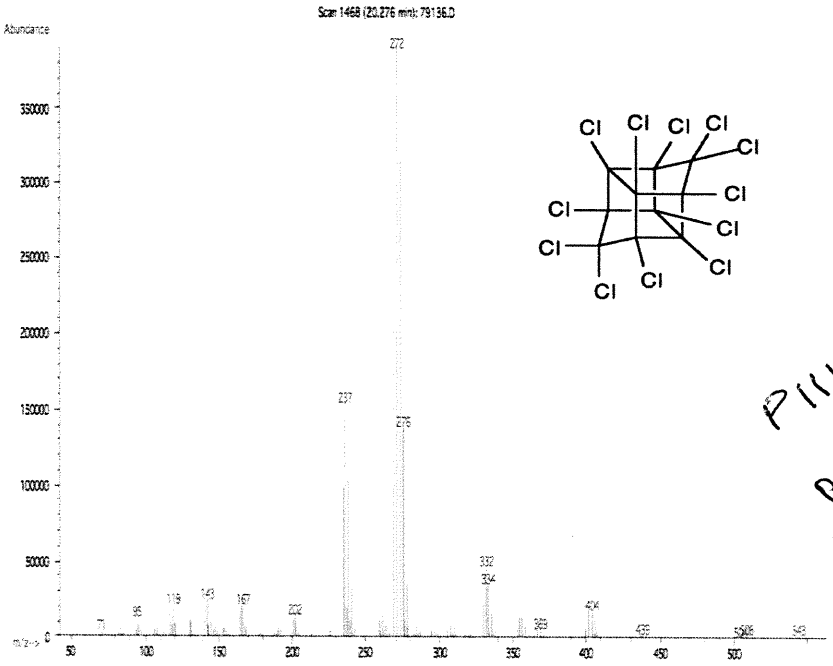
5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 50.0 0.006 Flask Uncertainty

Eli Aliaga	102821
Formulated By: Eli Aliaga	DATE
Pedro Rentas	102821
Reviewed By: Pedro L. Rentas	DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight (g)	Actual Weight (g)	Actual Conc(µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Mirex	437	9492400	1000	99.4	0.5	0.05034	0.05039	1000.9	10.3	2385-85-5	N/A	orl-rat 306mg/kg

Method GC7MSD-1.M: Column: SPB-608 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 150°C (4min.), Temp 2 = 290°C (13.5 min.), Rate = 8°C/min., Injector B= 200°C, Detector B = 290°C. Split Ratio = 100:1, Scan Rate = 2. Analysis performed by Candice Warren.





P11142 To P11146
AR 11/02/21

- **The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.**
- **Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).**
- **Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.**
- **All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.**
- **Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).**

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Certificate of Analysis

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Certificate #3222.01

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Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

P11364 AJ
J.
P11393 02/09/22

Catalog No. : 32005 **Lot No.:** A0176614

Description : Toxaphene Standard

Toxaphene Standard 1000 µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Toxaphene	1,005.3 µg/mL	+/- 5.9714	µg/mL	Gravimetric
	CAS # 8001-35-2 (Lot 1051817)		+/- 31.8763	µg/mL	Unstressed
	Purity ----%		+/- 41.6339	µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

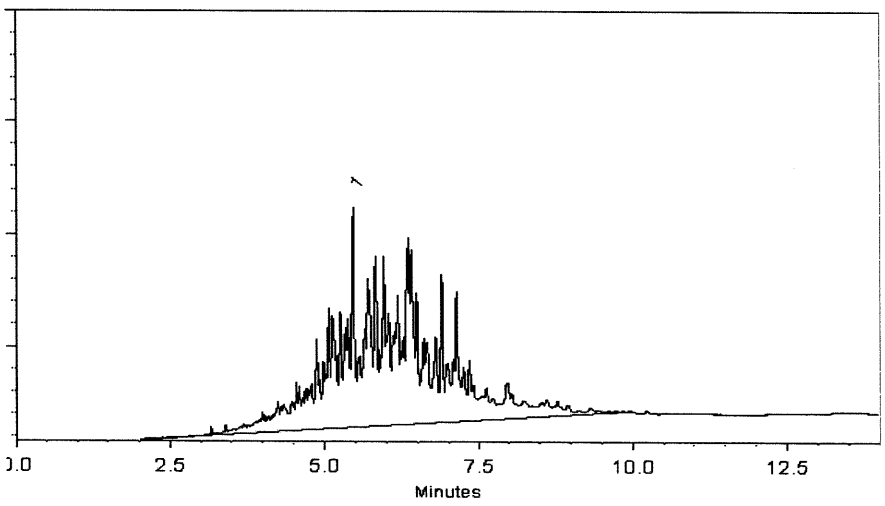
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Bradley Meyer
Bradley Meyer - Mix Technician

Date Mixed: 21-Sep-2021 **Balance:** 1128360905

Marlina Cowan
Marlina Cowan - Operations Tech I

Date Passed: 22-Sep-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

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Certificate of Analysis

P11739 to P11748

Received by SJ 5/27/2022

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32000 **Lot No.:** A0179404

Description : Pesticide Surrogate Mix

Pesticide Surrogate Mix 200 µg/mL, Acetone, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 31, 2028 **Storage:** 10°C or colder

Handling: Contains PCBs - sonicate prior to use. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2,4,5,6-Tetrachloro-m-xylene	200.7 µg/mL	+/- 1.1840	µg/mL	Gravimetric
	CAS # 877-09-8 (Lot 0052481)		+/- 6.3622	µg/mL	Unstressed
	Purity 98%		+/- 8.3106	µg/mL	Stressed
2	Decachlorobiphenyl (BZ# 209)	200.8 µg/mL	+/- 1.1845	µg/mL	Gravimetric
	CAS # 2051-24-3 (Lot 30679)		+/- 6.3653	µg/mL	Unstressed
	Purity 99%		+/- 8.3146	µg/mL	Stressed

Solvent: Acetone
CAS # 67-64-1
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

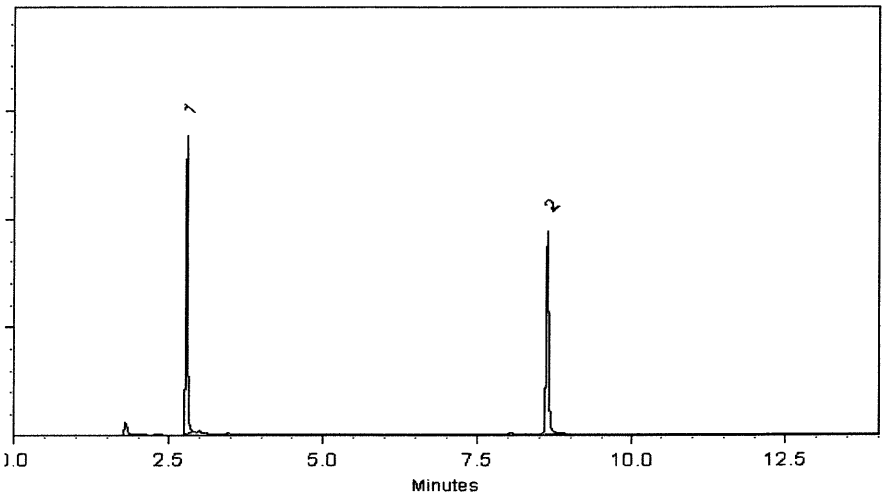
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD



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Matt Fragassi - Mix Technician

Date Mixed: 09-Dec-2021 **Balance:** 1127510105

Clara Windle - Operations Technician I

Date Passed: 14-Dec-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

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Certificate of Analysis

P11739 to P11748

Received by SJ 5/27/2022

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32000 **Lot No.:** A0179404

Description : Pesticide Surrogate Mix

Pesticide Surrogate Mix 200 µg/mL, Acetone, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 31, 2028 **Storage:** 10°C or colder

Handling: Contains PCBs - sonicate prior to use. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2,4,5,6-Tetrachloro-m-xylene	200.7 µg/mL	+/- 1.1840	µg/mL	Gravimetric
	CAS # 877-09-8 (Lot 0052481)		+/- 6.3622	µg/mL	Unstressed
	Purity 98%		+/- 8.3106	µg/mL	Stressed
2	Decachlorobiphenyl (BZ# 209)	200.8 µg/mL	+/- 1.1845	µg/mL	Gravimetric
	CAS # 2051-24-3 (Lot 30679)		+/- 6.3653	µg/mL	Unstressed
	Purity 99%		+/- 8.3146	µg/mL	Stressed

Solvent: Acetone
CAS # 67-64-1
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

