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Prep Standard - Chemical Standard Summary

Order ID : Q1664

Test : PCB

Prepbatch ID : PB167364,

Sequence ID/Qc Batch ID: PO032825,PP032825,

Standard ID :

EP2565,EP2592,EP2595,PP24217,PP24328,PP24329,PP24330,PP24331,PP24332,PP24333,PP24334,PP24335,PP24336,PP24337,PP24338,PP24339,PP24340,PP24341,PP24342,PP24343,PP24344,PP24345,PP24346,PP24347,PP24348,PP24349,PP24350,PP24351,PP24352,PP24353,PP24354,PP24355,PP24356,PP24357,PP24358,PP24359,PP24360,PP24361,PP24362,PP24363,PP24364,PP24365,PP24366,PP24367,PP24368,PP24369,PP24370,PP24371,PP24372,PP24373,PP24374,PP24375,PP24376,PP24377,PP24378,PP24379,PP24380,PP24381,PP24382,PP24384,PP24385,PP24386,PP24387,

Chemical ID :

E2865,E3551,E3804,E3876,E3877,E3914,M5173,P11522,P12699,P12702,P12931,P12936,P12948,P12949,P12957,P13354,P13356,P13373,P13381,P13589,P13591,P13697,P13702,P13830,P13878,P13883,W3112,W3177,

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
314	1.1 H2SO4 SOLN	EP2565	11/20/2024	05/20/2025	Rajesh Parikh	None	None	RUPESHKUMAR SHAH 11/20/2024

FROM 1000.00000ml of M5173 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
230	1:1ACETONE/HEXANE	EP2592	02/27/2025	08/12/2025	RUPESHKUMAR SHAH	None	None	Riteshkumar Patel 02/27/2025

FROM 4000.00000ml of E3876 + 4000.00000ml of E3877 = Final Quantity: 8000.000 ml

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Extractions STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3923	Baked Sodium Sulfate	EP2595	03/17/2025	07/01/2025	RUPESHKUMAR SHAH	Extraction_SCALE_2 (EX-SC-2)	None	Riteshkumar Patel 03/17/2025

FROM 4000.00000gram of E3551 = Final Quantity: 4000.000 gram

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
465	200 PPB Pest/PCB Surrogate Spike	PP24217	03/05/2025	08/25/2025	Abdul Mirza	None	None	Yogesh Patel 03/06/2025

FROM 1.00000ml of P13354 + 999.00000ml of E3876 = 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
3857	5000 PPB PCB SPIKE SOLUTION 2ND SOURCE	PP24328	03/17/2025	08/25/2025	Abdul Mirza	None	None	Yogesh Patel 04/02/2025

FROM 0.50000ml of P12948 + 99.50000ml of E3876 = 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	PP24329	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P13356 + 9.00000ml of W3177 = 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
202	AR1660 1000/100 ppb working solution 1st source	PP24330	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P13697 + 99.40000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
203	AR1660 750 PPB STD	PP24331	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.25000ml of W3177 + 0.75000ml of PP24330 = 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
204	AR1660 500 PPB STD	PP24332	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24330 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
205	AR1660 250 PPB STD	PP24333	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24330 = 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
206	AR1660 50 PPB STD	PP24334	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24332 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
213	AR1221 1000 PPB WORKING SOLUTION	PP24335	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P13702 + 99.40000ml of W3177 + 0.50000ml of PP24329 = 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
1079	AR1221 750 PPB STD	PP24336	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.25000ml of W3177 + 0.75000ml of PP24335 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
222	AR1221 500 PPB STD	PP24337	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24335 = 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
1080	AR1221 250 PPB STD	PP24338	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24335 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1081	AR1221 50 PPB STD	PP24339	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24337 = 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
214	AR1232 1000 PPB WORKING SOLUTION	PP24340	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P13878 + 99.40000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1063	AR1232 750 PPB STD	PP24341	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.25000ml of W3177 + 0.75000ml of PP24340 = 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
223	AR1232 500 PPB STD	PP24342	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24340 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1064	AR1232 250 PPB STD	PP24343	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24340 = 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
1065	AR1232 50 PPB STD	PP24344	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24342 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
215	AR1242 1000 PPB WORKING STD	PP24345	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P12931 + 99.40000ml of W3177 + 0.50000ml of PP24329 = 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
1067	AR1242 750 PPB STD	PP24346	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.75000ml of PP24345 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
224	AR1242 500 PPB STD	PP24347	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24345 = 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
1068	AR1242 250 PPB STD	PP24348	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24345 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1069	AR1242 50 PPB STD	PP24349	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24347 = 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
216	AR1248 1000 PPB WORKING STD	PP24350	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P12936 + 99.40000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1075	AR1248 750 PPB STD	PP24351	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.25000ml of W3177 + 0.75000ml of PP24350 = 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
225	AR1248 500 PPB STD	PP24352	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24350 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1076	AR1248 250 PPB STD	PP24353	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24350 = 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
1077	AR1248 50 PPB STD	PP24354	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24352 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
217	AR1254 1000 PPB WORKING STD	PP24355	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P13830 + 99.40000ml of W3177 + 0.50000ml of PP24329 = 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
1071	AR1254 750 PPB STD	PP24356	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.25000ml of W3177 + 0.75000ml of PP24355 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
226	AR1254 500 PPB STD	PP24357	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24355 = 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
1072	AR1254 250 PPB STD	PP24358	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24355 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1073	AR1254 50 PPB STD	PP24359	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24357 = 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
1529	AR1262 1000 PPB Working Solution	PP24360	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P13883 + 99.40000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3753	AR1262 750 PPB STD	PP24361	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.25000ml of W3177 + 0.75000ml of PP24360 = 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
1530	AR1262 500 PPB STD	PP24362	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24360 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3754	AR1262 250 PPB STD	PP24363	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24360 = 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
3755	AR1262 50 PPB STD	PP24364	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24362 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1532	AR1268 1000 PPB Working Solution	PP24365	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.10000ml of P13381 + 99.40000ml of W3177 + 0.50000ml of PP24329 = 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
3820	AR1268 750 PPB STD	PP24366	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.25000ml of W3177 + 0.75000ml of PP24365 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1533	AR1268 500 PPB STD	PP24367	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24365 = 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
3821	AR1268 250 PPB STD	PP24368	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.75000ml of W3177 + 0.25000ml of PP24365 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3822	AR1268 50 PPB STD	PP24369	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.90000ml of W3177 + 0.10000ml of PP24367 = 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
404	AR1660 100 PPM Stock Solution 2nd Source	PP24370	03/18/2025	09/18/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P12949 + 9.00000ml of E3804 = Final Quantity: 10.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
405	AR1660 1000/100 PPB ICV STD	PP24371	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 98.50000ml of W3177 + 0.50000ml of PP24329 + 1.00000ml of PP24370 = 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
406	AR1660 500 PPB ICV	PP24372	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24371 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3789	AR1221 1000 PPB WORKING SOL.2ND SOURCE(AGILENT)	PP24373	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P13373 + 98.50000ml of W3177 + 0.50000ml of PP24329 = 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
1886	AR1221 500 PPB ICV	PP24374	03/18/2025	08/12/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of E3877 + 0.50000ml of W3177 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1887	AR1232 1000 PPB Working Sol. 2nd Source	PP24375	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P12699 + 98.50000ml of W3177 + 0.50000ml of PP24329 = 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
1888	AR1232 500 PPB ICV	PP24376	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24375 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1889	AR1242 1000 PPB Working Sol. 2nd Source	PP24377	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P13589 + 98.50000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
Fax : 908 789 8922

Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1891	AR1242 500 PPB ICV	PP24378	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24377 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1890	AR1248 1000 PPB Working Sol. 2nd Source	PP24379	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P13591 + 98.50000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

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Fax : 908 789 8922

Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1892	AR1248 500 PPB ICV	PP24380	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24379 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1893	AR1254 1000 PPB Working Sol. 2nd Source	PP24381	03/18/2025	04/03/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P12957 + 98.50000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
Fax : 908 789 8922

Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1894	AR1254 500 PPB ICV	PP24382	03/18/2025	04/03/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24381 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3757	AR1262 1000 PPB Working Solution second source	PP24384	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P12702 + 98.50000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

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Fax : 908 789 8922

Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3758	AR1262 500 PPB STD ICV	PP24385	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24384 = Final Quantity: 1.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3817	AR1268 1000 ppb Working Soln. 2nd source	PP24386	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 1.00000ml of P11522 + 98.50000ml of W3177 + 0.50000ml of PP24329 = Final Quantity: 100.000 ml

284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
Fax : 908 789 8922

Pest/Pcb STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3823	AR1268 500 PPB STD ICV	PP24387	03/18/2025	08/22/2025	Yogesh Patel	None	None	Abdul Mirza 04/03/2025

FROM 0.50000ml of W3177 + 0.50000ml of PP24386 = Final Quantity: 1.000 ml

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Fax : 908 789 8922

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3382-05 / Sand, Purified (cs/4x2.5kg)	0000243821	06/30/2025	04/30/2020 / RAJESH	04/28/2020 / RAJESH	E2865

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1	313201	07/01/2025	01/03/2024 / Rajesh	07/20/2023 / Rajesh	E3551

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	9005-05 / Acetone Ultra (cs/4x4L)	24E0761004	11/05/2025	10/01/2024 / Rajesh	09/25/2024 / Rajesh	E3804

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)	24H2762008	08/25/2025	02/25/2025 /	02/12/2025 / Rajesh	E3876

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)	243570	08/12/2025	02/12/2025 / Rajesh	02/12/2025 / Rajesh	E3877

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)	243570	09/19/2025	03/19/2025 / RUPESH	03/13/2025 / RUPESH	E3914

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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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	0000281827	06/02/2025	06/01/2022 /	04/05/2022 / william	M5173

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	PP-382-1 / Aroclor 1268	0006587800	09/18/2025	03/18/2025 / yogesh	02/21/2022 / Ankita	P11522

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards,Inc	91867 / Aroclor 1232 100 ug/mL	020823	09/18/2025	03/18/2025 / yogesh	08/07/2023 / Ankita	P12699

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards,Inc	x9166 / Aroclor 1262 100 ug/mL	060523	09/18/2025	03/18/2025 / yogesh	08/07/2023 / Ankita	P12702

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32009 / PCB Mix, Aroclor 1242, 1000ug/mL, Hexane, 1mL/ampul	a0203672	09/18/2025	03/18/2025 / yogesh	12/07/2023 / Ankita	P12931

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32010 / PCB Mix, Aroclor 1248, 1000ug/mL, Hexane, 1mL/ampul	a0202803	09/18/2025	03/18/2025 / yogesh	12/07/2023 / Ankita	P12936

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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.	20064 / Aroclor 1016/1260	022023	08/27/2025	02/27/2025 / Ankita	12/20/2023 / Yogesh	P12948

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	20064 / Aroclor 1016/1260	022023	09/18/2025	03/18/2025 / yogesh	12/20/2023 / Yogesh	P12949

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Arochlor 1254	121823	04/03/2025	10/03/2024 / Ankita	12/20/2023 / Yogesh	P12957

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	A0206810	09/05/2025	03/05/2025 / Abdul	04/22/2024 / Abdul	P13354

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	A0206810	09/18/2025	03/18/2025 / yogesh	04/22/2024 / Abdul	P13356

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	PP-292-1 / Aroclor 1221	0006783205	09/18/2025	03/18/2025 / yogesh	05/02/2024 / Ankita	P13373

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Fax : 908 789 8922

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32410 / PCB Stock Solution, Aroclor 1268 Std, 1mL, Hexane	A0207475	09/18/2025	03/18/2025 / yogesh	05/03/2024 / Abdul	P13381

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	PP-312-1 / Aroclor 1242	0006665550	09/18/2025	03/18/2025 / yogesh	10/14/2024 / Ankita	P13589

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Agilent Technologies	PP-342-1 / Aroclor 1248	0006726317	09/18/2025	03/18/2025 / yogesh	10/14/2024 / Ankita	P13591

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32039 / PCB Mix, Aroclor 1016/1260, 1000ug/mL, hexane, 1mL/ampul	A0210629	09/18/2025	03/18/2025 / yogesh	10/17/2024 / yogesh	P13697

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32007 / PCB Mix, Aroclor 1221, 1000ug/mL, Hexane, 1mL/ampul	A0215270	09/18/2025	03/18/2025 / yogesh	10/17/2024 / yogesh	P13702

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32011 / PCB Mix, Aroclor 1254, 1000ug/mL, Hexane, 1mL/ampul	A0217391	09/18/2025	03/18/2025 / yogesh	12/09/2024 / Ankita	P13830

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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	32008 / PCB Mix, Aroclor 1232, 1000ug/mL, Hexane, 1mL/ampul	A0219655	09/18/2025	03/18/2025 / yogesh	01/23/2025 / Ankita	P13878

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Restek	32409 / PCB Stock Solution, Aroclor 1262 Std, 1mL, Hexane	A0220950	09/18/2025	03/18/2025 / yogesh	01/23/2025 / Ankita	P13883

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / Iwona	07/03/2024 / Iwona	W3112

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)	24G1962003	08/22/2025	02/03/2025 / jignesh	01/31/2025 / jignesh	W3177

Sand
Purified
Washed and Ignited

avantor™ | J.T.Baker®

Material No.: 3382-05
Batch No.: 0000243821
Manufactured Date: 2018/04/09
Retest Date: 2025/04/07
Revision No: 1

Certificate of Analysis

Test	Specification	Result
Substances Soluble in HCl	<= 0.16 %	0.01

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

E 2865

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

PRODUCTOS QUIMICOS MONTERREY, S.A. DE C.V.

MIRADOR 201, COL. MIRADOR
MONTERREY, N.L. MEXICO
CP 64070
TEL +52 81 13 52 57 57
www.pqm.com.mx

CERTIFICATE OF ANALYSIS

PRODUCT :	SODIUM SULFATE CRYSTALS ANHYDROUS		
QUALITY :	ACS (CODE RMB3375)	FORMULA :	Na_2SO_4
SPECIFICATION NUMBER :	6399	RELEASE DATE:	ABR/21/2023
LOT NUMBER :	313201		

TEST	SPECIFICATIONS	LOT VALUES
Assay (Na_2SO_4)	Min. 99.0%	99.7 %
pH of a 5% solution at 25°C	5.2 - 9.2	6.1
Insoluble matter	Max. 0.01%	0.005 %
Loss on ignition	Max. 0.5%	0.1 %
Chloride (Cl)	Max. 0.001%	<0.001 %
Nitrogen compounds (as N)	Max. 5 ppm	<5 ppm
Phosphate (PO_4)	Max. 0.001%	<0.001 %
Heavy metals (as Pb)	Max. 5 ppm	<5 ppm
Iron (Fe)	Max. 0.001%	<0.001 %
Calcium (Ca)	Max. 0.01%	0.002 %
Magnesium (Mg)	Max. 0.005%	0.001 %
Potassium (K)	Max. 0.008%	0.003 %
Extraction-concentration suitability	Passes test	Passes test
Appearance	Passes test	Passes test
Identification	Passes test	Passes test
Solubility and foreing matter	Passes test	Passes test
Retained on US Standard No. 10 sieve	Max. 1%	0.1 %
Retained on US Standard No. 60 sieve	Min. 94%	97.3 %
Through US Standard No. 60 sieve	Max. 5%	2.5 %
Through US Standard No. 100 sieve	Max. 10%	0.1 %

COMMENTS

QC: PhC Irma Belmares

If you need further details, please call our factory or contact our local distributor.

