



Organotin analysis

ISO-METHODS 17353 / 23161



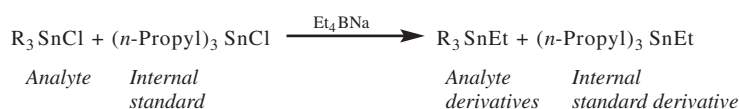
FOR SPECIAL OFFERS:

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Organotin compounds are widely applied in the industry due to their antibacterial and fungicidal properties. Applications include preservation of wood, textiles, leather and paper, and as disinfectants. Due to their toxicity the use of trialkyltin compounds in marine antifouling paints is restricted. The trialkyltin compounds are partly degraded to the di- and monoalkyltin derivatives.

QUANTIFICATION OF ORGANOTIN COMPOUNDS:

The principle is based on alkylation of the organotin chlorides to tetrasubstituted ethyl derivatives which are analyzed by GC and GC/MS.



International methods

- ISO 17353:2004 Water Quality - Determination of selected organotin compounds - Gas chromatographic method.
- ISO/DIS 23161.2:2007 Soil Quality - Determination of selected organotin compounds - Gas chromatographic method.

As a unique source, Chiron offers standards for the derived analytes for use as calibration standards, in addition to the derivatizing agent and the common trialkyltin chloride pollutants.

PRODUCT OVERVIEW

Analyte	Cat. No. as chloride (1000 µg/mL or neat)	Solution in MeOH	Neat	Cat. No. as ethyl derivative (1 mL, 1000 µg/mL)
Mono- <i>n</i> -butyltin trichloride	1983.4	5 mL	1 g	2119.10
Di- <i>n</i> -butyltin dichloride	1982.8	5 mL	1 g	2120.12
Tri- <i>n</i> -butyltin chloride	1981.12	5 mL	1 g	1886.14
Tetra- <i>n</i> -butyltin	2497.16*	1 mL**	1 g	-
Monophenyltin trichloride	1987.6	5 mL	1 g	2118.12
Diphenyltin dichloride	1986.12	5 mL	1 g	2117.16
Triphenyltin chloride	1985.18	5 mL	1 g	1887.20
Mono- <i>n</i> -octyltin trichloride	2487.8	1 mL	1 g	2492.14
Di- <i>n</i> -octyltin dichloride	2488.16	1 mL	1 g	2491.20
Tri- <i>n</i> -octyltin chloride	2695.24	1 mL	100 mg	8553.26
Tricyclohexyltin chloride	2489.18	1 mL	100 mg	2498.20
Internal standards:				
Tri- <i>n</i> -propyltin chloride	1989.9	1 mL	1 g	1955.11
Tetra- <i>n</i> -propyltin	2490.12*	1 mL**	1 g	-
Tetra- <i>n</i> -pentyltin	3956.15*	1 mL**	1 g	-
Tri- <i>n</i> -pentyltin chloride	2050.15	1 mL	1 g	2049.17
Mono- <i>n</i> -heptyltin trichloride	2495.7	1 mL	100 mg	2494.13
Di- <i>n</i> -heptyltin dichloride	2496.14	1 mL	100 mg	2493.18
Deuterated internal standard:				
Tetra- <i>n</i> -propyltin-d7	8554.12*	1 mL**	-	-

* Not as chloride ** in isooctane

All Tin Monochlorides have a limited shelflife of 4 months from date of purchase.



Derivatizing Agent and Kits:

1944.8.1-1G	Sodium tetraethyl borate (Derivatizing agent), 1 g
8555.19-KIT-S	Organotin Analytes + Internal Standards, Solutions Kit (19 compounds, 19 vials, includes 1944.8 as neat)
8555.19-KIT-N	Organotin Analytes + Internal Standards, Neat Kit (19 compounds, 19 vials, includes 1944.8 as neat and 8554.12 in solution)
8556.14-KIT-N	Tin Chlorides Neat KIT II (includes Internal Standards and Analytes as neat)
2023.14-KIT	Ethyl derivatives Kit, Solutions
2024.33-KIT-S	Organotin Analysis Solutions KIT (includes all the compounds, includes 1944.8 as neat)
2024.33-KIT-N	Organotin Analysis Neat KIT (includes all the compounds, includes 1944.8 as neat)

Organotin mixes

1. Tin Chlorides

Organotin Standard Mix 1

S-4335-K-ME **Multicomponent Butyl- and Phenyl Chloride Standard Solution**
S-4335-K-5ME 6 analytes, each 1000 µg/mL OTC* in methanol; units: 5x1 mL, 5x5 mL.

Prod.No.	Compound	CAS No.	Weight OTC
1983.4	Mono- <i>n</i> -butyltin trichloride	[1118-46-3]	1000 µg/mL
1982.8	Di- <i>n</i> -butyltin dichloride	[683-18-1]	1000 µg/mL
1987.6	Monophenyltin trichloride	[1124-19-2]	1000 µg/mL
1981.12	Tri- <i>n</i> -butyltin chloride	[1461-22-9]	1000 µg/mL
1985.18	Triphenyltin chloride	[639-58-7]	1000 µg/mL
1986.12	Diphenyltin dichloride	[1135-99-5]	1000 µg/mL

Organotin Standard Mix 2

S-4380-K-ME **ISO 17357/23161 Multicomponent OC* Standard Solution, Stock Solution A**
S-4380-K-5ME 8 analytes, each 1000 µg/mL OC in methanol; units: 5x1 mL, 5x5 mL.