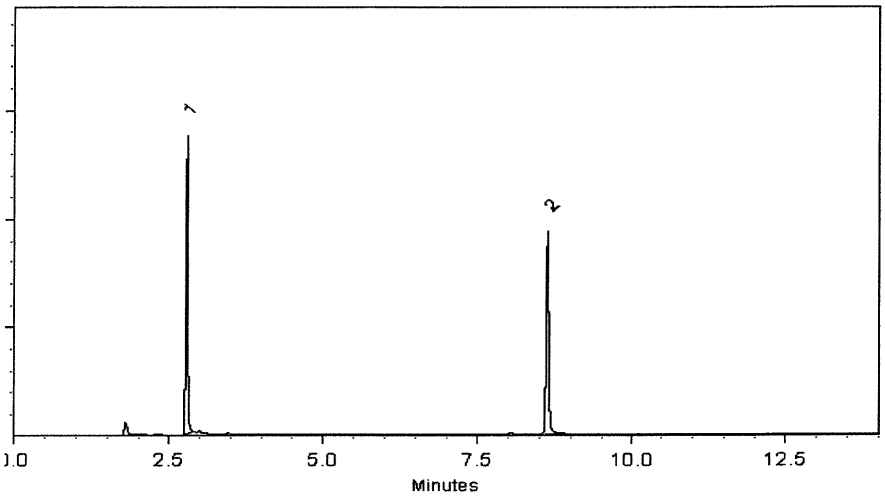
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Matt Fragassi - Mix Technician

Date Mixed: 09-Dec-2021 **Balance:** 1127510105

Clara Windle - Operations Technician I

Date Passed: 14-Dec-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

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25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
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0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

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Certificate of Analysis

P11789 to P11793

Received by SJ 5/27/2022

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32074 **Lot No.:** A0183168

Description : Pesticide Performance Eval Mix w/Surrogate

Performance Evaluation Std. 3/90 SOW w/surrogates 1-25µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 31, 2026 **Storage:** 10°C or colder

Handling: Contains PCBs - sonicate prior to use. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2,4,5,6-Tetrachloro-m-xylene	2.0 µg/mL	+/- 0.1220	µg/mL	Gravimetric
	CAS # 877-09-8 (Lot 0052481)		+/- 0.1523	µg/mL	Unstressed
	Purity 98%		+/- 0.1799	µg/mL	Stressed
2	alpha-BHC	1.0 µg/mL	+/- 0.0610	µg/mL	Gravimetric
	CAS # 319-84-6 (Lot 12469000)		+/- 0.0762	µg/mL	Unstressed
	Purity 99%		+/- 0.0900	µg/mL	Stressed
3	gamma-BHC (Lindane)	1.0 µg/mL	+/- 0.0610	µg/mL	Gravimetric
	CAS # 58-89-9 (Lot 12642100)		+/- 0.0762	µg/mL	Unstressed
	Purity 99%		+/- 0.0900	µg/mL	Stressed
4	beta-BHC	1.0 µg/mL	+/- 0.0610	µg/mL	Gravimetric
	CAS # 319-85-7 (Lot BCCC6425)		+/- 0.0762	µg/mL	Unstressed
	Purity 99%		+/- 0.0900	µg/mL	Stressed
5	Endrin	5.1 µg/mL	+/- 0.3045	µg/mL	Gravimetric
	CAS # 72-20-8 (Lot 13000500)		+/- 0.3805	µg/mL	Unstressed
	Purity 99%		+/- 0.4496	µg/mL	Stressed
6	4,4'-DDT	10.1 µg/mL	+/- 0.6090	µg/mL	Gravimetric
	CAS # 50-29-3 (Lot 210916JLM)		+/- 0.7609	µg/mL	Unstressed
	Purity 99%		+/- 0.8992	µg/mL	Stressed
7	Methoxychlor	25.2 µg/mL	+/- 1.5221	µg/mL	Gravimetric
	CAS # 72-43-5 (Lot 12555700)		+/- 1.9018	µg/mL	Unstressed
	Purity 98%		+/- 2.2475	µg/mL	Stressed

8	Decachlorobiphenyl (BZ# 209)		2.0	µg/mL	+/-	0.1221	µg/mL	Gravimetric
	CAS # 2051-24-3	(Lot 30679)			+/-	0.1524	µg/mL	Unstressed
	Purity 99%				+/-	0.1800	µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

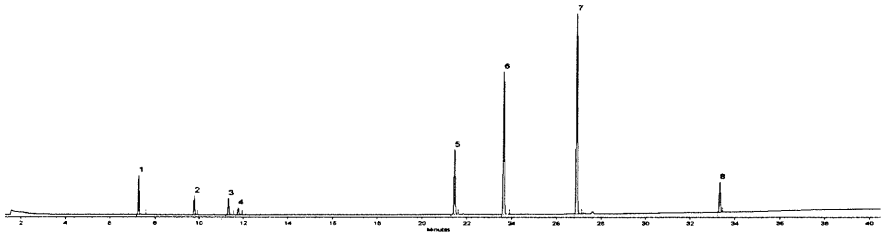
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
150°C to 300°C
@ 4°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brittany Federinko - Operations Tech I

Date Mixed: 22-Mar-2022 **Balance:** 1128360905

John Lidgett - AD Chemist

Date Passed: 24-Mar-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

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Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

Certificate of Analysis

P11794 to P11798

Received by SJ 5/27/2022

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32074 **Lot No.:** A0183168

Description : Pesticide Performance Eval Mix w/Surrogate

Performance Evaluation Std. 3/90 SOW w/surrogates 1-25µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 31, 2026 **Storage:** 10°C or colder

Handling: Contains PCBs - sonicate prior to use. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	2,4,5,6-Tetrachloro-m-xylene	2.0 µg/mL	+/- 0.1220 µg/mL	Gravimetric
	CAS # 877-09-8 (Lot 0052481)		+/- 0.1523 µg/mL	Unstressed
	Purity 98%		+/- 0.1799 µg/mL	Stressed
2	alpha-BHC	1.0 µg/mL	+/- 0.0610 µg/mL	Gravimetric
	CAS # 319-84-6 (Lot 12469000)		+/- 0.0762 µg/mL	Unstressed
	Purity 99%		+/- 0.0900 µg/mL	Stressed
3	gamma-BHC (Lindane)	1.0 µg/mL	+/- 0.0610 µg/mL	Gravimetric
	CAS # 58-89-9 (Lot 12642100)		+/- 0.0762 µg/mL	Unstressed
	Purity 99%		+/- 0.0900 µg/mL	Stressed
4	beta-BHC	1.0 µg/mL	+/- 0.0610 µg/mL	Gravimetric
	CAS # 319-85-7 (Lot BCCC6425)		+/- 0.0762 µg/mL	Unstressed
	Purity 99%		+/- 0.0900 µg/mL	Stressed
5	Endrin	5.1 µg/mL	+/- 0.3045 µg/mL	Gravimetric
	CAS # 72-20-8 (Lot 13000500)		+/- 0.3805 µg/mL	Unstressed
	Purity 99%		+/- 0.4496 µg/mL	Stressed
6	4,4'-DDT	10.1 µg/mL	+/- 0.6090 µg/mL	Gravimetric
	CAS # 50-29-3 (Lot 210916JLM)		+/- 0.7609 µg/mL	Unstressed
	Purity 99%		+/- 0.8992 µg/mL	Stressed
7	Methoxychlor	25.2 µg/mL	+/- 1.5221 µg/mL	Gravimetric
	CAS # 72-43-5 (Lot 12555700)		+/- 1.9018 µg/mL	Unstressed
	Purity 98%		+/- 2.2475 µg/mL	Stressed

8	Decachlorobiphenyl (BZ# 209)		2.0	µg/mL	+/-	0.1221	µg/mL	Gravimetric
	CAS # 2051-24-3	(Lot 30679)			+/-	0.1524	µg/mL	Unstressed
	Purity 99%				+/-	0.1800	µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

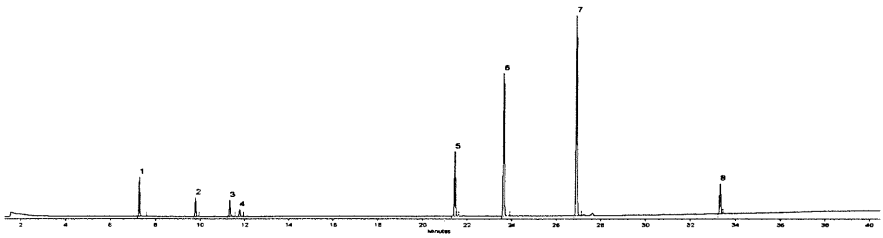
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
150°C to 300°C
@ 4°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brittany Federinko - Operations Tech I

Date Mixed: 22-Mar-2022 **Balance:** 1128360905

John Lidgett - AD Chemist

Date Passed: 24-Mar-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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P11811 ↓ P11819 AJ 06/17/22

Catalog No. : 32005 **Lot No.:** A0177326

Description : Toxaphene Standard

Toxaphene Standard 1000 µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Toxaphene	1,004.7 µg/mL	+/- 5.9674	µg/mL	Gravimetric
	CAS # 8001-35-2 (Lot 1051817)		+/- 31.8552	µg/mL	Unstressed
	Purity ----%		+/- 41.6063	µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

