

Acute toxicity of naphthalene (CASnr. 91-20-3) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Protozoa													
<i>Spirostomum ambiguum</i>		N	Sc	analyt	am	7.4 ± 0.2	2.8	48 h	EC50	deformations	36400	24	Natęcz-Jawecki & Sawicki, 1999
<i>Spirostomum ambiguum</i>		N	Sc	analyt	am	7.4 ± 0.2	2.8	48 h	LC50	mortality	40100	24	Natęcz-Jawecki & Sawicki, 1999
Algae													
<i>Chlorella vulgaris</i>		N	S	-	am	-	-	24 h	EC50	cell number	33000	142	Kauss & Hutchinson, 1975
<i>Chlorella vulgaris</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	19000	106	Hutchinson et al., 1980
<i>Chlamydomonas angulosa</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	9600	106	Hutchinson et al., 1980
<i>Nitzschia palea</i>		Y	S	-	am	7.6	-	4 h	EC50	assimilation 14C	2820		Milleman et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	-	-	-	-	-	14 d	EC50	standing crop	25000		Gaur 1988
<i>Pseudokirchneriella subcapitata</i>		Y	S	-	am	7.6	-	4 h	EC50	assimilation 14C	2960		Milleman et al., 1984
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC50	growth, area under the ci	68210	203	Djomo et al., 2004
Mollusca													
<i>Physa gyrina</i>	7.5 mm, 0.057 g	Y	Sc	-	nw	7.8	140	48 h	LC50	mortality	5020		Milleman et al., 1984
Crustacea													
<i>Daphnia magna</i>		Y	S	-	tw	8.0-8.6	-	48 h	LC50	mortality	4100	24	Crider et al., 1982
<i>Daphnia magna</i>	1.5 mm, 4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	17000		Bobra et al., 1983
<i>Daphnia magna</i>	< 24 h	N	Sc	≥97%	rw	-	-	48 h	EC50	immobility	2194	34	Munoz & Tarazona, 1993
<i>Daphnia magna</i>	adult, mixed age	N	S	-	nw	7.6±0.2	134±16	48 h	LC50	mortality	22600		Eastmond et al., 1984
<i>Daphnia magna</i>	24 h	Y	Sc	-	nw	7.8	140	48 h	EC50	immobility	2160	25	Milleman et al., 1984
<i>Daphnia magna</i>	4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	4700	24	Abernethy et al., 1986
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	1664	24	Bisson et al., 2000
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	>1024	105	Wernersson 2003
<i>Daphnia magna</i>	< 24 h	N	Sc	-	rw	7.4-9.4	173	48 h	LC50	mortality	8600		LeBlanc 1980
<i>Daphnia magna</i>	< 24 h	N	Sc	-	rw	7.4-9.4	173	48 h	NOEC	mortality	600		LeBlanc 1980
<i>Daphnia magna</i>	-	-	-	-	-	-	-	48 h	LC50	mortality	24100		Parkhurst et al., 1981
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC50	immobility	4663		Smith et al., 1988