RG-02-01, Ed. 3

Recd. by RB on 7/24/23 E3551

Acetone
CMOS

avantor™ | J.T.Baker®

Material No.: 9005-05
Batch No.: 24E0761004
Manufactured Date: 2024-05-02
Retest Date: 2029-05-01
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay ($(CH_3)_2CO$) (by GC, corrected for water)	≥ 99.5 %	99.8 %
Color (APHA)	≤ 10	< 5
Residue after Evaporation	≤ 5 ppm	< 1 ppm
Titrable Acid (µeq/g)	≤ 0.3	0.1
Titrable Base (µeq/g)	≤ 0.5	0.1
Water (H_2O)	≤ 0.5 %	0.1 %
Solubility in H_2O	Passes Test	Passes Test
Chloride (Cl)	≤ 0.2 ppm	< 0.2 ppm
Phosphate (PO_4)	≤ 0.05 ppm	< 0.05 ppm
Trace Impurities - Aluminum (Al)	≤ 50.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 5.0 ppb
Trace Impurities - Barium (Ba)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Calcium (Ca)	≤ 25.0 ppb	3.6 ppb
Trace Impurities - Chromium (Cr)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Trace Impurities - Iron (Fe)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Recd by RP on 9/25/24

E 3804

Acetone
CMOS

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Material No.: 9005-05
Batch No.: 24E0761004

Test	Specification	Result
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 50.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	7.9 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater (Rion KS42AF)	≤ 100 par/ml	8 par/ml
Particle Count – 1.0 µm and greater (Rion KS42AF)	≤ 8 par/ml	2 par/ml

>>> Continued on page 3 >>>

Acetone
CMOS

avantor™ | J.T.Baker®

Material No.: 9005-05
Batch No.: 24E0761004

Test	Specification	Result

For Microelectronic Use

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

Michelle Bales
Sr. Manager, Quality Assurance

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	H303	Quality Test / Release Date	11/07/2024
Lot Number	243570		
Description	HEXANES - OPTIMA		
Country of Origin	United States	Suggested Retest Date	Nov/2029
Chemical Origin	Organic - non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid
ASSAY (N-HEXANE)	%	>= 60	69
ASSAY (SUM C6 HYDROCARBONS)	%	>= 99.9	>99.9
COLOR	APHA	<= 5	<5
DENSITY AT 25 DEGREES C	GM/ML	Inclusive Between 0.653 - 0.673	0.669
EVAPORATION RESIDUE	ppm	<= 1	<1
FLUORESCENCE BACKGROUND	ppb	<= 1	<1
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
OPTICAL ABS AT 195 NM	ABS. UNITS	<= 1	0.74
OPTICAL ABS AT 210 NM	ABS. UNITS	<= 0.25	0.17
OPTICAL ABS AT 220 NM	ABS. UNITS	<= 0.07	0.05
OPTICAL ABS AT 254 NM	ABS. UNITS	<= 0.005	0.001
PESTICIDE RESIDUE ANALYSIS	NG/L	<= 10	<10
REFRACTIVE INDEX @ 25 DEG C		Inclusive Between 1.375 - 1.385	1.379
SUITABILITY FOR GC/MS		= PASS TEST	PASS TEST
SULFUR COMPOUNDS	%	<= 0.005	<0.005
THIOPHENE	PASS/FAIL	= PASS TEST	PASS TEST
WATER (H2O)	%	<= 0.01	<0.01
WATER-SOLUBLE TITRABLE ACID	MEQ/G	<= 0.0003	0.0001

Recd by RP on 2/12/25

E3877

Harout Sahagian - Quality Control Manager - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	H303	Quality Test / Release Date	11/07/2024
Lot Number	243570		
Description	HEXANES - OPTIMA		
Country of Origin	United States	Suggested Retest Date	Nov/2029
Chemical Origin	Organic - non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid
ASSAY (N-HEXANE)	%	>= 60	69
ASSAY (SUM C6 HYDROCARBONS)	%	>= 99.9	>99.9
COLOR	APHA	<= 5	<5
DENSITY AT 25 DEGREES C	GM/ML	Inclusive Between 0.653 - 0.673	0.669
EVAPORATION RESIDUE	ppm	<= 1	<1
FLUORESCENCE BACKGROUND	ppb	<= 1	<1
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
OPTICAL ABS AT 195 NM	ABS. UNITS	<= 1	0.74
OPTICAL ABS AT 210 NM	ABS. UNITS	<= 0.25	0.17
OPTICAL ABS AT 220 NM	ABS. UNITS	<= 0.07	0.05
OPTICAL ABS AT 254 NM	ABS. UNITS	<= 0.005	0.001
PESTICIDE RESIDUE ANALYSIS	NG/L	<= 10	<10
REFRACTIVE INDEX @ 25 DEG C		Inclusive Between 1.375 - 1.385	1.379
SUITABILITY FOR GC/MS		= PASS TEST	PASS TEST
SULFUR COMPOUNDS	%	<= 0.005	<0.005
THIOPHENE	PASS/FAIL	= PASS TEST	PASS TEST
WATER (H2O)	%	<= 0.01	<0.01
WATER-SOLUBLE TITRABLE ACID	MEQ/G	<= 0.0003	0.0001

Recd by RS on 3/14/25

Harout Sahagian - Quality Control Manager - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

Material No.: 9530-33
Batch No.: 0000281827
Manufactured Date: 2021/03/30
Retest Date: 2026/03/29
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.189
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.3
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	15.0
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

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

Material No.: 9530-33
Batch No.: 0000281827

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	3.0
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	< 0.4
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.2
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	18.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	< 0.2
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.4
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

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

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

P11518 ↓ P11522 AJ 02/21/22

Agilent

Certificate of Analysis

Product Name: Aroclor 1268 Standard

Product Number: PP-382-1 **Lot Issue Date:** 09-Feb-2021

Lot Number: 0006587800 **Expiration Date:** 31-Mar-2029

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1268	011100-14-4	RM00937	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED TESTING LABORATORY
ISO 17025 Cert No. AT-1937

250 Smith Street North Kingstown, Rhode Island 02852 www.agilent.com/quality

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800-368-1131
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Certified Refere

CERTIFIED WEIGHT REPORT

Part Number:	91867
Lot Number:	020823
Description:	WP 037 - Aroclor 1232 PCB Technical Mixture
Expiration Date:	020833
Recommended Storage:	Ambient (20 °C)
Nominal Concentration (µg/mL):	100
NIST Test ID#:	6UTB