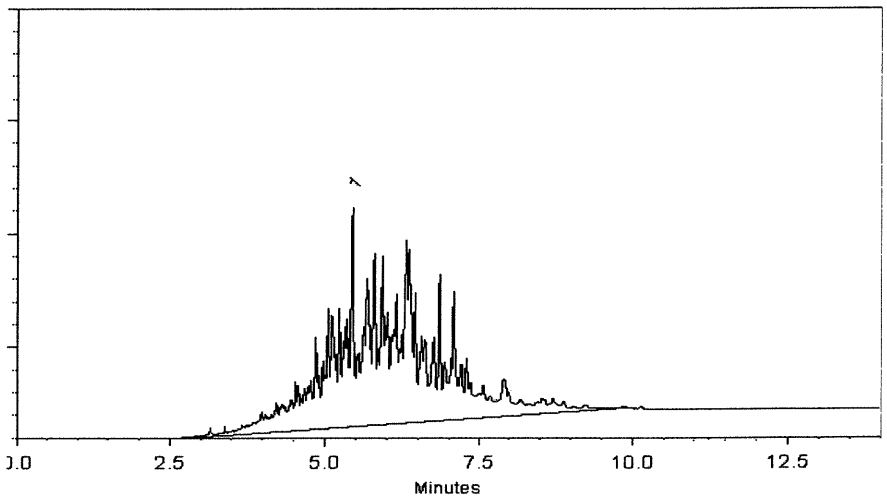
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Sam Moodler - Operations Tech I

Date Mixed: 11-Oct-2021 **Balance:** B442140311

Marlina Cowan - Operations Tech I

Date Passed: 14-Oct-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 72072
Lot Number: 101122
Description: n-Tetracosane-d50

Expiration Date: 101132
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

Solvent(s):	Lot#
Methylene chloride	105345

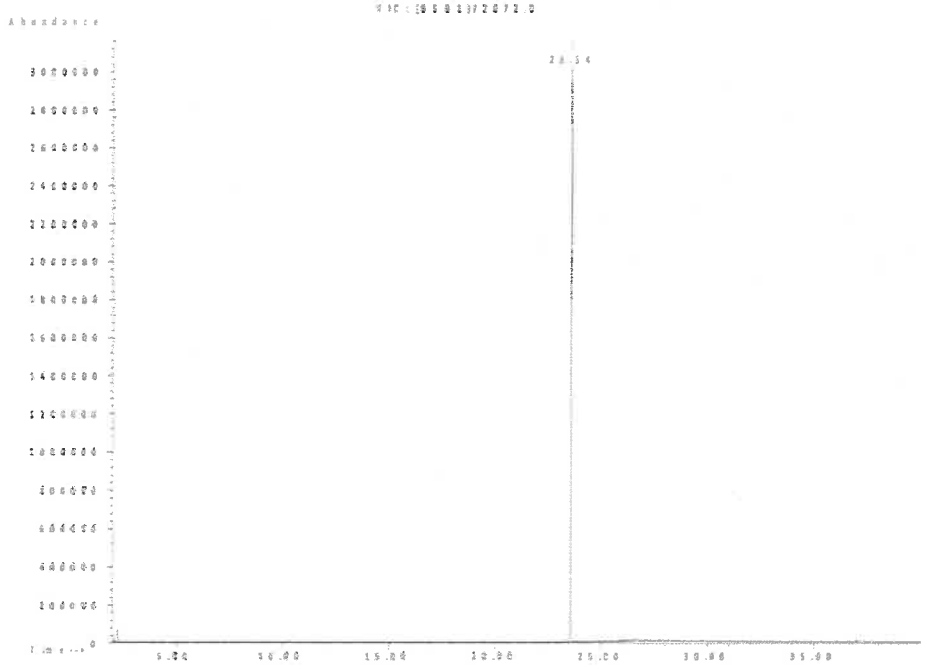
P12291 & P12310 } Y.P. 02/22/23

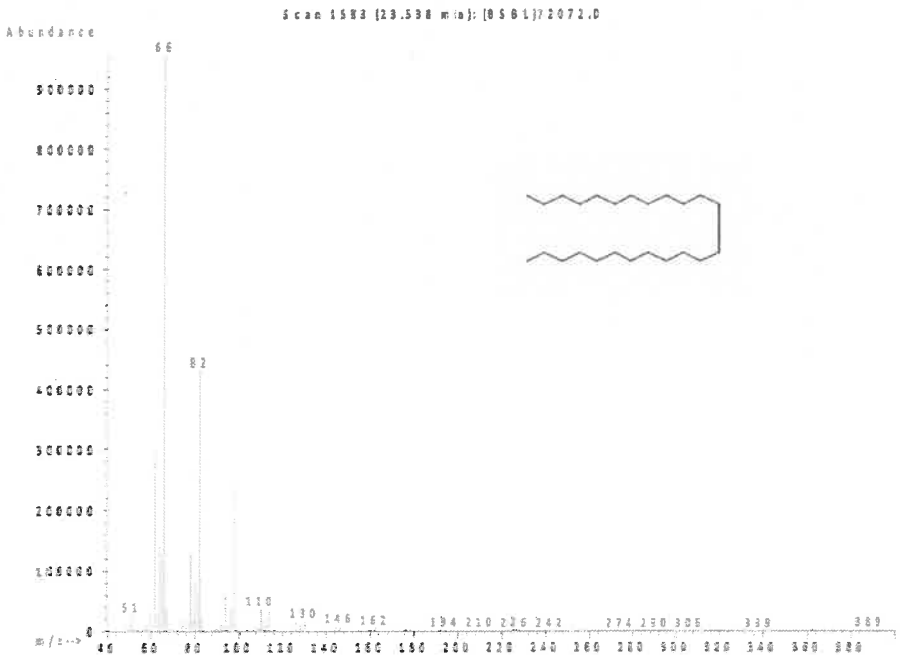
Formulated By:	Prashant Chauhan	101122 DATE
Reviewed By:	Pedro L. Rentas	101122 DATE

5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 200.0 0.058 Flask Uncertainty

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Assay (%D)	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. n-Tetracosane-d50	2072	PR-26606	1000	98.7	0.2	99.0	0.20471	0.20482	1000.6	4.1	16416-32-3	N/A	N/A

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.





- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Absolute Standards Inc.

PO Box 5585
Hamden, CT 06518-0585

Phone: 203-281-2917
FAX: 203-281-2922

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY **ANALYTICAL STANDARD DISSOLVED IN METHYLENE CHLORIDE**

Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Telephone USA & CANADA	**1-800-535-5053**
Address	44 Rossotto Dr. Hamden CT, 06514	Emergency Telephone International Date Prepared/Revised	**1-352-323-3500** January 1, 2022

Section II - Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H302	**Harmful if swallowed.**	**H315,H320**	**Causes skin and eye irritation.**
H351	**Suspected of causing cancer.**	**H335**	**May cause respiratory irritation.**
P271	**Use in ventilated area**	**P280**	**Use gloves, eye protection/face sheild**
P302,332	**If on skin, wash with soap and water**	**P305,351,338**	**If in eyes, remove contacts, rinse with water**


Signal Word: WARNING

Section III - Composition

Components:		CAS#:	OSHA PEL (TWA)	LD50 orl-rat	% (optional)
Dichloromethane	Methylene chloride	75-09-2	50 ppm	> 2,000 mg/kg	> 97

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.Move to safe area.
If inhaled	If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash with soap and water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Clean up	Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge.
Storage Conditions	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methylene chloride 75-09-2 TWA 50 ppm
Potential for skin absorption, ingestion and inhalation.
Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection.
Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point	40°C	Specific Gravity (H2O = 1)	1.325

Vapor Pressure (mm Hg)	353	Melting Point	-97°C
Vapor Density (AIR = 1)	2.93	Evaporation rate (Butyl Acetate = 1)	0.71

Solubility in Water Slightly soluble

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability Stable under recommended storage conditions.
Possibility of hazardous reactions No data available
Conditions to avoid Heat, flames, sparks, extreme temperature and sunlight.
Materials to avoid Alkali metals, Aluminum, Oxidizing agents, Bases, Amines, Magnesium, Acids, Vinyl compounds
Hazardous decomposition products - No data available

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - Rat - > 2,000 mg/kg
LC50 Inhalation - Rat - 52,000 mg/m3
LD50 Dermal - Rat - > 2,000 mg/kg
Toxic if absorbed through skin. Causes skin irritation.
Eye damage/eye irritation
Toxic if inhaled. Causes respiratory tract irritation.
Toxic if swallowed.

Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 1000 lbs.

LC50 193.00 mg/l - 96 h
EC50 1,682.00 mg/l - 48 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)
UN number: 1593 Class: 6.1 Packing group: III
Proper shipping name: Dichloromethane
Reportable Quantity (RQ): 1000 lbs

IATA
UN number: 1593 Class: 6.1 Packing group: III
Proper shipping name: Dichloromethane

Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

ABSOLUTE STANDARDS, INC.

ISO - 17034

Certificate of Analysis

Certified Reference Material (CRM)

Conformance: The "Certificate of Analysis" is applicable for CRM's, fulfilling the requirements in the current version of: ISO 17034.

Health & Safety: See the attached SDS & Certified Weight Report before use.

Intended Use: This Certified Reference Material (CRM) is intended primarily for use in the characterization of unknowns and the establishment of analyzer or instrument response factors by qualified personnel. Typical instrumental organic assays include: GC & LC, and inorganic assays include: ICP & AA. This product is for laboratory use only.

Characterization Values: In production, gravimetric/volumetric readings are certified to be within +/- 0.5% of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

Homogeneity: Uncertainties that are due to the analytical procedure(s) are within +/-5% unless specifically stated on the Certified Wt. Report.