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC10	immobility	1900		Smith et al., 1988
<i>Daphnia pulex</i>	1.9-2.1 mm	N	Sc	-	nw	7.5	-	96 h	LC50	mortality	1000	36	Trucco et al., 1983
<i>Daphnia pulex</i>	neonates	Y	S	-	tw	7.2 (6.8-7.4)	43 (43-48)	48 h	LC50	mortality	3400		Geiger & Buikema, 1981, 1982
<i>Gammarus minus</i>	adult	Y	Sc	-	nw	-	-	48 h	LC50	mortality	3930		Milleman et al., 1984
Insecta													
<i>Chironomus attenuatus</i>	4th instar	N	S	-	tw	7.9-8.3	-	24 h	LC50	mortality	13000	80	Darville & Wilhm, 1984
<i>Chironomus tentans</i>	4th instar	Y	Sc	-	nw	7.8	140	48 h	EC50	immobility	2810	24	Milleman et al., 1984
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	>99%	DSW	-	-	96 h	LC50	mortality	600	82	Bleeker et al., 2003
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	>99%	DSW	-	-	96 h	LC50	mortality	650	83	Bleeker et al., 2003
<i>Somatochlora cingulata</i>		N	-	-	nw	-	-	96 h	LC50	mortality	1000-2500		Correa & Coler, 1983
<i>Tanytarsus dissimilis</i>	4th instar	N	S	-	tw	7.9-8.3	-	48 h	LC50	mortality	16000	80	Darville & Wilhm, 1984
Pisces													
<i>Abramis brama</i>		N	S	technical	nw	7.8-8.1	-	24 h	LC50	mortality	10000		Frumin et al., 1992
<i>Oncorhynchus kisutch</i>	fry, 1 g	Y	CF	-	nw	-	-	96 h	LC50	mortality	2100		Moles et al., 1981
<i>Oncorhynchus kisutch</i>	fry, 0.3 g	Y	CF	-	nw	-	-	96 h	LC50	mortality	3220		Moles, 1980
<i>Oncorhynchus mykiss</i>	fry (Arlee), 13-21 d	N	S	≥95%	nw	-	160-190	96 h	LC50	mortality	1800		Edsall, 1991
<i>Oncorhynchus mykiss</i>	fry (Erwin), 13-21 d	N	S	≥95%	nw	-	160-190	96 h	LC50	mortality	6100		Edsall, 1991
<i>Oncorhynchus mykiss</i>	fry (Redband), 13-21 d	N	S	≥95%	nw	-	160-190	96 h	LC50	mortality	2600		Edsall, 1991
<i>Oncorhynchus mykiss</i>	fry (Shasta), 13-21 d	N	S	≥95%	nw	-	160-190	96 h	LC50	mortality	4400		Edsall, 1991
<i>Oncorhynchus mykiss</i>	fry (Whyteville), 13-21 d	N	S	≥95%	nw	-	160-190	96 h	LC50	mortality	5500		Edsall, 1991
<i>Oreochromis mossambicus</i>		N	R	-	-	-	-	96 h	LC50	mortality	7900		Dangé, 1986
<i>Oreochromis mossambicus</i>	4-5 mo	N	S	technical	nw	7.8-8.1	-	24 h	LC50	mortality	22000		Frumin et al., 1992
<i>Pimephales promelas</i>	34 d	Y	CF	98%	-	7.4	44	96 h	LC50	mortality	6140		Broderius et al., 1995; Geiger et al., 1985
<i>Pimephales promelas</i>	31-35 d	Y	CF	98%	nw	6.9-7.7	44.9	96 h	LC50	mortality	6080	6072.46	Holcombe et al., 1984
<i>Pimephales promelas</i>	1-2 mo, 0.27 g, 28 mm	Y	Sc	-	nw	7.8	140	96 h	LC50	mortality	1990		Milleman et al., 1984