Solvent(
Aceton

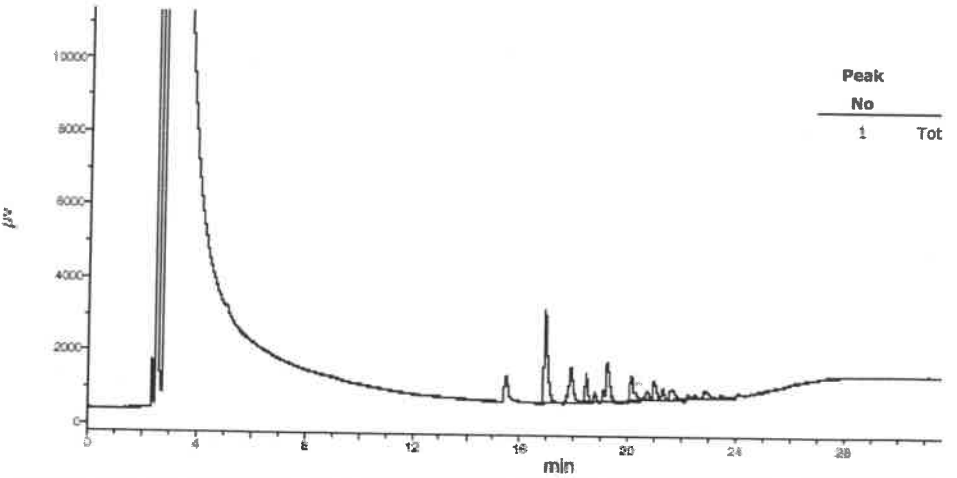
5E-05 Balance Uncertainty
0.057 Flask Uncertainty

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

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight (g
1. Aroclor 1232	17	45-6A	100	100	0.5	0.01000

- 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 Measure Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Comments
GC3-M1 Analysis by Melissa Stonier
Column ID SPB-608 30 meter X 0.53mm X5µm film thickness
Flow rates: Helium (carrier) = 5mL/min, Helium (make-up) = 25mL/min
Hydrogen (make-up) = 30mL/min, Air (make-up) = 350mL/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. = 200°C, FID Temp. = 300°C. FID Signal = Edaq Channel 1
Standard injection =1.5µL, Range=3



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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

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. : 32009 **Lot No.:** A0203672

Description : Aroclor® 1242 Standard

Aroclor® 1242 Standard 1,000 µg/mL, Hexane, 1mL/ampul

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

Expiration Date : January 31, 2030 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

P12928
↓
P12932
AJ
12/07/23

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1242	53469-21-9	01141	----%	1,004.7 µg/mL	+/- 55.7515

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

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

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.)

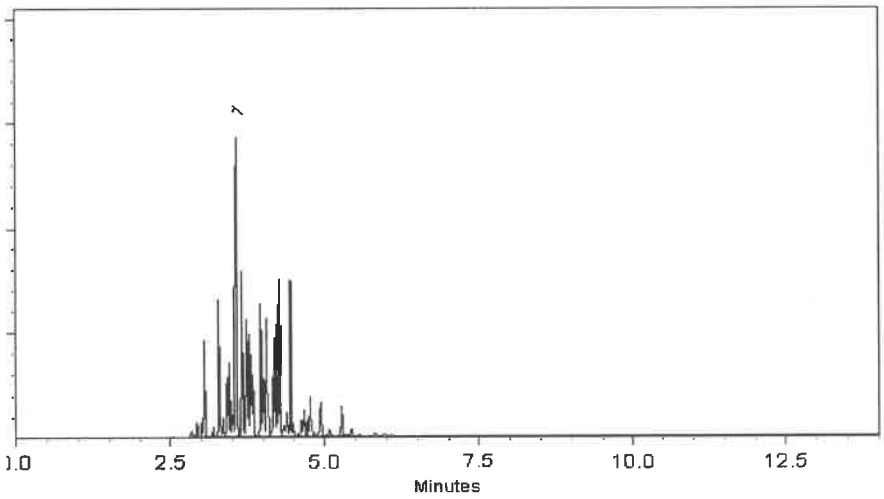
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
10 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.

Russ Bookhamer - Operations Technician I

Date Mixed: 26-Oct-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 06-Nov-2023

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

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110 Benner Circle
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Tel: 1-814-353-1300
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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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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.

P12933 ↓ P12937 AJ 12/07/23

Catalog No. : 32010 **Lot No.:** A0202803

Description : Aroclor® 1248 Standard

Aroclor® 1248 Standard 1,000µg/mL, Hexane, 1mL/ampul

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

Expiration Date : January 31, 2030 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1248	12672-29-6	13897600	----%	1,001.7 µg/mL	+/- 55.5850

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

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

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.)

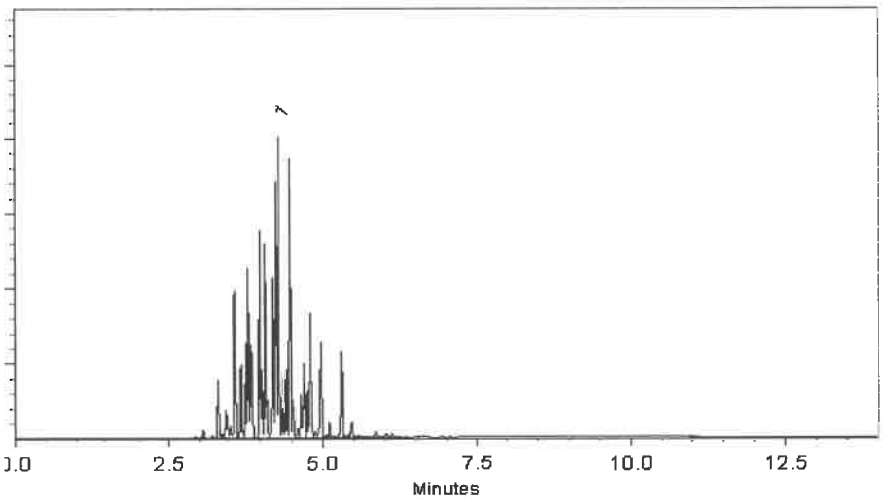
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
10 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.

Laith Clemente - Operations Technician I **Date Mixed:** 03-Oct-2023 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 09-Oct-2023

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

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Certified Reference Material CRM

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AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number:	20064
Lot Number:	022023
Description:	CLP PCB'S - Aroclor Mix
	Aroclors 1016 & 1260
Expiration Date:	022033
Recommended Storage:	Ambient (20 °C)
Nominal Concentration (µg/mL):	1000
NIST Test ID#:	6UTB

Solvent(s):	Lot#
Hexane	273615

5E-05 Balance Uncertainty

Weight(s) shown below were combined and diluted to (mL): 200.0 0.010 Flask Uncertainty

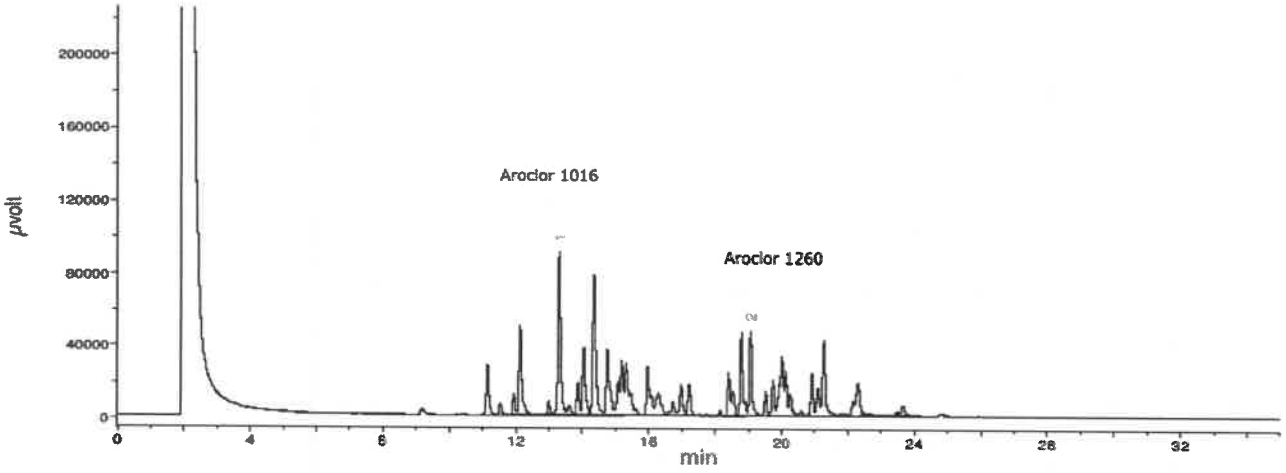
Formulated By:	Benson Chan	022023 DATE
Reviewed By:	Pedro L. Rentas	022023 DATE

P12946 ↓ P12955 — Y.P. 12/20/23

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. Aroclor 1016	15	020491JC	1000	100	0.2	0.20004	0.20060	1002.8	4.0	12674-11-2	N/A	N/A
2. Aroclor 1260	21	020491JC	1000	100	0.2	0.20004	0.20081	1003.9	4.0	11096-82-5	0.5mg/m3	orl-rat 1315mg/kg

- 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).