Verification: Uncertainties that are due to the analytical procedure(s) are within +/-5% unless specifically stated on the Certified Wt. Report.

Stability: Uncertainties for short-term stability are determined in accordance with ISO 17034. Long-term stability is determined in accordance with ISO 17034. The shelf life is limited by the stated expiration for each product. Expiration dates and additional technical information can be found on the Certified Weight Report and on the product label.

Uncertainty: U_{CRM} is the expanded uncertainty which utilizes a K = 2 (coverage factor of 2), in accordance with ISO 17034 as listed above (Characterization, Homogeneity, Verification, and Stability).

Purity & Identity: Organic solutions are typically formulated from neat materials whose purity & identity have been characterized by GC-MSD & LC-PDA techniques with comparison to a NIST Traceable library of mass spectra when available. Additional characterization techniques may include but are not limited to: refractive index measurements of liquids, melting point measurements of solids, & GC-FID, ECD, PID, ELCD, LC-PDA measurements for purity. Inorganic solutions & neats are typically formulated from materials whose purity & identity have been characterized by ICPMS with comparison to a NIST SRM® when available. Additional characterization techniques may include but are not limited to: titrimetry, and densitometry.

Storage: Sealed ampules and other containers should be stored in the dark and at temperatures indicated on the Certified Weight Report or product label. Certification by Absolute Standards, Inc. is typically valid for 3 years from the date of manufacture. Each product will show its own expiration date as the limit of certification. Certified values are not applicable to opened ampules or for any materials stored in re-sealable containers. Please see the "Certified Weight Report" for specific values and any exceptions.

Usage: Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

Minimum Sample Size: 0.5 uL for analytical applications.

Legal Notice: Warranty of products are as described when shipped. No warranty as to fitness for any particular application is expressed or implied. Errant shipments and/or quality claims must be made within 10 days of receipt. Liability is limited solely to the replacement of the product or refund of purchase price.

Certifying Officer: Stephen J. Arpie, M.S., Director General

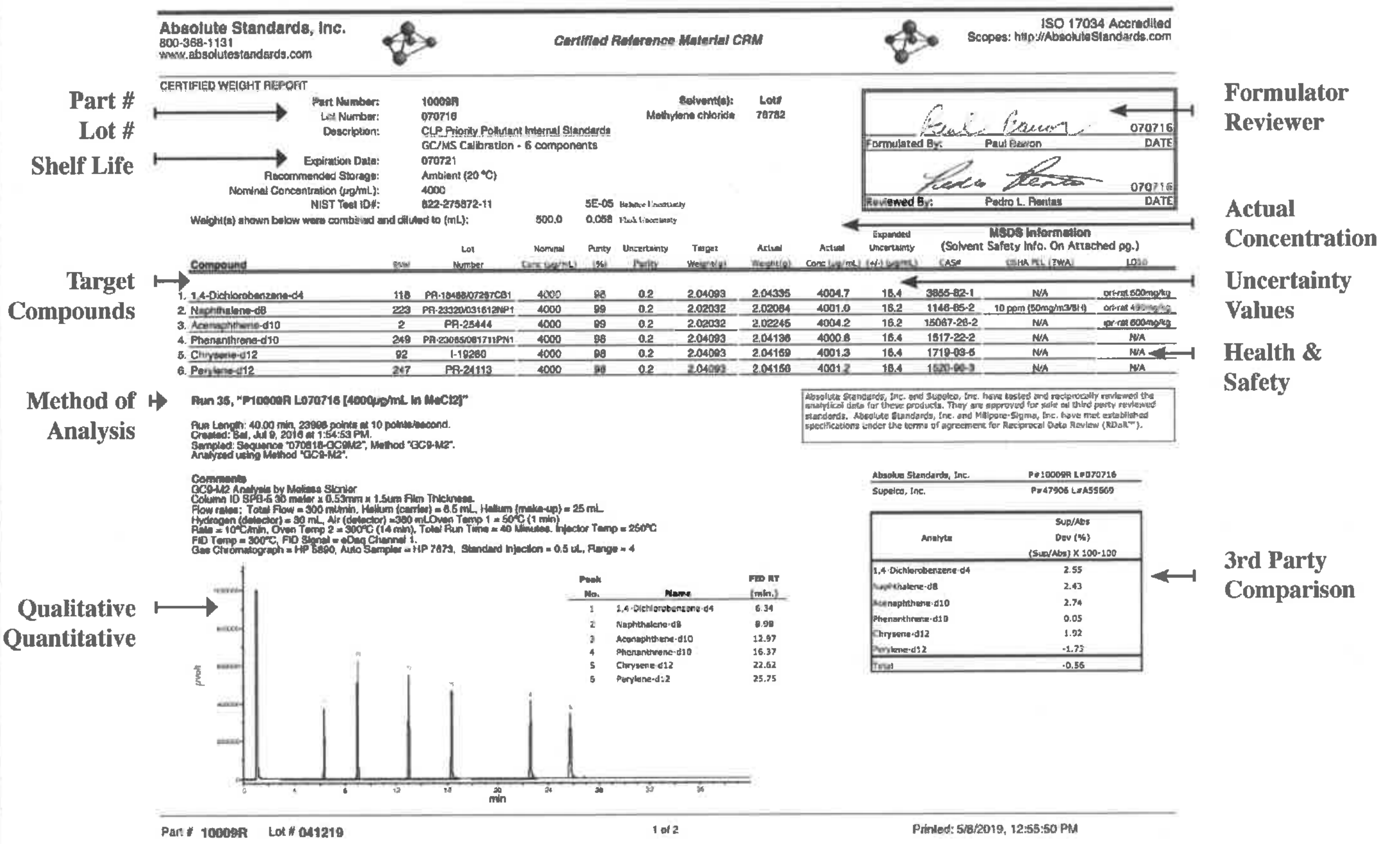
Absolute Standards, Inc. • 44 Rossotto Drive • Hamden, CT 06514
Voice: 800-368-1131 • Fax: 800-410-2577 • eMail: StephenArpie@AbsoluteStandards.com
Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019

ABSOLUTE STANDARDS, INC.

ISO - 17034

Understanding the Certified Weight Report

Each Certified Reference Material (CRM) is supported by a Certified Weight Report. Assigned values for concentrations and associated uncertainties are based upon NIST traceable masses & volumes used in production.



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ISO 17034 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT

Part Number: 10009R
Lot Number: 070716
Description: CLP Priority Pollutant Internal Standards GC/MS Calibration - 6 components
Expiration Date: 070721
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 4000
NIST Test ID#: 822-275872-11 — 5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 500.0 — 0.058 Flask Uncertainty

Solvent(s): Methylene chloride — Lot# 78782

Formulated By: Paul Bavron — 070716 DATE
Reviewed By: Pedro L. Rentas — 070716 DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
1. 1,4-Dichlorobenzene-d4	118	PR-18488/07287CB1	4000	98	0.2	2.04093	2.04335	4004.7	16.4	3855-82-1	N/A	orl-rat 500mg/kg
2. Naphthalene-d8	223	PR-23320/031612NP1	4000	99	0.2	2.02032	2.02084	4001.0	16.2	1146-65-2	10 ppm (50mg/m3/8H)	orl-rat [illegible]
3. Acenaphthene-d10	2	PR-25444	4000	99	0.2	2.02032	2.02245	4004.2	16.2	15067-26-2	N/A	ipr-rat 600mg/kg
4. Phenanthrene-d10	249	PR-23085/061711PN1	4000	98	0.2	2.04093	2.04136	4000.8	16.4	1517-22-2	N/A	N/A
5. Chrysene-d12	92	I-19260	4000	98	0.2	2.04093	2.04169	4001.3	16.4	1719-03-5	N/A	N/A
6. Perylene-d12	247	PR-24113	4000	98	0.2	2.04093	2.04156	4001.2	16.4	1520-96-3	N/A	N/A

MSDS Information (Solvent Safety Info. On Attached pg.)

Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"

Run Length: 40.00 min, 23998 points at 10 points/second.
Created: Sat, Jul 9, 2016 at 1:54:53 PM.
Sampled: Sequence "070816-GC9M2", Method "GC9-M2".
Analyzed using Method "GC9-M2".

Comments
GC9-M2 Analysis by Melissa Slonier
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.
Flow rates: Total Flow = 300 ml/min, Helium (carrier) = 6.5 mL, Helium (make-up) = 25 mL
Hydrogen (detector) = 30 mL, Air (detector) =380 mL Oven Temp 1 = 50°C (1 min)
Rate = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes. Injector Temp = 250°C
FID Temp = 300°C, FID Signal = eDaq Channel 1.
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 uL, Range = 4

Peak No.	Name	FID RT (min.)
1	1,4-Dichlorobenzene-d4	6.34
2	Naphthalene-d8	8.98
3	Acenaphthene-d10	12.97
4	Phenanthrene-d10	16.37
5	Chrysene-d12	22.62
6	Perylene-d12	25.75

Absolute Standards, Inc. and Supelco, Inc. have tested and reciprocally reviewed the analytical data for these products. They are approved for sale as third party reviewed standards. Absolute Standards, Inc. and Millipore-Sigma, Inc. have met established specifications under the terms of agreement for Reciprocal Data Review (RDaR™).