<i>Pimephales promelas</i>	0.9 g, 46 mm	Y	CF	-	nw	7.9-8.0	535-596	96 h	LC50	mortality	7900		DeGraeve et al., 1982
Amphibia													
<i>Xenopus laevis</i>	larvae, 3 w	Y	CF	reagent g.	tw	7.0-7.1	-	96 h	LC50	mortality	2100	25	Edmisten & Bantle, 1982
<i>Xenopus laevis</i>	larvae, 3 w	Y	CF	reagent g.	tw	7.0-7.1	-	96 h	LC10	mortality	1300	25, 102	Edmisten & Bantle, 1982

Chronic toxicity of naphthalene to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Protozoa													
<i>Colpidium colpoda</i>		Y	S	≥98%	am	-	-	18 h	NOEC	mortality	≥29000		Rogerson et al., 1983
<i>Tetrahymena elliotii</i>		Y	Sc	≥98%	am	-	-	24 h	NOEC	mortality	≥29000		Rogerson et al., 1983
Algae													
<i>Chlorella vulgaris</i>		N	S	-	am	-	-	24 h	EC10	cell number	3900	142, 102	Kauss & Hutchinson, 1975
<i>Pseudokirchneriella subcapitata</i>		Y	S	-	am	-	215	72 h	EC10	growth	>4270	167	Bisson et al., 2000
<i>Pseudokirchneriella subcapitata</i>		N	-	-	-	-	-	14 d	EC10	standing crop	13000		Gaur 1988
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC10	growth, area under the curve	7270	203	Djomo et al., 2004
Macrophyta													
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	32000	10, 102	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	1600	102, 108, 109	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	280	102, 108, 109	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	1000	10, 102, 108	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC1-3	growth	2000	110	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC0-13	chlorophyll content	2000	110	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC2-21	growth	2000	111	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC2-42	chlorophyll content	2000	111	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC4-7	growth	2000	112	Ren et al., 1994
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC3-13	chlorophyll content	2000	112	Ren et al., 1994
Cyanophyta													
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	-	2 w	NOEC	growth	≥25000	143	Bastian & Toetz, 1982
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	514	168	Bisson et al., 2000
<i>Daphnia pulex</i>	< 24 h	Y	R	-	tw	6.9-7.5	41-50	lifetime	NOEC	reproduction, growth	≥600	19, 20, 21	Geiger & Buikema, 1982
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	10 d	LC50	mortality	2720		Lee et al., 2001
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	14 d	LC50	mortality	2130		Lee et al., 2001
Insecta													
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	5 d	EC50	immobility	1587	202	Landrum et al., 2003
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	10 d	EC50	immobility	1141	202	Landrum et al., 2003
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	10 d	LC50	mortality	1757	202	Landrum et al., 2003
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	28 d	LC50	mortality	1266	202	Landrum et al., 2003
<i>Tanytarsus dissimilis</i>	4th instar	Y	CF	-	tw	7.7-8.0	132-190	life-cycle, plm 30 d	NOEC	egg hatching adult emerg	<500	80	Darville & Wilhm, 1984
Pisces													
<i>Micropterus salmoides</i>	eggs 2-4 d post spawning	Y	CF	-	am	7.41-8.1	86.8-116.3	7 d incl. 4 post-hatch	LC50	mortality	680		Milleman et al., 1984
<i>Micropterus salmoides</i>	eggs 2-4 d post spawning	Y	CF	-	am	7.4-8.1	86.8-116.3	7 d incl. 4 post-hatch	LC50	mortality	510		Black et al., 1983
<i>Micropterus salmoides</i>	eggs 2-4 d post spawning	Y	CF	-	am	7.4-8.1	86.8-116.3	7 d incl. 4 post-hatch	LC10	mortality	37	91	Black et al., 1983
<i>Oncorhynchus kisutch</i>	fry, 1 g	Y	CF	-	nw	-	-	40 d	NOEC	weight/length (increase)	370		Moles et al., 1981
<i>Oncorhynchus kisutch</i>	fry, 1 g	Y	CF	-	nw	-	-	40 d	EC50	weight (wet and dry; incr)	770	102	Moles et al., 1981
<i>Oncorhynchus kisutch</i>	fry, 1 g	Y	CF	-	nw	-	-	40 d	EC10	weight (wet and dry; incr)	520	102	Moles et al., 1981
<i>Oncorhynchus kisutch</i>	fry, 1 g	Y	CF	-	nw	-	-	40 d	EC50	length (increase)	840	102	Moles et al., 1981
<i>Oncorhynchus kisutch</i>	fry, 1 g	Y	CF	-	nw	-	-	40 d	EC10	length (increase)	460	102	Moles et al., 1981
<i>Oncorhynchus mykiss</i>	eggs 20 min post fertilizat	Y	CF	-	rw	7.41-8.10	86.8-116.3	27 d incl. 4 post-hatch	LC50	mortality	120		Milleman et al., 1984
<i>Oncorhynchus mykiss</i>	eggs 20 min post fertilizat	Y	CF	-	rw	7.4-8.1	86.8-116.3	27 d incl. 4 post-hatch	LC50	mortality	110		Black et al., 1983
<i>Oncorhynchus mykiss</i>	eggs 20 min post fertilizat	Y	CF	-	rw	7.4-8.1	86.8-116.3	27 d incl. 4 post-hatch	LC10	mortality	20	92	Black et al., 1983
<i>Oncorhynchus mykiss</i>	3.9 g, 93 mm	Y	CF	-	rw	7.9-8.0	535-596	30 d	LC50	mortality	1600		DeGraeve et al., 1982
<i>Pimephales promelas</i>	embryo/larvae	Y	CF	-	nw	7.9-8.0	535-596	30 d	NOEC	length, weight	450	8	DeGraeve et al., 1982
<i>Pimephales promelas</i>	embryo/larvae	Y	CF	-	nw	7.9-8.0	535-596	30 d	NOEC	hatchability	450	7, 8	DeGraeve et al., 1982

<i>Pimephales promelas</i>	embryo/larvae	Y	CF	-	nw	7.9-8.0	535-596	30 d	EC10	hatchability	2900	8, 102	DeGraeve et al., 1982
<i>Pimephales promelas</i>	embryo/larvae	Y	CF	-	nw	7.9-8.0	535-596	30 d	NOEC	mortality	1800	8	DeGraeve et al., 1982
<i>Sarotherodon mossambicus</i>	18 ± 3 g	N	R	-	tw	7.6 ± 0.3	235	12 w	NOEC	growth	2300	9	Dange & Masurekar, 1982