Comments
GC3-M1 Analysis by Melissa Stonier
Column ID SPB-608 30 meter X 0.53mm X5µm film thickness
Flow rates: Helium (carrier) = 5mL/min, Helium (make-up) = 25mL/min
Hydogen (make-up) = 30mL/min, Air (make-up) = 350mL/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. = 200°C, FID Temp. = 300°C. FID Signal = Edaq Channel 1
Standard injection =1.5µL, Range=3



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www.absolutestandards.com

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Part Number:	20064
Lot Number:	022023
Description:	CLP PCB'S - Aroclor Mix
	Aroclors 1016 & 1260
Expiration Date:	022033
Recommended Storage:	Ambient (20 °C)
Nominal Concentration (µg/mL):	1000
NIST Test ID#:	6UTB

Solvent(s):	Lot#
Hexane	273615

5E-05 Balance Uncertainty

Weight(s) shown below were combined and diluted to (mL): 200.0 0.010 Flask Uncertainty

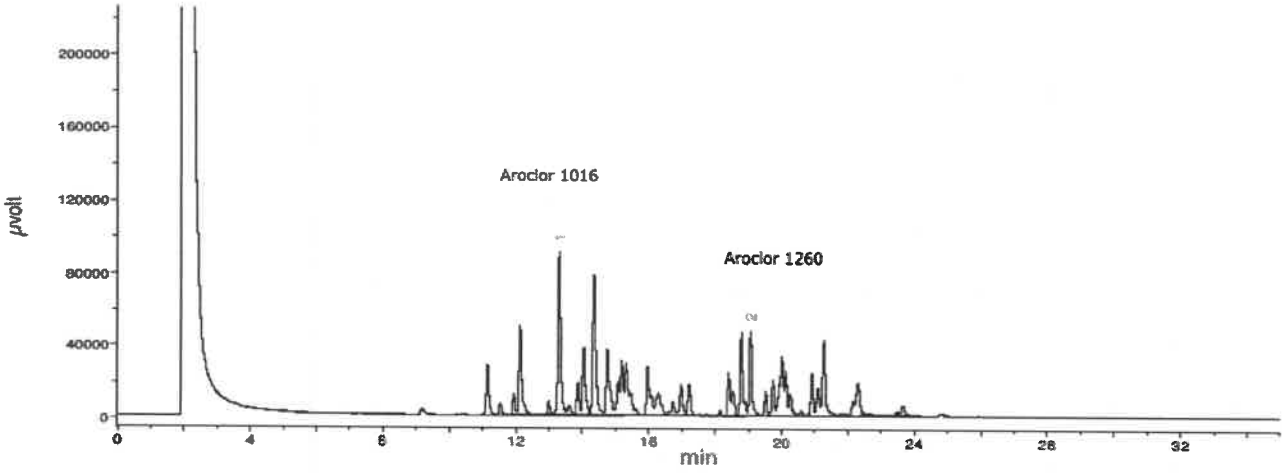
Formulated By:	Benson Chan	022023 DATE
Reviewed By:	Pedro L. Rentas	022023 DATE

P12946 ↓ P12955 — Y.P. 12/20/23

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. Aroclor 1016	15	020491JC	1000	100	0.2	0.20004	0.20060	1002.8	4.0	12674-11-2	N/A	N/A
2. Aroclor 1260	21	020491JC	1000	100	0.2	0.20004	0.20081	1003.9	4.0	11096-82-5	0.5mg/m3	orl-rat 1315mg/kg

- 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).

Comments
GC3-M1 Analysis by Melissa Stonier
Column ID SPB-608 30 meter X 0.53mm X5µm film thickness
Flow rates: Helium (carrier) = 5mL/min, Helium (make-up) = 25mL/min
Hydogen (make-up) = 30mL/min, Air (make-up) = 350mL/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. = 200°C, FID Temp. = 300°C. FID Signal = Edaq Channel 1
Standard injection =1.5µL, Range=3



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Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT

Part Number:	99139	**Solvent(s):**	**Lot#**	
Lot Number:	121823	Iso-octane	82227	
Description:	Aroclor 1254			
Expiration Date:	121833			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	100			
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty	
Volume(s) shown below were combined and diluted to (mL):		20.0	0.003	Flask Uncertainty

		121823
Formulated By:	Anthony Mahoney	DATE
		121823
Reviewed By:	Pedro L. Rentas	DATE

P12956 & P12957 Y.P. 12/20/23

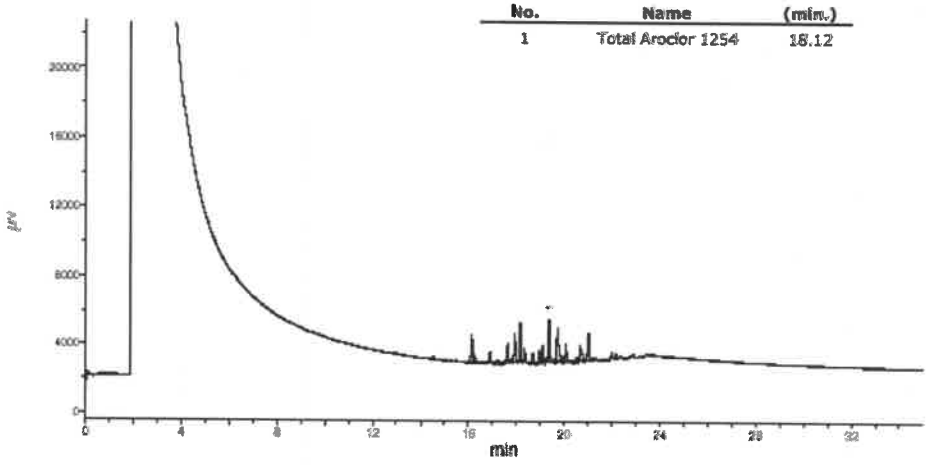
Note: Aroclor 1254 is a mix of isomers.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(µg/mL)	Final Conc.(µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Aroclor 1254	79100	121823	0.10	2.00	0.017	1003.3	100.1	1.8	11097-69-1	0.5mg/m3 (skin)	orl-rat 1295mg/kg

- 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).

Comments
GC3-M1 Analysis by Melissa Stonier
Column ID SPB-608 30 meter X 0.53mm X5µm film thickness
Flow rates: Helium (carrier) = 5mL/min, Helium (make-up) = 25mL/min
Hydrogen (make-up) = 30mL/min, Air (make-up) = 350mL/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. = 200°C, FID Temp. = 300°C. FID Signal = Edaq Channel 1
Standard injection =1.5µL, Range=3

Peak No.	Name	FID RT (min.)
1	Total Aroclor 1254	18.12



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

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.