Prod.No.	Compound	CAS No.	Weight OTC
1983.4	Mono- <i>n</i> -butyltin trichloride	[1118-46-3]	1605 µg/mL
1982.8	Di- <i>n</i> -butyltin dichloride	[683-18-1]	1304 µg/mL
1981.12	Tri- <i>n</i> -butyltin chloride	[1461-22-9]	1122 µg/mL
2497.16	Tetra- <i>n</i> -butyltin	[1461-25-2]	1000 µg/mL
2487.8	Mono- <i>n</i> -octyltin trichloride	[3091-25-6]	1458 µg/mL
2488.16	Di- <i>n</i> -octyltin dichloride	[3542-36-7]	1205 µg/mL
1985.18	Triphenyltin chloride	[639-58-7]	1101 µg/mL
2489.18	Tricyclohexyltin chloride	[3091-32-5]	1096 µg/mL

Organotin Standard Mix 3

S-4381-K-ME **ISO 17353/23161 Internal Standard OC, Stock Solution B**
S-4381-K-5ME 8 analytes, each 1000 µg/mL OC in methanol; units: 5x1 mL, 5x5 mL.

Prod.No.	Compound	CAS No.	Weight OTC
2496.14	Di- <i>n</i> -heptyltin dichloride	[74340-12-8]	1224 µg/mL
2495.7	Mono- <i>n</i> -heptyltin trichloride	[59344-47-7]	1488 µg/mL
1989.9	Tri- <i>n</i> -propyltin chloride	[2279-76-7]	1143 µg/mL
2490.12	Tetra- <i>n</i> -propyltin	[2176-98-9]	1000 µg/mL

Organotin Standard Mix 6

S-4525-K-ME **Selected Organotin Analytes**
11 analytes, each 1000 µg/mL OC in methanol; unit: 5x1 mL

Prod.No.	Compound	CAS No.
1983.4	Mono- <i>n</i> -butyltin trichloride	[1118-46-3]
1982.8	Di- <i>n</i> -butyltin dichloride	[683-18-1]
1981.12	Tri- <i>n</i> -butyltin chloride	[1461-22-9]
1987.6	Monophenyltin trichloride	[1124-19-2]
1986.12	Diphenyltin dichloride	[1135-99-5]
1985.18	Triphenyltin chloride	[639-58-7]
2487.8	Mono- <i>n</i> -octyltin trichloride	[3091-25-6]
2488.16	Di- <i>n</i> -octyltin dichloride	[3542-36-7]
2695.24	Tri- <i>n</i> -octyltin chloride	[2587-76-0]
2489.18	Tricyclohexyltin chloride	[3091-32-5]
2497.16	Tetra- <i>n</i> -butyltin	[1461-25-2]



2. Ethyl derivatives

Organotin Standard Mix 4

S-4520-K-IO**Tin Ethyl Derivatives – Complete Set including Internal Standards (IS)**

13 analytes, each 1000 µg/mL OTC in isooctane; unit: 5x1 mL.

Prod.No.	Compound	CAS No.
2119.10	Mono- <i>n</i> -butyltriethyltin	[17582-53-5]
2120.12	Di- <i>n</i> -butyldiethyltin	[20525-62-6]
1886.14	Monoethyltri- <i>n</i> -butyltin	[19411-60-0]
2118.12	Monophenyltriethyltin	[878-51-3]
2117.16	Diethyldiphenyltin	[10203-52-8]
1887.20	Monoethyltriphenyltin	[5424-25-9]
2492.14	Mono- <i>n</i> -octyltriethyltin	[16216-27-6]
2491.20	Diethyl-di- <i>n</i> -octyltin	[14775-13-4]
2498.20	Monoethyltricyclohexyltin	[106376-80-1]
2497.16	Tetra- <i>n</i> -butyltin	[1461-25-2]
1955.11	Monoethyltri- <i>n</i> -propyltin	[3440-79-7]
2493.14	Diethyl-di- <i>n</i> -heptyltin	[165900-80-1]
2490.12	Tetra- <i>n</i> -propyltin	[2176-98-9]

Organotin Standard Mix 7

S-4526-K-IO**Tin Ethyl Derivatives – Selected Analytes**

10 analytes, each 1000 µg/mL OTC in isooctane; unit: 5x1 mL

Prod.No.	Compound	CAS No.
2119.10	Mono- <i>n</i> -butyltriethyltin	[17582-53-5]
2120.12	Di- <i>n</i> -butyldiethyltin	[20525-62-6]
1886.12	Monoethyltri- <i>n</i> -butyltin	[19411-60-0]
2118.14	Monophenyltriethyltin	[878-51-3]
2117.16	Diphenyldiethyltin	[10203-52-8]
1887.20	Monoethyltriphenyltin	[5424-25-9]
2492.14	Mono- <i>n</i> -octyltriethyltin	[16216-27-6]
2491.20	Di- <i>n</i> -octyldiethyltin	[14775-13-4]
2498.20	Monoethyltricyclohexyltin	[106376-80-1]
2497.16	Tetra- <i>n</i> -butyltin	[1461-25-2]

Organotin Standard Mix 8

S-4527-K-IO**Internal Standards (IS) Ethyl Derivatives**

3 analytes, each 1000 µg/mL OTC in isooctane; unit: 5x1 mL

Prod.No.	Compound	CAS No.
1955.11	Monoethyltri- <i>n</i> -propyltin	[3440-79-7]
2493.18	Di- <i>n</i> -heptyldiethyltin	[165900-80-1]
2490.12	Tetra- <i>n</i> -propyltin	[2176-98-9] (not ethyl derivative)

*OC: Organotin Cation

*OTC: Organic Tin Compound



Special offer:

Preparation of unstable tin-chloride solutions requires special techniques and care.

For special offers of solution containing unstable tin-chlorides:

See: www.chiron.no

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