Acute toxicity of naphthalene to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	1970	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	2620	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	2360	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	3020	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	900		Johnson & Long, 1998
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	2360	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	2330	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	720	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	700	6	El-Alawi et al., 2001
Mollusca													
<i>Callinectes sapidus</i>	adult, 50-227 g	Y	CF	anal.	am	-	10	48 h	LC50	mortality	2900	51	Sabourin, 1982
<i>Callinectes sapidus</i>	adult, 50-227 g	Y	CF	anal.	am	-	20	48 h	LC50	mortality	2100	51	Sabourin, 1982
<i>Callinectes sapidus</i>	adult, 50-227 g	Y	CF	anal.	am	-	30	48 h	LC50	mortality	2000	51	Sabourin, 1982
<i>Mytilus edulis</i>		N	R	≥98%	nw	-	33	48 h	EC50	feeding filtration	922		Donkin et al., 1989, 1991
Annelida													
<i>Neanthes arenaceodentata</i>		Y	S	≥98%	am	-	32	96 h	LC50	mortality	3800	50, 52	Rossi & Neff, 1978
Crustacea													
<i>Artemia salina</i>	nauplii	Y	S	≥98%	am	8.5-8.7	32	24 h	EC50	immobility	3190	53	Foster & Tullis, 1984
<i>Artemia salina</i>	nauplii	N	Sc	≥97%	-	-	30	24 h	LC50	mortality	11000	24	Abernethy et al., 1986
<i>Cancer magister</i>	1st instar zoeae	Y	S	anal.	nw	-	30	96 h	LC50	mortality	>2000	49	Caldwell et al., 1977
<i>Cancer magister</i>	newly hatched zoeae	Y	F	-	nw	7.5	-	36 h	LC100	mortality	8-12		Sanborn & Malins, 1977
<i>Calanus finmarchicus</i>	adult	Y	Sc	>97%	nw	-	33	96 h	LC50	mortality	2400	54, 92	Falk-Petersen et al., 1982
<i>Calanus finmarchicus</i>	adult	Y	Sc	>97%	nw	-	33	96 h	LC10	mortality	2200	54, 92	Falk-Petersen et al., 1982
<i>Elasmopus pectenircus</i>	adult	N	Rc	-	nw	-	30	96 h	LC50	mortality	2680		Lee & Nicol, 1978b
<i>Eualis suckleyi</i>	1 g	Y	CF	-	nw	-	-	96 h	LC50	mortality	1390		Rice & Thomas, 1989
<i>Eurytemora affinis</i>	adult	Y	Sc	≥99%	nw	-	20	24 h	LC50	mortality	3800		Ott et al., 1978
<i>Hemigrapsus nudus</i>		N	CF	-	nw	-	28-29	8 d	LC50	mortality	1100	55	Gharrett & Rice, 1987
<i>Hemigrapsus nudus</i>		N	CF	-	nw	-	28-29	8 d	LC50	mortality	2100	128	Gharrett & Rice, 1987
<i>Hemigrapsus nudus</i>		N	CF	-	nw	-	28-29	8 d	LC50	mortality	2800	129	Gharrett & Rice, 1987
<i>Neomysis americana</i>		Y	CF	-	am	-	-	96 h	LC50	mortality	1280	56	Smith & Hargreaves, 1983
<i>Neomysis americana</i>		Y	CF	-	am	-	-	96 h	LC50	mortality	850	57	Smith & Hargreaves, 1983
<i>Neomysis americana</i>		Y	R	-	am	-	-	96 h	LC50	mortality	1420	56	Hargreaves et al., in press cited in Smith & Hargreaves, 1983
<i>Neomysis americana</i>		Y	R	-	am	-	-	96 h	LC50	mortality	800	57	Hargreaves et al., in press cited in Smith & Hargreaves, 1983
<i>Palaemonetes pugio</i>		Y	S	-	nw	-	20	24 h	LC50	mortality	2600		Anderson et al., 1974
<i>Palaemonetes pugio</i>		-	-	-	-	-	-	48 h	LC50	mortality	2350		Tatem & Anderson., 1973
<i>Palaemonetes pugio</i>	adult	N	S	high purity	am	8.1±0.1	20	96 h	LC50	mortality	2350		Tatem et al., 1978
<i>Pandalus goniurus</i>	0.8 g, 6 cm	Y	S	-	nw	-	26-28	96 h	LC50	mortality	2160	147	Korn et al, 1979
<i>Pandalus goniurus</i>	0.8 g, 6 cm	Y	S	-	nw	-	26-28	96 h	LC50	mortality	1020	148	Korn et al, 1979
<i>Pandalus goniurus</i>	0.8 g, 6 cm	Y	S	-	nw	-	26-28	96 h	LC50	mortality	971	149	Korn et al, 1979
<i>Pandalus platyceros</i>	larvae stage I and IV	Y	F	-	nw	7.5	-	36 h	LC100	mortality	8-12		Sanborn & Malins, 1977
<i>Parhyale hawaiensis</i>	adult	N	S	-	nw	-	30	24 h	LC50	mortality	15000	92	Lee & Nicol, 1978a
<i>Parhyale hawaiensis</i>	adult	N	S	-	nw	-	30	24 h	LC10	mortality	12000	92	Lee & Nicol, 1978a
<i>Parhyale hawaiensis</i>	adult	N	Sc	-	nw	-	30	24 h	LC50	mortality	6000	92	Lee & Nicol, 1978a
<i>Parhyale hawaiensis</i>	adult	N	Sc	-	nw	-	30	24 h	LC10	mortality	3700	92	Lee & Nicol, 1978a
<i>Penaeus aztecus</i>		Y	S	-	nw	-	20	24 h	LC50	mortality	2500		Anderson et al., 1974
<i>Penaeus aztecus</i>	juvenile, 0.3 g	N	S	high purity	am	8.1±0.1	20	96 h	LC50	mortality	2500		Tatem et al., 1978
Echinodermata													