Absolute Standards, Inc. — P#10009R L#070716
Supelco, Inc. — P#47906 L#A55669

Analyte	Sup/Abs Dev (%) (Sup/Abs) X 100-100
1,4-Dichlorobenzene-d4	2.55
Naphthalene-d8	2.43
Acenaphthene-d10	2.74
Phenanthrene-d10	0.05
Chrysene-d12	1.92
Perylene-d12	-1.73
Total	-0.56

Part # 10009R Lot # 041219 — 1 of 2 — Printed: 5/8/2019, 12:55:50 PM

For More Information, Contact:

StephenArpie@AbsoluteStandards.com

Absolute Standards, Inc. • 44 Rossotto Drive • Hamden, CT 06514
Voice: 800-368-1131 • Fax: 800-410-2577 • eMail: StephenArpie@AbsoluteStandards.com
Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 72072
Lot Number: 101122
Description: n-Tetracosane-d50

Expiration Date: 101132
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

Solvent(s):	Lot#
Methylene chloride	105345

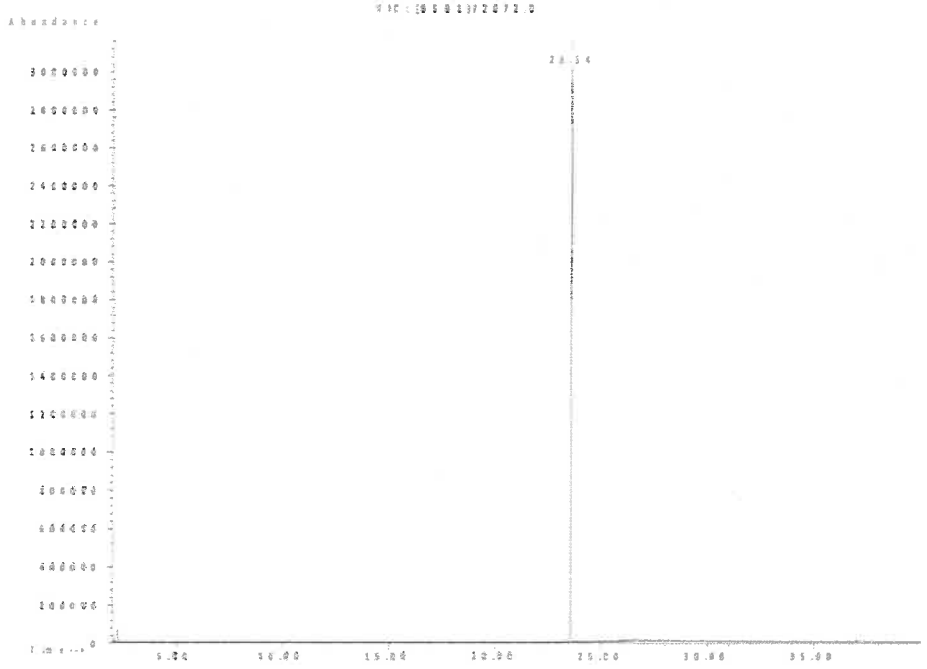
P12291 & P12310 } Y.P. 02/22/23

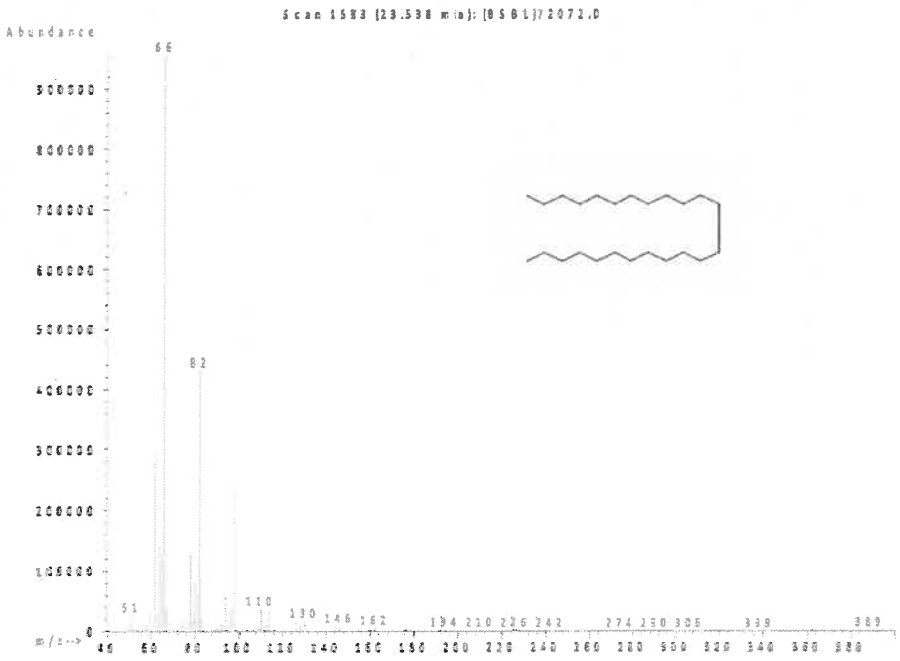
Formulated By:	Prashant Chauhan	101122 DATE
Reviewed By:	Pedro L. Rentas	101122 DATE

5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 200.0 0.058 Flask Uncertainty

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Assay (%D)	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. n-Tetracosane-d50	2072	PR-26606	1000	98.7	0.2	99.0	0.20471	0.20482	1000.6	4.1	16416-32-3	N/A	N/A

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.





- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Absolute Standards Inc.

PO Box 5585
Hamden, CT 06518-0585

Phone: 203-281-2917
FAX: 203-281-2922

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY **ANALYTICAL STANDARD DISSOLVED IN METHYLENE CHLORIDE**

Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Telephone USA & CANADA	**1-800-535-5053**
Address	44 Rossotto Dr. Hamden CT, 06514	Emergency Telephone International Date Prepared/Revised	**1-352-323-3500** January 1, 2022

Section II - Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H302	**Harmful if swallowed.**	**H315,H320**	**Causes skin and eye irritation.**
H351	**Suspected of causing cancer.**	**H335**	**May cause respiratory irritation.**
P271	**Use in ventilated area**	**P280**	**Use gloves, eye protection/face sheild**
P302,332	**If on skin, wash with soap and water**	**P305,351,338**	**If in eyes, remove contacts, rinse with water**


Signal Word: WARNING

Section III - Composition

Components:		CAS#:	OSHA PEL (TWA)	LD50 orl-rat	% (optional)
Dichloromethane	Methylene chloride	75-09-2	50 ppm	> 2,000 mg/kg	> 97

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.Move to safe area.
If inhaled	If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash with soap and water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Clean up	Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge.
Storage Conditions	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methylene chloride 75-09-2 TWA 50 ppm
Potential for skin absorption, ingestion and inhalation.
Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection.
Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point	40°C	Specific Gravity (H2O = 1)	1.325

Vapor Pressure (mm Hg)	353	Melting Point	-97°C
Vapor Density (AIR = 1)	2.93	Evaporation rate (Butyl Acetate = 1)	0.71

Solubility in Water Slightly soluble

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability Stable under recommended storage conditions.
Possibility of hazardous reactions No data available
Conditions to avoid Heat, flames, sparks, extreme temperature and sunlight.
Materials to avoid Alkali metals, Aluminum, Oxidizing agents, Bases, Amines, Magnesium, Acids, Vinyl compounds
Hazardous decomposition products - No data available

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - Rat - > 2,000 mg/kg
LC50 Inhalation - Rat - 52,000 mg/m3
LD50 Dermal - Rat - > 2,000 mg/kg
Toxic if absorbed through skin. Causes skin irritation.
Eye damage/eye irritation
Toxic if inhaled. Causes respiratory tract irritation.
Toxic if swallowed.

Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 1000 lbs.

LC50 193.00 mg/l - 96 h
EC50 1,682.00 mg/l - 48 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)
UN number: 1593 Class: 6.1 Packing group: III
Proper shipping name: Dichloromethane
Reportable Quantity (RQ): 1000 lbs

IATA
UN number: 1593 Class: 6.1 Packing group: III
Proper shipping name: Dichloromethane

Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

ABSOLUTE STANDARDS, INC.

ISO - 17034

Certificate of Analysis

Certified Reference Material (CRM)

Conformance: The "Certificate of Analysis" is applicable for CRM's, fulfilling the requirements in the current version of: ISO 17034.

Health & Safety: See the attached SDS & Certified Weight Report before use.

Intended Use: This Certified Reference Material (CRM) is intended primarily for use in the characterization of unknowns and the establishment of analyzer or instrument response factors by qualified personnel. Typical instrumental organic assays include: GC & LC, and inorganic assays include: ICP & AA. This product is for laboratory use only.

Characterization Values: In production, gravimetric/volumetric readings are certified to be within +/- 0.5% of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

Homogeneity: Uncertainties that are due to the analytical procedure(s) are within +/-5% unless specifically stated on the Certified Wt. Report.

Verification: Uncertainties that are due to the analytical procedure(s) are within +/-5% unless specifically stated on the Certified Wt. Report.

Stability: Uncertainties for short-term stability are determined in accordance with ISO 17034. Long-term stability is determined in accordance with ISO 17034. The shelf life is limited by the stated expiration for each product. Expiration dates and additional technical information can be found on the Certified Weight Report and on the product label.

