

## Contents

### Tributyltin oxide (CAS No.: 56-35-9)

#### (Bis-[tri-n-butyltin]oxide)

Abbreviations .....	X
Summary .....	XI
Data Gaps.....	XVII
Preamble .....	XIX
<b>1 Chemistry of Tributyltin Oxide .....</b>	<b>1</b>
1.1 Chemical Identity .....	1
1.2 Composition of the Technical Product.....	2
1.3 Chemical Properties.....	2
<b>2 Physical Properties.....</b>	<b>3</b>
<b>3 Analysis .....</b>	<b>4</b>
3.1 Determination in Water .....	4
3.2 Determination in Air .....	5
3.3 Determination in Soil, Sediment and Biologic Material.....	5
<b>4 Introduction into the Environment through Production, Processing, Application and Waste Disposal.....</b>	<b>6</b>
4.1 Production .....	6
4.2 Manufacturers, Production Quantities, Export, Import.....	7
4.3 Application.....	7
4.3.1 Application in Antifouling Paints.....	8
4.3.2 Wood Preservation .....	9
4.3.3 Other Applications.....	9
4.4 Introduction into the Hydrosphere.....	10
4.4.1 Introduction through Production and Processing.....	10
4.4.2 Introduction through Application .....	10
4.4.3 Introduction into the Hydrosphere from Other Sources .....	11
4.5 Introduction into the Atmosphere.....	11
4.5.1 Introduction through Production and Processing.....	11

4.5.2	Introduction through Application .....	11
4.6	Introduction through Wastes and Their Treatment .....	12
<b>5</b>	<b>Environmental Occurrence</b> .....	<b>13</b>
5.1	Atmosphere .....	13
5.1.1	Outdoor Air .....	13
5.1.2	Indoor Air .....	13
5.2	Hydrosphere .....	13
5.2.1	Surface Waters .....	13
5.2.2	Suspended Matter .....	18
5.2.3	Sediments .....	21
5.2.4	Wastewater and Sewage Sludge .....	26
5.3	Geosphere (Soil / Rock) .....	28
5.4	Biosphere (Biological Material) .....	28
<b>6</b>	<b>Environmental Behaviour</b> .....	<b>33</b>
6.1	Transformation, Degradation and Degradation Products .....	33
6.1.1	Hydrolytic Degradation .....	33
6.1.2	Photochemical Degradation .....	33
6.1.3	Biodegradation .....	33
6.1.3.1	Microbial Degradation .....	33
6.1.3.2	Metabolism .....	36
6.2	Accumulation .....	38
6.2.1	Bioaccumulation .....	38
6.3	Partitioning Behaviour and Transport Processes in and between Environmental Compartments .....	40
6.3.1	Sorption Behaviour on Sediments .....	40
<b>7</b>	<b>Ecotoxicity</b> .....	<b>42</b>
7.1	Effects on Aquatic Organisms .....	42
7.1.1	Microorganisms .....	42
7.1.2	Algae .....	42
7.1.3	Invertebrates .....	43
7.1.4	Vertebrates .....	56
7.2	Effects on Terrestrial Organisms .....	60
7.3	Effects on Ecosystems .....	61

<b>8</b>	<b>Toxicity in Warm-Blooded Animals</b> .....	70
8.1	General Effects .....	70
8.2	Mode of Action .....	71
8.3	Toxicokinetics and Metabolism .....	71
8.4	Acute Toxicity .....	72
8.5	Subacute, Subchronic and Chronic Toxicity .....	72
8.6	Skin and Mucous Membrane Tolerance .....	74
8.7	Sensitisation .....	74
8.8	Genotoxicity .....	74
8.9	Carcinogenicity .....	75
8.10	Reproduction Toxicity .....	75
8.10.1	Fertility .....	75
8.10.2	Development Toxicity .....	77
8.11	Human Cases .....	78
<b>9</b>	<b>Substance-Specific Legal Regulations</b> .....	80
<b>10</b>	<b>References</b> .....	86