<i>Strongylocentrotus droebachiensis</i>	eggs, ELS	Y	S	>97%	nw	-	33	96 h	LC50	mortality	1000	54, 92, 127	Falk-Petersen et al., 1982
<i>Strongylocentrotus droebachiensis</i>	eggs, ELS	Y	S	>97%	nw	-	33	96 h	LC10	mortality	940	54, 92, 127	Falk-Petersen et al., 1982
<i>Strongylocentrotus droebachiensis</i>	eggs, ELS	Y	S	>97%	nw	-	33	96 h	LC50	mortality	580	92, 153	Saethre et al., 1984
<i>Strongylocentrotus droebachiensis</i>	eggs, ELS	Y	S	>97%	nw	-	33	96 h	LC10	mortality	570	92, 153	Saethre et al., 1984
Pisces													
<i>Cyprinodon variegatus</i>		Y	S	-	nw	-	20	24 h	LC50	mortality	2400		Anderson et al., 1974
<i>Fundulus heteroclitus</i>	8.2 cm	Y	R	-	nw	7.6	15	96 h	LC50	mortality	5300	58	DiMichele & Taylor, 1978
<i>Gadus morhua</i>	eggs, ELS	Y	S	>97%	nw	-	33	96 h	LC50	mortality	1200	54, 92, 127	Falk-Petersen et al., 1982
<i>Gadus morhua</i>	eggs, ELS	Y	S	>97%	nw	-	33	96 h	LC10	mortality	1000	54, 92, 127	Falk-Petersen et al., 1982
<i>Gadus morhua</i>	eggs, ELS	Y	S	>97%	nw	-	33	96 h	LC10	mortality	>700	92, 153	Saethre et al., 1984
<i>Metapenaeus monocerius</i>	juvenile	N	R	-	nw	7.5	17.5	96 h	LC50	mortality	5087	59	Deshmukh et al., 1985
<i>Oncorhynchus gorbuscha</i>	325 mg, 32 mm	Y	CF	-	nw	-	28	96 h	LC50	mortality	1200		Moles & Rice, 1983
<i>Oncorhynchus gorbuscha</i>	fry, 0.35 g, 3.5 cm	Y	S	-	nw	-	26-28	96 h	LC50	mortality	1370	147	Korn et al, 1979
<i>Oncorhynchus gorbuscha</i>	fry, 0.35 g, 3.5 cm	Y	S	-	nw	-	26-28	96 h	LC50	mortality	1840	148	Korn et al, 1979
<i>Oncorhynchus gorbuscha</i>	fry, 0.35 g, 3.5 cm	Y	S	-	nw	-	26-28	96 h	LC50	mortality	1240	149	Korn et al, 1979
<i>Oncorhynchus gorbuscha</i>	fry	Y	CF	-	nw	-	-	48 h	LC50	mortality	961		Rice & Thomas, 1989
<i>Oncorhynchus gorbuscha</i>	fry, 4.5-5.5 cm	Y	S	-	nw	-	27	24 h	LC50	mortality	920		Thomas & Rice, 1979

Chronic toxicity of naphthalene (CASnr. 91-20-3) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	99850	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	98950	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	99790	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	99900	6	El-Alawi et al., 2001
Algae													
<i>Champia parvula</i>	female	N	R	-	am	-	30	14 d	NOEC	growth, reproduction (nu)	1300	62	Thursby et al., 1985
<i>Champia parvula</i>	female	N	R	-	am	-	30	14 d	EC50	growth	2200	62, 102	Thursby et al., 1985
<i>Champia parvula</i>	female	N	R	-	am	-	30	14 d	EC10	growth	850	62, 102	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	14 d	NOEC	growth	1300	62	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	14 d	NOEC	growth	<695	62	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	11 d	NOEC	reproduction (number of	695	62	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	14 d	EC50	growth	1900	62, 102	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	14 d	EC10	growth	1400	62, 102	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	14 d	EC50	growth	1000	62, 102	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	14 d	EC10	growth	470	62, 102	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	11 d	EC50	reproduction (number of	1300	62, 102	Thursby et al., 1985
<i>Champia parvula</i>	tetrasporophyte	N	R	-	am	-	30	11 d	EC10	reproduction (number of	900	62, 102	Thursby et al., 1985
Crustacea													
<i>Cancer magister</i>	zoaeae, Alaska	Y	CF	anal.	nw	-	29-34	40 d	NOEC	larval developm.	21	49	Caldwell et al., 1977
<i>Cancer magister</i>	zoaeae, Oregon	Y	CF	anal.	nw	-	29-34	60 d	NOEC	larval developm.	≥170	49	Caldwell et al., 1977
<i>Cancer magister</i>	zoaeae, Alaska	Y	CF	anal.	nw	-	29-34	40 d	NOEC	mortality, growth	>130	49	Caldwell et al., 1977
<i>Cancer magister</i>	zoaeae, Oregon	Y	CF	anal.	nw	-	29-34	60 d	NOEC	mortality, growth	>170	49	Caldwell et al., 1977
<i>Eurytemora affinis</i>	adult	Y	Rc	≥99%	nw	-	20	lifetime, 15 d	NOEC	lifetime, number of eggs, <14	136	136	Ott et al., 1978
<i>Rhithropanopeus harrissi</i>	zoaeae	N	R	-	am	-	5, 15, 25	zoeal development until r	NOEC	mortality	≥500	25	Laughlin & Neff, 1979
Pisces													
<i>Oncorhynchus gorbuscha</i>	325 mg, 32 mm	Y	CF	-	nw	-	28	5 w	NOEC	wet weight (increase)	120		Moles & Rice, 1983
<i>Oncorhynchus gorbuscha</i>	325 mg, 32 mm	Y	CF	-	nw	-	28	5 w	EC50	wet weight (increase)	700	92	Moles & Rice, 1983
<i>Oncorhynchus gorbuscha</i>	325 mg, 32 mm	Y	CF	-	nw	-	28	5 w	EC10	wet weight (increase)	260	92	Moles & Rice, 1983
<i>Oncorhynchus gorbuscha</i>	325 mg, 32 mm	Y	CF	-	nw	-	28	5 w	NOEC	length (increase)	560		Moles & Rice, 1983
<i>Oncorhynchus gorbuscha</i>	325 mg, 32 mm	Y	CF	-	nw	-	28	5 w	EC50	length (increase)	950	92	Moles & Rice, 1983
<i>Oncorhynchus gorbuscha</i>	325 mg, 32 mm	Y	CF	-	nw	-	28	5 w	EC10	length (increase)	390	92	Moles & Rice, 1983