Uncertainty: U_{CRM} is the expanded uncertainty which utilizes a K = 2 (coverage factor of 2), in accordance with ISO 17034 as listed above (Characterization, Homogeneity, Verification, and Stability).

Purity & Identity: Organic solutions are typically formulated from neat materials whose purity & identity have been characterized by GC-MSD & LC-PDA techniques with comparison to a NIST Traceable library of mass spectra when available. Additional characterization techniques may include but are not limited to: refractive index measurements of liquids, melting point measurements of solids, & GC-FID, ECD, PID, ELCD, LC-PDA measurements for purity. Inorganic solutions & neats are typically formulated from materials whose purity & identity have been characterized by ICPMS with comparison to a NIST SRM® when available. Additional characterization techniques may include but are not limited to: titrimetry, and densitometry.

Storage: Sealed ampules and other containers should be stored in the dark and at temperatures indicated on the Certified Weight Report or product label. Certification by Absolute Standards, Inc. is typically valid for 3 years from the date of manufacture. Each product will show its own expiration date as the limit of certification. Certified values are not applicable to opened ampules or for any materials stored in re-sealable containers. Please see the "Certified Weight Report" for specific values and any exceptions.

Usage: Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

Minimum Sample Size: 0.5 uL for analytical applications.

Legal Notice: Warranty of products are as described when shipped. No warranty as to fitness for any particular application is expressed or implied. Errant shipments and/or quality claims must be made within 10 days of receipt. Liability is limited solely to the replacement of the product or refund of purchase price.

Certifying Officer: Stephen J. Arpie, M.S., Director General

Absolute Standards, Inc. • 44 Rossotto Drive • Hamden, CT 06514
Voice: 800-368-1131 • Fax: 800-410-2577 • eMail: StephenArpie@AbsoluteStandards.com
Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019

ABSOLUTE STANDARDS, INC.

ISO - 17034

Understanding the Certified Weight Report

Each Certified Reference Material (CRM) is supported by a Certified Weight Report. Assigned values for concentrations and associated uncertainties are based upon NIST traceable masses & volumes used in production.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ISO 17034 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT

Part # / Lot # →
Part Number: 10009R
Lot Number: 070716
Description: CLP Priority Pollutant Internal Standards GC/MS Calibration - 6 components

Shelf Life →
Expiration Date: 070721
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 4000
NIST Test ID#: 822-275872-11 — 5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 500.0 — 0.058 Flask Uncertainty

Solvent(s): Methylene chloride — Lot# 78782

Formulated By: Paul Baron — 070716 DATE
Reviewed By: Pedro L. Rentas — 070716 DATE
← **Formulator Reviewer**

Actual Concentration ← / **Uncertainty Values** ← / **Health & Safety** ←

Target Compounds →

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
1. 1,4-Dichlorobenzene-d4	118	PR-18488/07297CB1	4000	98	0.2	2.04093	2.04335	4004.7	16.4	3855-82-1	N/A	orl-rat 500mg/kg
2. Naphthalene-d8	223	PR-23320/031612NP1	4000	99	0.2	2.02032	2.02084	4001.0	16.2	1146-65-2	10 ppm (50mg/m3/8H)	orl-rat 490mg/kg
3. Acenaphthene-d10	2	PR-25444	4000	99	0.2	2.02032	2.02245	4004.2	16.2	15067-26-2	N/A	ipr-rat 600mg/kg
4. Phenanthrene-d10	249	PR-23085/081711PN1	4000	98	0.2	2.04093	2.04136	4000.8	16.4	1517-22-2	N/A	N/A
5. Chrysene-d12	92	I-19260	4000	98	0.2	2.04093	2.04169	4001.3	16.4	1719-03-5	N/A	N/A
6. Perylene-d12	247	PR-24113	4000	98	0.2	2.04093	2.04156	4001.2	16.4	1520-96-3	N/A	N/A

MSDS Information (Solvent Safety Info. On Attached pg.)

Method of Analysis →

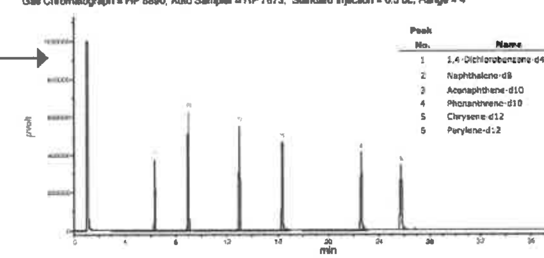
Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"

Run Length: 40.00 min, 23996 points at 10 points/second.
Created: Sat, Jul 9, 2016 at 1:54:53 PM.
Sampled: Sequence "070616-GC9M2", Method "GC9-M2".
Analyzed using Method "GC9-M2".

Comments
GC9-M2 Analysis by Melissa Sicnier
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.
Flow rates: Total Flow = 300 ml/min, Helium (carrier) = 6.5 mL, Helium (make-up) = 25 mL
Hydrogen (detector) = 30 mL, Air (detector) =380 mL Oven Temp 1 = 50°C (1 min)
Rate = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes. Injector Temp = 250°C
FID Temp = 300°C, FID Signal = eDaq Channel 1.
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 uL, Range = 4

Absolute Standards, Inc. and Supelco, Inc. have tested and reciprocally reviewed the analytical data for these products. They are approved for sale as third party reviewed standards. Absolute Standards, Inc. and Millipore-Sigma, Inc. have met established specifications under the terms of agreement for Reciprocal Data Review (RDaR™).

Qualitative Quantitative →



Peak No.	Name	FID RT (min.)
1	1,4-Dichlorobenzene-d4	6.34
2	Naphthalene-d8	8.98
3	Acenaphthene-d10	12.97
4	Phenanthrene-d10	16.37
5	Chrysene-d12	22.62
6	Perylene-d12	25.75

Absolute Standards, Inc. — P#10009R L#070716
Supelco, Inc. — P#47906 L#A55609

Analyte	Sup/Abs Dev (%) (Sup/Abs) X 100-100
1,4-Dichlorobenzene-d4	2.55
Naphthalene-d8	2.43
Acenaphthene-d10	2.74
Phenanthrene-d10	0.05
Chrysene-d12	1.92
Perylene-d12	-1.73
Total	-0.56

← **3rd Party Comparison**

Part # 10009R Lot # 041219 — 1 of 2 — Printed: 5/8/2019, 12:55:50 PM

For More Information, Contact:

StephenArpie@AbsoluteStandards.com

Absolute Standards, Inc. • 44 Rossotto Drive • Hamden, CT 06514
Voice: 800-368-1131 • Fax: 800-410-2577 • eMail: StephenArpie@AbsoluteStandards.com
Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 19161
Lot Number: 012819
Description: CLP Pesticides & PCB's Resolution Check Standard
9 components

Solvent(s):	Lot#	
Hexane	209712	(50%)
Toluene	28508	(50%)

Expiration Date: 012824
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): Varied
NIST Test ID#: 2684186

5E-05 Balance Uncertainty
0.057 Flask Uncertainty

Volume(s) shown below were combined and diluted to (mL): 100.0

Eli Aliaga	012819	
Formulated By: Eli Aliaga	DATE	
Pedro Rentas	012819	
Reviewed By: Pedro L. Rentas	DATE	

	Compound	Part Number	Lot Number	Dil. Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(ug/mL)	Final Conc.(ug/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1.	trans-Chlordane	19361	012819	0.010	1.00	0.004	102.0	1.0	0.01	5103-74-2	0.5mg/m3 (skin)	orl-rat 500mg/kg
2.	Endosulfan I	19361	012819	0.010	1.00	0.004	102.0	1.0	0.01	959-98-8	0.1mg/m3 (skin)	orl-rat 18mg/kg
3.	4,4'-DDE	19361	012819	0.010	1.00	0.004	202.0	2.0	0.03	72-55-9	N/A	orl-rat 880mg/kg
4.	Dieldrin	19361	012819	0.010	1.00	0.004	202.5	2.0	0.02	60-57-1	0.25mg/m3 (skin)	orl-rat 38300ug/kg
5.	Endosulfan sulfate	19361	012819	0.010	1.00	0.004	204.7	2.0	0.03	1031-07-8	N/A	orl-rat 18mg/kg
6.	Endrin ketone	19361	012819	0.010	1.00	0.004	203.0	2.0	0.02	53494-70-5	N/A	N/A
7.	4,4'-Methoxychlor	19361	012819	0.010	1.00	0.004	1001.0	10.0	0.09	72-43-5	10mg/m3	orl-rat 6000mg/kg
8.	2,4,5,6-Tetrachloro-m-xylene	19361	012819	0.010	1.00	0.004	203.0	2.0	0.02	877-09-8	N/A	N/A
9.	Decachlorobiphenyl (209)	19361	012819	0.010	1.00	0.004	202.0	2.0	0.02	2051-24-3	N/A	N/A