P13348 ↓ P13357 (10)

04/25/2024

Catalog No. : 32000 **Lot No.:** A0206810

Description : Pesticide Surrogate Mix

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

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

Expiration Date : April 30, 2030 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2,4,5,6-Tetrachloro-m-xylene	877-09-8	RP220407	99%	200.3 µg/mL	+/- 11.1143
2	Decachlorobiphenyl (BZ# 209)	2051-24-3	30638	99%	200.6 µg/mL	+/- 11.1298

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

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

Tech Tips:

Decachlorobiphenyl has poor solubility in most organic solvents. The maximum concentration that can be prepared in acetone, hexane, or isooctane is 200µg/mL. Temperature will affect the solubility as well. Storing solutions at reduced temperatures will cause decachlorobiphenyl to precipitate.

Products containing decachlorobiphenyl must be sonicated for a minimum of 10 minutes prior to opening the ampul. Because each ultrasonic bath operates at a different energy level, 10 minutes is a guideline only. Longer sonication time will not affect product quality.

These precautions apply to working solutions prepared in your laboratory as well. The amount of compound that precipitates depends on concentration AND temperature. If you store your standards at a temperature lower than 4°C (even dilute solutions), allow extra sonication time.

Quality Confirmation Test

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

Carrier Gas:
hellum-constant pressure 20 psi.

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

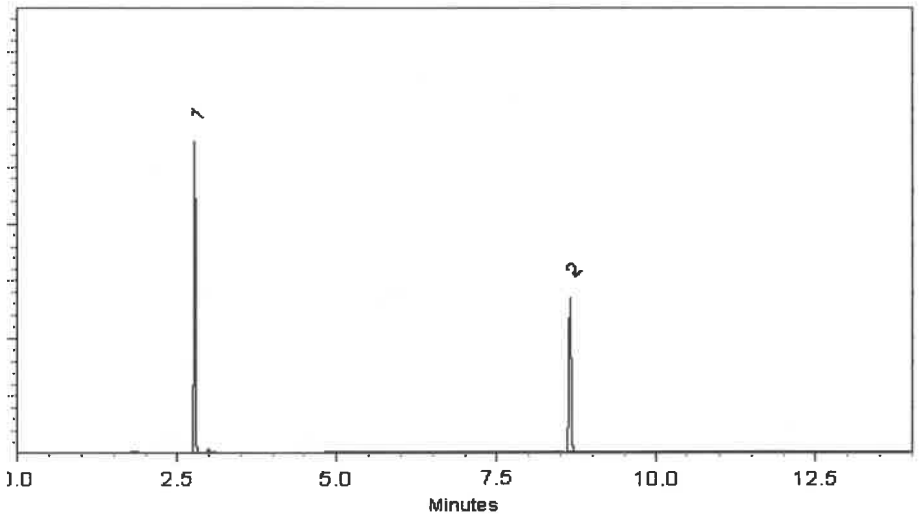
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
10 ml/min.

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.

Laith Clemente - Operations Technician I

Date Mixed: 22-Jan-2024 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 24-Jan-2024

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

P13348 (10)

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P13357

04/25/2025

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

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.

P13348 ↓ P13357 (10)

04/25/2024

Catalog No. : 32000 **Lot No.:** A0206810

Description : Pesticide Surrogate Mix

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

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

Expiration Date : April 30, 2030 **Storage:** 10°C or colder

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

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	2,4,5,6-Tetrachloro-m-xylene	877-09-8	RP220407	99%	200.3 µg/mL	+/- 11.1143
2	Decachlorobiphenyl (BZ# 209)	2051-24-3	30638	99%	200.6 µg/mL	+/- 11.1298

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

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

Tech Tips:

Decachlorobiphenyl has poor solubility in most organic solvents. The maximum concentration that can be prepared in acetone, hexane, or isooctane is 200µg/mL. Temperature will affect the solubility as well. Storing solutions at reduced temperatures will cause decachlorobiphenyl to precipitate.

Products containing decachlorobiphenyl must be sonicated for a minimum of 10 minutes prior to opening the ampul. Because each ultrasonic bath operates at a different energy level, 10 minutes is a guideline only. Longer sonication time will not affect product quality.

These precautions apply to working solutions prepared in your laboratory as well. The amount of compound that precipitates depends on concentration AND temperature. If you store your standards at a temperature lower than 4°C (even dilute solutions), allow extra sonication time.

Quality Confirmation Test

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

Carrier Gas:
hellum-constant pressure 20 psi.

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

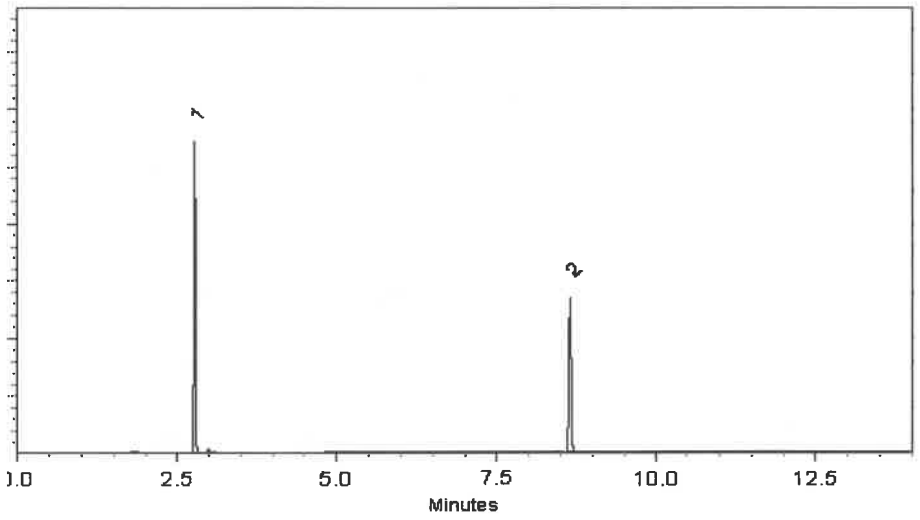
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
10 ml/min.

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.

Laith Clemente - Operations Technician I

Date Mixed: 22-Jan-2024 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 24-Jan-2024

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

P13348 (10)

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P13357

04/25/2025

Agilent

Trusted Answers

ISO 17034

Reference Material Certificate

Product Information Sheet

Product Name:	Aroclor 1221 Standard	**Lot Number:**	0006783205
Product Number:	PP-292-1	**Lot Issue Date:**	20-Feb-2024
Storage Conditions:	Store at Room Temperature (15° to 30°C).	**Expiration Date:**	31-Mar-2032

Component Name	Concentration		Uncertainty	CAS#	Analyte Lot
Aroclor 1221	100.3	±	0.5 µg/mL	011104-28-2	NT01017

Matrix: isooctane (2,2,4-trimethylpentane)

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

P133f2
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P133f3

AJ
05106124

250 Smith Street North Kingstown, Rhode Island 02852 **www.agilent.com/quality**

Agilent

Trusted Answers

Maintenance of Certification:

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois

QMS Representative

ANAB ANSI National Accreditation Board ACCREDITED REFERENCE MATERIAL PRODUCER

ISO 17034
Cert No. AR-1936

RM was produced in accordance with the TUV/SUD registered ISO 9001:2015 Quality Management System. Cert# 951215321

www.agilent.com/quality/

CSD-QA-015.2

ISO 17025
Cert No. AT-1937

250 Smith Street North Kingstown, Rhode Island 02852 **www.agilent.com/quality**

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CERTIFIED REFERENCE MATERIAL

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

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.

Catalog No. : 32410 **Lot No.:** A0207475

Description : Aroclor® 1268 Standard

Aroclor® 1268 Standard 1,000 µg/mL, 1mL/ampul, Hexane

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

Expiration Date : May 31, 2030 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1268	11100-14-4	10947000	----%	1,000.0 µg/mL	+/- 55.4925

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

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

P 13380 2
P 13381
1
05/6/2024

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.)