Acute toxicity of acenaphthylene (CASnr: 208-96-8) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	1800	24	Bisson et al., 2000
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	>1024	105	Wernersson 2003
Pisces													
<i>Oryzias latipes</i>	-	-	-	-	-	-	-	48 h	LC50	mortality	11000		Yoshioka et al., 1986
<i>Oryzias latipes</i>	-	-	R	-	dtw	7.2	40	96 h	LC50	mortality	6400	207	Yoshioka & Ose, 1993
Protozoa													
<i>Tetrahymena pyriformis</i>	-	-	-	-	-	-	-	24 h	EC50	growth	6300		Yoshioka et al., 1986

Acute toxicity of acenaphthylene (CASnr: 208-96-8) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		15 min	EC50	bioluminescence	800	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		15 min	EC50	bioluminescence	770	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		15 min	EC50	bioluminescence	330	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		15 min	EC50	bioluminescence	340	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	340		Johnson & Long, 1998

Chronic toxicity of acenaphthylene (CASnr: 208-96-8) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	82	167	Bisson et al., 2000
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	64	168	Bisson et al., 2000

Chronic toxicity of acenaphthylene (CASnr: 208-96-8) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	bioluminescence	6570	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	bioluminescence	1470	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	bioluminescence	3620	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	bioluminescence	530	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	growth	6050	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	growth	1390	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	growth	3540	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2±0.1		18 h	EC50	growth	520	6	El-Alawi et al., 2001

Acute toxicity of acenaphthene (CASnr: 83-32-9) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Mollusca													
<i>Aplexa hypnorum</i>	adult	Y	CF	99%	nw	7.5-7.6	43.3	96 h	LC50	mortality	>2040		Holcombe et al., 1983
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	958	24	Bisson et al., 2000

<i>Daphnia magna</i>	< 24 h	N	Sc	-	rw	7.4-9.4	173	48 h	LC50	mortality	41000		LeBlanc 1980
<i>Daphnia magna</i>	< 24 h	N	Sc	-	rw	7.4-9.4	173	48 h	NOEC	mortality	600		LeBlanc 1980
<i>Daphnia magna</i>	< 24 h	N	Sc	≥97%	rw	-	-	48 h	EC50	immobility	1275	34	Munoz & Tarazona, 1993
<i>Daphnia magna</i>	12±12 h 1st instar	N	S	-	nw	7.7 (7.0-8.154.5 (89.5-180)	48 h		EC50	immobility	3450		Randall & Knopp, 1980
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	>1024	105	Wernersson 2003
Pisces													
<i>Oryzias latipes</i>	-	-	R	-	dtw	7.2	40	48 h	LC50	mortality	23000	207	Yoshioka & Ose (1993)
<i>Pimephales promelas</i>	2 w	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	LC50	mortality	608	196	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	0.16 g	Y	CF	99%	nw	7.5-7.6	43.3	96 h	LC50	mortality	1600		Holcombe et al., 1983
<i>Ictalurus punctatus</i>	5.0 g	Y	CF	99%	nw	7.5-7.6	43.3	96 h	LC50	mortality	1720		Holcombe et al., 1983
<i>Oncorhynchus mykiss</i>	1.3 g	Y	CF	99%	nw	7.2-7.4	45.8	96 h	LC50	mortality	670		Holcombe et al., 1983
<i>Salmo trutta</i>	0.16 g	Y	CF	99%	nw	7.2-7.4	45.8	96 h	LC50	mortality	580		Holcombe et al., 1983
<i>Lepomis macrochirus</i>	0.32-1.2 g	N	Sc	>80%	rw	6.5-7.9	32-48	96 h	LC50	mortality	1700	141	Buccafusco et al., 1981