P12651
↓
P12655

AJ
07/27/23

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

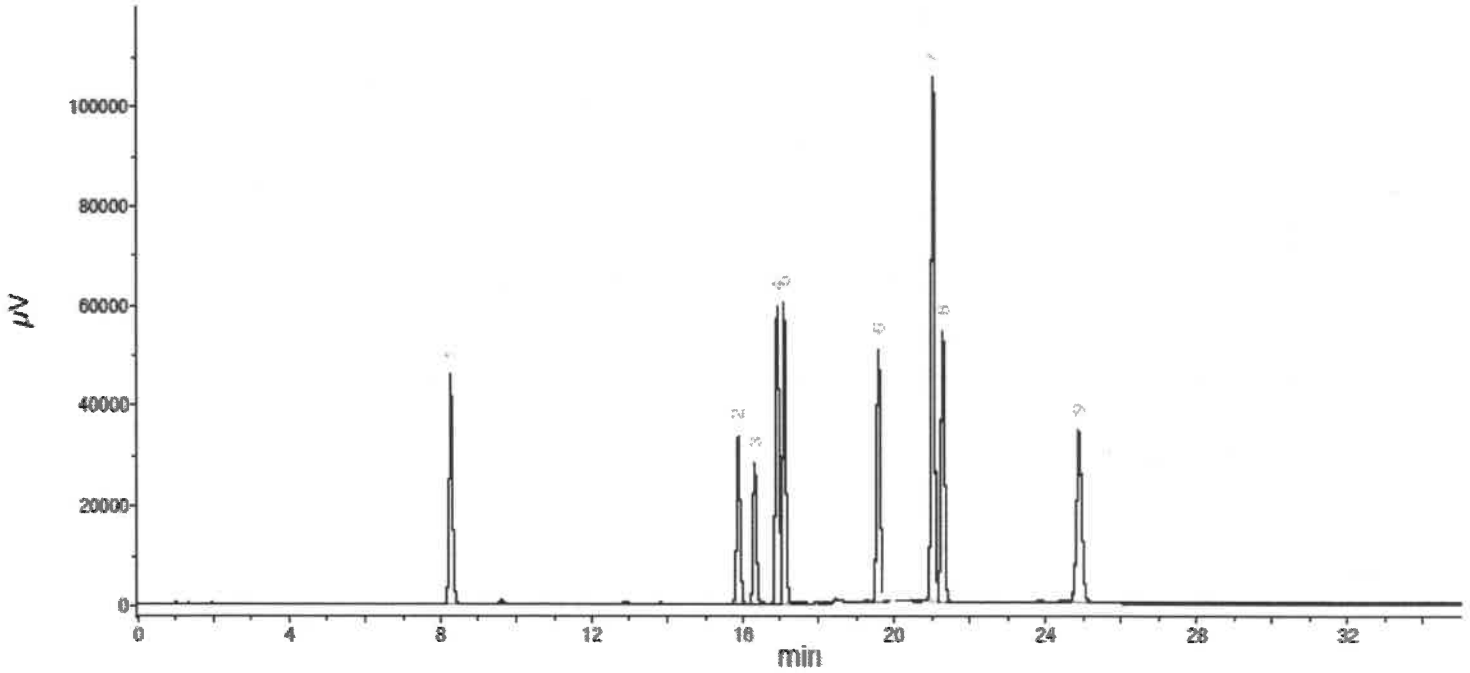
Run 14, "P19161 L012819 [Varied in H:T(1:1)]"

Run Length: 35.00 min, 21000 points at 10 points/second.
Created: Fri, Feb 15, 2019 at 8:03:45 PM.
Sampled: Sequence "021319-GC2M1", Method "GC2-M1".
Analyzed using Method "GC2-M1".

Name	ECD RT (min)
Tetrachloro-m-xylene	8.26
gamma-Chlordane	15.87
Endosulfan 1	16.31
p,p'-DDE	16.91
Dieldrin	17.09
Endosulfan sulphate	19.59
Methoxychlor	21.03
Endrin ketone	21.28
Decachlorobiphenyl	24.89

Comments

GC2-M1 Analysis by Candice Warren
Column ID SPB-608 (30 meter X 0.53mm X 0.5µm film thickness)
Flow rates: Total flow = 60mL/min., Helium (carrier) = 5mL/min.,
Nitrogen (make-up) = 55mL/min., Helium (Purged anode) = 1mL/min.
Oven Profile: Temp. 1 = 150°C (Time 1 = 4 min.), Temp 2 = 290°C (Time 2 = 13.5 min.),
Rate = 8°C/min., Total run time = 35 min.
Injector temp. = 250°C, ECD Temp. = 300°C.
Standard injection = 0.5µL, Range=5



RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

P 13034 } 5
↓
P 13038

12.26.2023

Catalog No. : 32291 **Lot No.:** A0200423

Description : Organochlorine Pesticide Mix AB #1

Organochlorine Pesticide Mix AB #1 200µg/mL, Hexane/Toluene(50:50), 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	alpha-BHC	319-84-6	14434500	99%	200.5 µg/mL	+/- 8.9956
2	gamma-BHC (Lindane)	58-89-9	14184400	98%	199.9 µg/mL	+/- 8.9696
3	beta-BHC	319-85-7	BCCC6425	99%	200.0 µg/mL	+/- 8.9732
4	delta-BHC	319-86-8	14450800	98%	199.9 µg/mL	+/- 8.9696
5	Heptachlor	76-44-8	813251	99%	202.0 µg/mL	+/- 9.0629
6	Aldrin	309-00-2	14389400	98%	200.9 µg/mL	+/- 9.0136
7	Heptachlor epoxide (isomer B)	1024-57-3	14448800	99%	200.0 µg/mL	+/- 8.9732
8	trans-Chlordane	5103-74-2	34616	99%	200.5 µg/mL	+/- 8.9956
9	cis-Chlordane	5103-71-9	31766	98%	201.4 µg/mL	+/- 9.0356
10	Endosulfan I	959-98-8	BCCF4060	99%	200.0 µg/mL	+/- 8.9732
11	4,4'-DDE	72-55-9	GHYQG	99%	201.5 µg/mL	+/- 9.0405
12	Dieldrin	60-57-1	14515000	98%	199.9 µg/mL	+/- 8.9696
13	Endrin	72-20-8	14485300	98%	200.4 µg/mL	+/- 8.9916
14	4,4'-DDD	72-54-8	HAN02	99%	200.5 µg/mL	+/- 8.9956
15	Endosulfan II	33213-65-9	14374700	99%	200.0 µg/mL	+/- 8.9732
16	4,4'-DDT	50-29-3	230410JLMA	98%	201.9 µg/mL	+/- 9.0575

17	Endrin aldehyde	7421-93-4	30720	98%	201.4	µg/mL	+/- 9.0356
18	Endosulfan sulfate	1031-07-8	BCCH9010	99%	200.5	µg/mL	+/- 8.9956
19	Methoxychlor	72-43-5	14563200	98%	200.9	µg/mL	+/- 9.0136
20	Endrin ketone	53494-70-5	14537700	98%	199.9	µg/mL	+/- 8.9696

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Hexane/Toluene (50:50)
CAS # 110-54-3/108-88-3
Purity 99%

P13034) 5
↓
P13038 1

12/26/2023

Quality Confirmation Test

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
150°C to 300°C
@ 4°C/min. (hold 5 min.)

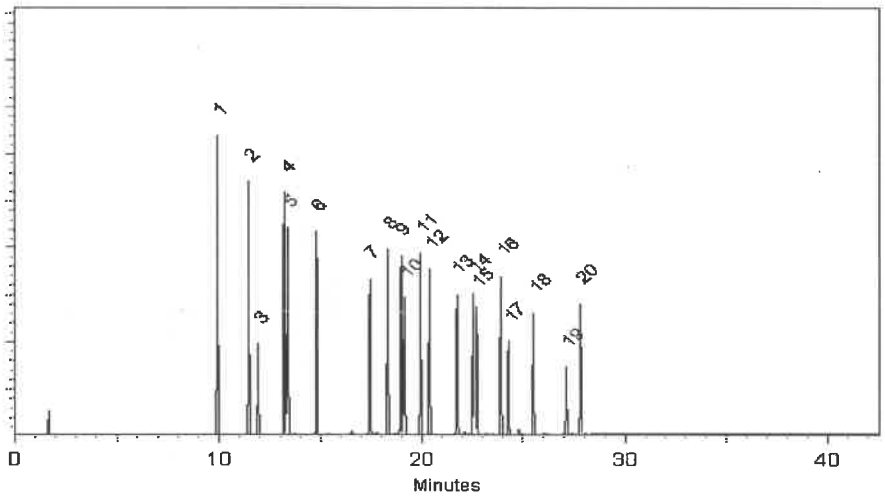
Inj. Temp:
200°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
Split ratio 50:1

Inj. Vol
1µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Sam Moodler - Operations Tech I

Date Mixed: 31-Jul-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 03-Aug-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

Absolute Standards, Inc.
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www.absolutestandards.com

Certified Reference Material CRM

ISO 17034 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT

Part Number: 72072
Lot Number: 112018
Description: n-Tetracosane-d50

Received by SG on 11/1/19
P9044 - P9053

Expiration Date: 112028
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 2684186