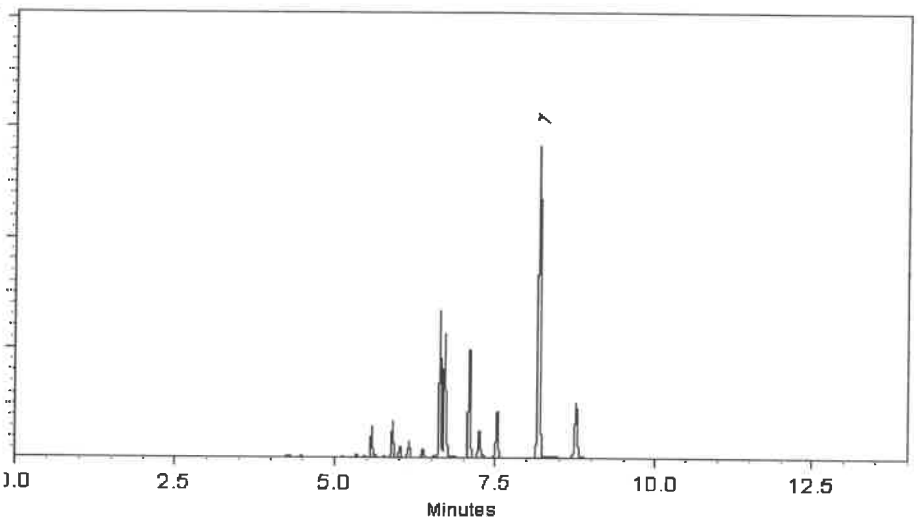
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
Split ratio 500:1

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.

Michael Maye - Operations Tech I

Date Mixed: 06-Feb-2024 **Balance Serial #** B442140311

Dillan Murphy - Operations Technician I

Date Passed: 09-Feb-2024

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

P13380 (2)
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P13381
1

05/6/2024

ISO 17034

Agilent
Trusted Answers

Reference Material Certificate

Product Name:	Aroclor 1242 Standard	**Lot Number:**	0006665550
Product Number:	PP-312-1	**Lot Issue Date:**	08-Feb-2022
Storage Conditions:	Store at Room Temperature (15° to 30°C).	**Expiration Date:**	31-Jan-2027

	CERTIFIED VALUES				
Component Name	Concentration		Expanded Uncertainty	CAS#	Analyte Lot
Aroclor 1242	100.4	±	0.5 µg/mL	053469-21-9	NT01020

Matrix: isooctane (2,2,4-trimethylpentane)

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

P13589
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P13590

AJ
10/14/24

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

Agilent
Trusted Answers

ISO 17034

Reference Material Certificate

Product Information Sheet

Product Name: Aroclor 1248 Standard
Product Number: PP-342-1
Storage Conditions: Store at Room Temperature (15° to 30°C).

Lot Number: 0006726317
Lot Issue Date: 27-Jan-2023
Expiration Date: 28-Feb-2031

Component Name	Concentration		Uncertainty	CAS#	Analyte Lot
Aroclor 1248	100.3	±	0.5 µg/mL	012672-29-6	NT01582

Matrix: isooctane (2,2,4-trimethylpentane)

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material (RM) standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above. Purity values are taken from approved vendor raw material certificates.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference (RM) standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference (RM) standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard (RM) is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

P13591
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P13592

AJ
10/14/2024

Agilent

Trusted Answers

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

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

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. : 32039 **Lot No.:** A0210629

Description : Aroclor® 1016/1260 Mix

Aroclor® 1016/1260 Mix 1,000 µg/mL, Hexane, 1mL/ampul

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

Expiration Date : July 31, 2030 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

P13697 ↓ P13701 } Y.P. 10/19/24

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1016	12674-11-2	07	----%	1,005.3 µg/mL	+/- 55.7809
2	Aroclor 1260	11096-82-5	1320657	----%	1,000.0 µg/mL	+/- 55.4850

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

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

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.)

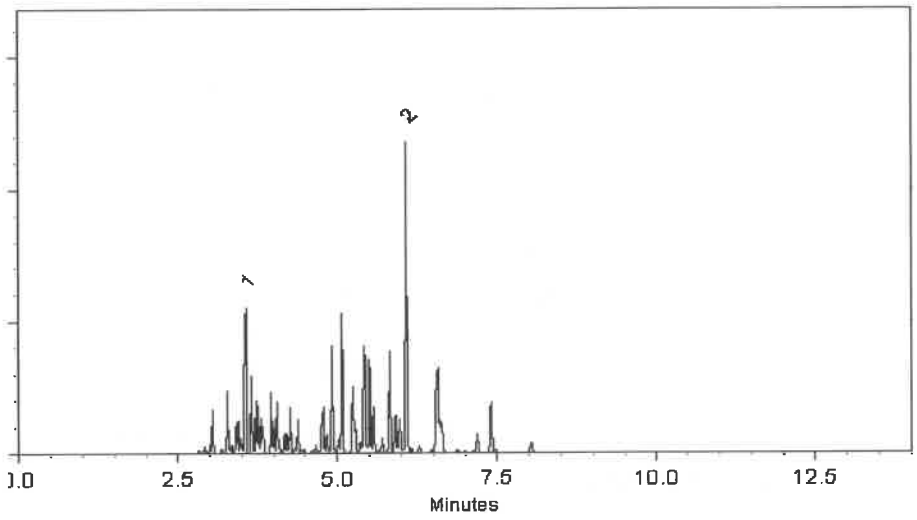
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
10 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.

Laith Clemente - Operations Technician I

Date Mixed: 22-Apr-2024 **Balance Serial #** B442140311

Dillan Murphy - Operations Technician I

Date Passed: 24-Apr-2024

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 expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls 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 ampuls. 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.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

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Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

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.

Catalog No. : 32007 **Lot No.:** A0215270

Description : Aroclor® 1221 Standard

Aroclor® 1221 Standard 1,000 µg/mL, Hexane, 1mL/ampul

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

Expiration Date : November 30, 2030 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

P13702 & P13703 } Y.P. 10/17/24

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1221	11104-28-2	14969200	----%	1,005.0 µg/mL	+/- 55.7700

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

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

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.)

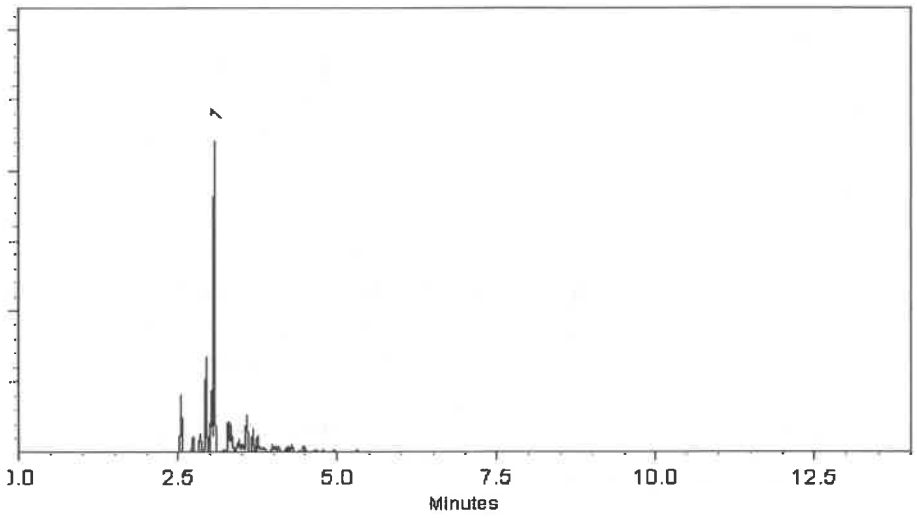
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
10 ml/min.