Chronic toxicity of acenaphthene (CASnr: 83-32-9) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Cyanophyta													
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	-	2 w	NOEC	growth	≥4500	143	Bastian & Toetz, 1982
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	38	167	Bisson et al., 2000
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	42	168	Bisson et al., 2000
Pisces													
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	NOEC	fork length, wet weight	332	196	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC50	fork length	2400	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC10	fork length	220	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC50	wet weight	510	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC10	wet weight	190	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	NOEC	fork length, wet weight	345	196	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC50	fork length	1400	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC10	fork length	590	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC50	wet weight	760	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	EC10	wet weight	440	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	NOEC	mortality	509	196	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	LC50	mortality	690	196, 92	Cairns & Nebeker, 1982
<i>Pimephales promelas</i>	ELS, embryos ≤48 h	Y	CF	-	nw	7.4 (7.1-7.135 (24-70)		96 h	LC10	mortality	590	196, 92	Cairns & Nebeker, 1982

Acute toxicity of acenaphthene (CASnr: 83-32-9) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	2410	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	2520	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	810	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	830	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	750		Johnson & Long, 1998
Mollusca													
<i>Mytilus edulis</i>		N	R	≥98%	nw	-	33	48 h	EC50	feeding filtration	382		Donkin et al., 1989, 1991
Pisces													
<i>Cyprinodon variegatus</i>	8-15 mm, 14-28 d	N	S	>80%	nw	-	10-31	96 h	EC50	mortality	2200		Heitmuller et al., 1981
<i>Cyprinodon variegatus</i>	8-15 mm, 14-28 d	N	S	>80%	nw	-	10-31	96 h	NOEC	mortality	1000		Heitmuller et al., 1981
<i>Cyprinodon variegatus</i>	adult	Y	IF	-	nw	-	25	96 h	LC50	mortality	3100	175	Ward et al., 1981

Chronic toxicity of acenaphthene (CASnr: 83-32-9) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [‰]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	5210	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	8845	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	2540	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	4680	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	86750	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	2390	6	El-Alawi et al., 2001
Pisces													
<i>Cyprinodon variegatus</i>	ELS embryo	Y	IF	-	nw	7.9-8.3	25±3	4 h after fertilization - hatc	NOEC	hatching	970	175	Ward et al., 1981
<i>Cyprinodon variegatus</i>	ELS embryo	Y	IF	-	nw	7.9-8.3	25±3	4 h after fertilization - hatc	EC50	hatching	1300	92, 175	Ward et al., 1981
<i>Cyprinodon variegatus</i>	ELS embryo	Y	IF	-	nw	7.9-8.3	25±3	4 h after fertilization - hatc	EC10	hatching	760	92, 175	Ward et al., 1981
<i>Cyprinodon variegatus</i>	ELS embryo	Y	IF	-	nw	7.9-8.3	25±3	28 d after hatching	NOEC	mortality	520	175	Ward et al., 1981
<i>Cyprinodon variegatus</i>	ELS embryo	Y	IF	-	nw	7.9-8.3	25±3	28 d after hatching	EC50	mortality	860	92, 175	Ward et al., 1981
<i>Cyprinodon variegatus</i>	ELS embryo	Y	IF	-	nw	7.9-8.3	25±3	28 d after hatching	EC10	mortality	610	92, 175	Ward et al., 1981

Acute toxicity of anthracene (CASnr: 120-12-7) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	hardness mg CaCO3/l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Chlorella vulgaris</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	530	106	Hutchinson et al., 1980
<i>Chlamydomonas angulosa</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	240	106	Hutchinson et al., 1980
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC50	growth	>40000	47	Cody et al., 1984
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC50	growth rate	3.9	11, 12	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC50	growth rate	6.6	11, 122	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC50	growth rate	5.3	11, 123	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC50	growth rate	12.1	11, 124	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC50	growth rate	37.4	11, 125	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC50	primary production	3.3	11, 12	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC50	primary production	5.9	11, 122	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC50	primary production	4.9	11, 123	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC50	primary production	8.1	11, 124	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC50	primary production	24	11, 125	Gala & Giesy, 1992
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC50	growth, area under the curve	1040	203	Djomo et al., 2004
Macrophyta													
<i>Lemna gibba</i>	-	Y	S	-	am	-	-	4 h	EC50	Chl a fluorescence	6600	92, 96	Huang et al., 1997b
<i>Lemna gibba</i>	-	Y	S	-	am	-	-	4 h	EC10	Chl a fluorescence	590	92, 96	Huang et al., 1997b
<i>Lemna gibba</i>	-	Y	S	-	am	-	-	4 h	EC50	Chl a fluorescence	6300	92, 96, 120	Huang et al., 1997b
<i>Lemna gibba</i>	-	Y	S	-	am	-	-	4 h	EC10	Chl a fluorescence	110	92, 96, 120	Huang et al., 1997b
<i>Lemna gibba</i>	-	Y	S	high	am	-	-	6 h	EC50	Chl a fluorescence	1800	88	Mallakin et al., 2002
<i>Lemna gibba</i>	-	Y	S	high	am	-	-	6 h	EC50	Chl a fluorescence	1000	88, 186	Mallakin et al., 2002
<i>Lemna gibba</i>	-	Y	S	high	am	-	-	6 h	EC50	electron transport	90	88	Mallakin et al., 2002
<i>Lemna gibba</i>	-	Y	S	high	am	-	-	6 h	EC50	electron transport	50	88, 186	Mallakin et al., 2002
<i>Lemna gibba</i>	-	Y	S	high	am	-	-	6 h	EC50	t1/2 photosynthetic activity	1200	88	Mallakin et al., 2002
Mollusca													
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	24 h	LC50	mortality	>16.6	67	Weinstein & Polk, 2001
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	8 h	LC50	mortality	2.84	68	Weinstein & Polk, 2001
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	16 h	LC50	mortality	2.01	68	Weinstein & Polk, 2001
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	24 h	LC50	mortality	1.93	68	Weinstein & Polk, 2001
Crustacea													
<i>Daphnia magna</i>	mature	N	S	anal.	tw	-	-	2 h	LC50	mortality	20	40	Kagan et al., 1985, 1987