Solvent(s):	Lot#
Methylene chloride	102669

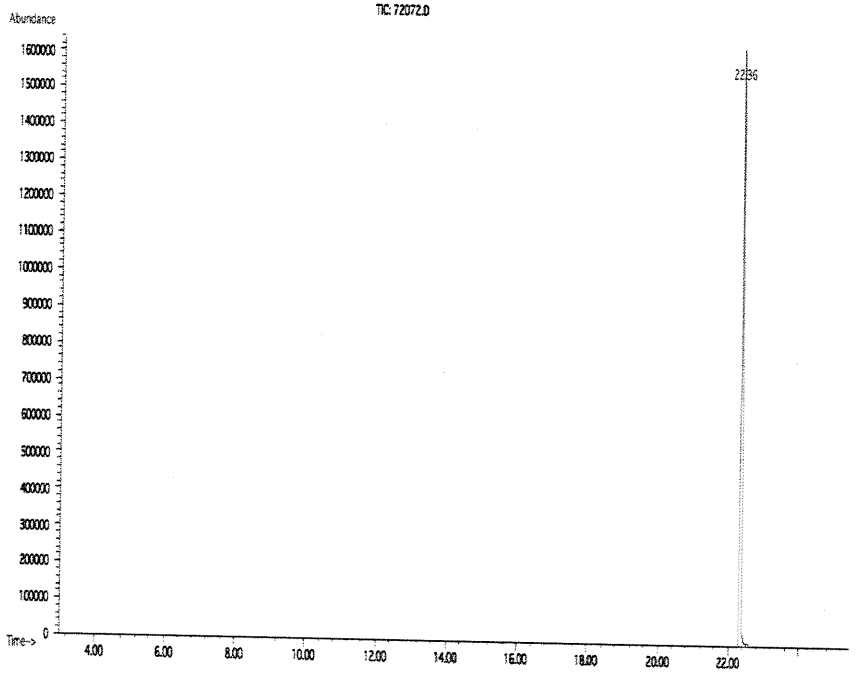
5E-05 Balance Uncertainty

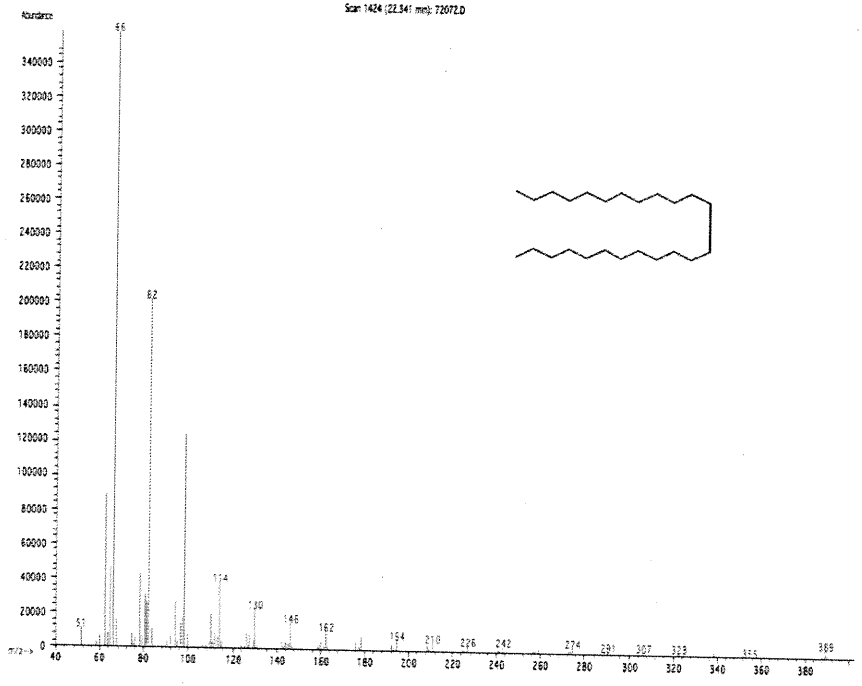
Weight(s) shown below were combined and diluted to (mL): 200.0 0.058 Flask Uncertainty

Formulated By:	Prashant Chauhan	112018 DATE
Reviewed By:	Pedro Rentas	112018 DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. n-Tetracosane-d50	2072	PR-17753/09216TC1	1000	98	0.2	0.20411	0.20415	1000.2	4.2	16416-32-3	N/A	N/A

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.





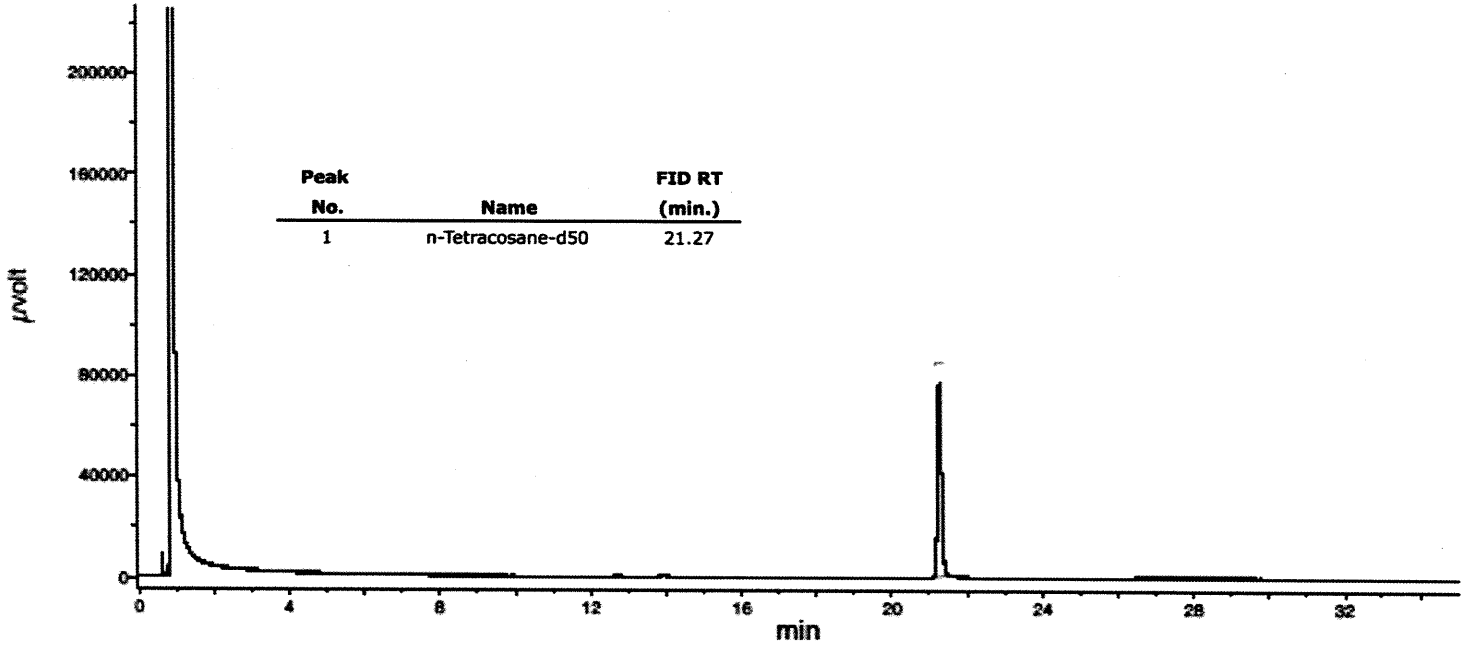
- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Run 40, "P72072 L112018 [1000µg/mL in MeCl2]"

Run Length: 35.00 min, 20999 points at 10 points/second.
Created: Thu, Nov 22, 2018 at 7:23:18 AM.
Sampled: Sequence "112018-GC4M1", Method "GC4-M1".
Analyzed using Method "GC4-M1".

Comments

GC4-M1 Analysis by Melissa Stonier
Column ID SPB5 L#60062-01A : 30 meter x 0.53mm x 1.5um Film Thickness
Flow rates; Total Flow = 300 ml/min, Helium (carrier) = 6.5 mL, Helium (make-up) = 25 mL, Hydrogen (detector) = 30 mL, Air (detector) =360 mL
Oven Temp 1 = 50°C (1 min), Rate = 10°C/min, Oven Temp 2 = 300°C (9 min), Total Run Time = 35 Minutes.
Injector Temp = 200°C, FID Temp = 300°C, FID Signal = eDaq Channel 1.
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 uL, Range = 3



Peak No.	Name	FID RT (min.)
1	n-Tetracosane-d50	21.27

Hexanes (95% n-hexane)
BAKER RESI-ANALYZED® Reagent

avantor™ | J.T.Baker®

W3042
SO
UPDATE!
07-12-2023

Material No.: 9262-03
Batch No.: 23C2462011
Manufactured Date: 2023-03-10
Expiration Date: 2024-06-08
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	< 1
ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)	≤ 10	1
ECD-Sensitive Impurities (as Ethylene Dibromide) - Single Impurity Peak (ng/mL)	≤ 5	< 1
Assay (Total Saturated C_6 Isomers) (by GC, corrected for water)	≥ 99.5 %	99.7 %
Assay (as n-Hexane) (by GC, corrected for water)	≥ 95 %	97 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.3 ppm
Substances Darkened by H_2SO_4	Passes Test	Passes Test
Water (by KF, coulometric)	≤ 0.05 %	< 0.01 %

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

James T Ethier
Jamie Ethier
Vice President Global Quality