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.

Michael Maye - Operations Tech I

Date Mixed: 16-Aug-2024 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 20-Aug-2024

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 expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls 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 ampuls. 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.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

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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.

Catalog No. : 32011 **Lot No.:** A0217391

Description : Aroclor® 1254 Standard

Aroclor® 1254 Standard 1,000 µg/mL, Hexane, 1mL/ampul

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

Expiration Date : January 31, 2031 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1254	11097-69-1	124-191-B	----%	1,004.7 µg/mL	+/- 55.7515

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

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

P13830
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P13832

AJ
12/09/24

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.)

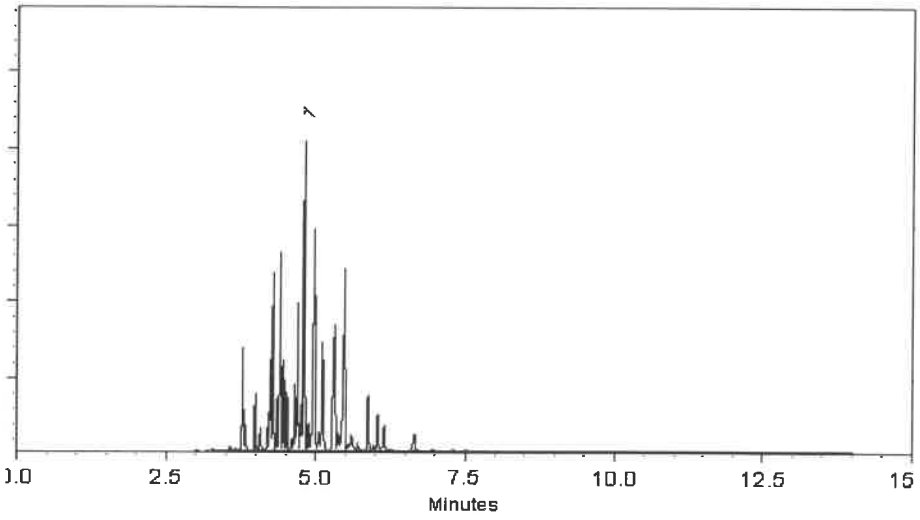
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
300 ml/min.

Inj. Vol
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.

Michael Maye - Operations Tech I **Date Mixed:** 02-Oct-2024 **Balance Serial #** C322230531

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 07-Oct-2024

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

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

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. : 32008 **Lot No.:** A0219655

Description : Aroclor® 1232 Standard

Aroclor® 1232 Standard 1,000 µg/mL, Hexane, 1mL/ampul

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

Expiration Date : March 31, 2031 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1232	11141-16-5	15665-01	----%	1,007.0 µg/mL	+/- 55.8810

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

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

P13878
↓
P13880

AJ
01/28/25

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.)

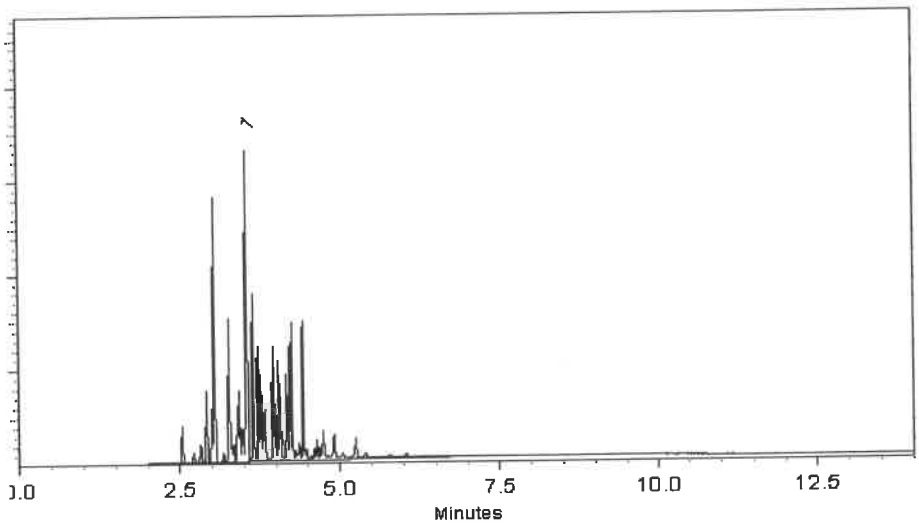
Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD

Split Vent:
10 ml/min.

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.

Michael Maye - Operations Tech I

Date Mixed: 02-Dec-2024 **Balance Serial #** C322230531

Brittany Federinko - Operations Tech I

Date Passed: 05-Dec-2024

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

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

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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.

Catalog No. : 32409 **Lot No.:** A0220950

Description : Aroclor® 1262 Standard

Aroclor® 1262 Standard 1,000 µg/mL, 1mL/ampul, Hexane

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

Expiration Date : April 30, 2031 **Storage:** 25°C nominal

Handling: This product contains PCBs. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Aroclor 1262	37324-23-5	10849100	----%	1,002.0 µg/mL	+/- 55.6035

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

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

P138852
↓
P138853

AJ
01/28/25

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.)

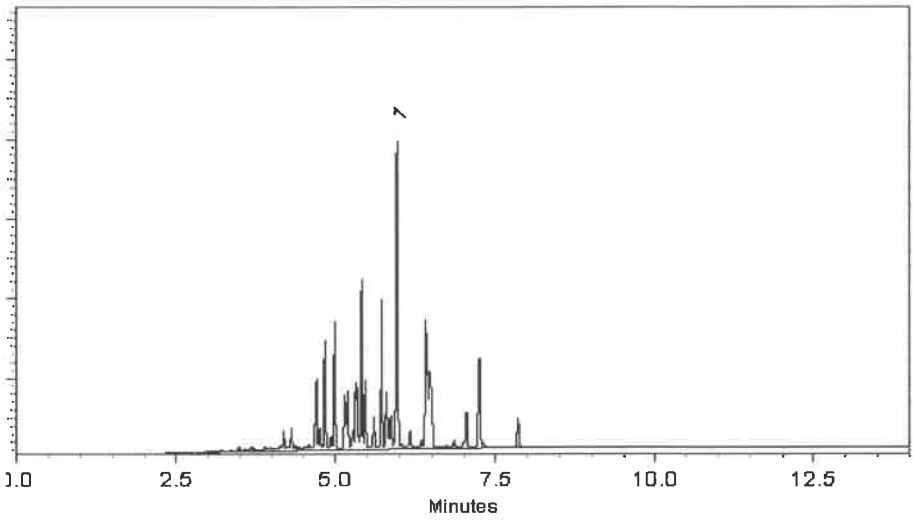
Inj. Temp:
250°C

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.

Tom Suckar - Mix Technician

Date Mixed: 09-Jan-2025 **Balance Serial #** C322230531

Brittany Federinko - Operations Tech I

Date Passed: 14-Jan-2025

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

n-Hexane 95%
ULTRA RESI-ANALYZED
For Organic Residue Analysis

avantor™ | J.T.Baker®

W3147

W3147 update. 02/03/2025 JP

Material No.: 9262-03
Batch No.: 24G1962003
Manufactured Date: 2024-05-23
Expiration Date: 2025-08-22
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)	≤ 5	3
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 %	98 %
Color (APHA)	≤ 10	5
Residue after Evaporation	≤ 1.0 ppm	0.1 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

JCroak

Jamie Croak
Director Quality Operations, Bioscience Production