<i>Daphnia magna</i>	4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	36	24	Abernethy et al., 1986
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>25	24	Bisson et al., 2000
<i>Daphnia magna</i>	< 24 h	N	Sc	≥97%	rw	-	-	48 h	EC50	immobility	95	34	Munoz & Tarazona, 1993
<i>Daphnia magna</i>	1.5 mm, 4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	3000		Bobra et al., 1983
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	5.66	105	Wernersson 2003
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC50	immobility	754		Smith et al., 1988
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC10	immobility	80		Smith et al., 1988
<i>Daphnia pulex</i>	adult	Y	S	99.9	nw	7.2	350	24 h+0.5 h	EC50	immobility	1	102, 154	Allred & Giesy, 1985
<i>Daphnia pulex</i>	adult	Y	S	99.9	nw	7.2	350	24 h+1 h	EC50	immobility	5.1	102, 155	Allred & Giesy, 1985
<i>Daphnia pulex</i>	adult	Y	S	99.9	nw	7.2	350	24 h+1 h	EC50	immobility	20	102, 156	Allred & Giesy, 1985
<i>Daphnia pulex</i>	adult	Y	S	99.9	nw	7.2	350	24 h+0.75 h	EC50	immobility	13	102, 157	Allred & Giesy, 1985
<i>Daphnia pulex</i>	adult	Y	S	99.9	nw	7.2	350	24 h+0.75 h	EC50	immobility	11	102, 158	Allred & Giesy, 1985
<i>Daphnia pulex</i>	adult	Y	S	99.9	nw	7.2	350	24 h+0.75 h	EC50	immobility	20	102, 159	Allred & Giesy, 1985
Insecta													
<i>Aedes aegypti</i>	3d instar	Y	R	-	am	-	-	48 h	LC50	mortality	26.8	33	Oris et al., 1984
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	-	-	-	<24 h	LC50	mortality	150	41	Kagan et al., 1985, 1987
<i>Aedes aegypti</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	<1	144	Borovsky et al., 1987
<i>Aedes taeniorhynchus</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	260	144	Borovsky et al., 1987
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	>99%	DSW	-	-	96 h	LC50	mortality	2.5	82	Bleeker et al., 2003
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	>99%	DSW	-	-	96 h	LC50	mortality	110	83	Bleeker et al., 2003
<i>Culex quinquefasciatus</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	37	144	Borovsky et al., 1987
Pisces													
<i>Lepomis macrochirus</i>	juv. 0.78±0.05 g, 3.11±0.0Y		CF	tech.	tw	7.7	326	5 d	LC50	mortality	1.27	26	McCloskey & Oris, 1991
<i>Lepomis macrochirus</i>	juv. 0.78±0.05 g, 3.11±0.0Y		CF	tech.	tw	7.7	326	5 d	LC50	mortality	7.97	27	McCloskey & Oris, 1991
<i>Lepomis macrochirus</i>	juv. 0.78±0.05 g, 3.11±0.0Y		CF	tech.	tw	7.7	326	5 d	LC50	mortality	3.74	28	McCloskey & Oris, 1991
<i>Lepomis macrochirus</i>	juv. 0.78±0.05 g, 3.11±0.0Y		CF	tech.	tw	7.7	326	5 d	LC50	mortality	8.27	29	McCloskey & Oris, 1991
<i>Lepomis macrochirus</i>	juv. 0.78±0.05 g, 3.11±0.0Y		CF	tech.	tw	7.7	326	5 d	LC50	mortality	7.47	139	McCloskey & Oris, 1991
<i>Lepomis macrochirus</i>	juv. 0.78±0.05 g, 3.11±0.0Y		CF	tech.	tw	7.7	326	5 d	LC50	mortality	6.78	140	McCloskey & Oris, 1991
<i>Lepomis macrochirus</i>	juvenile 0.5-1 g, 2-3 cm	Y	CF	tech.	tw	8.20±0.27	328	6 d	LC50	mortality	2.78	30	Oris & Giesy, 1985; Oris et al., 1984
<i>Lepomis spec. (macrochirus)</i>	juvenile 0.5-1 g, 2-3 cm	Y	CF	tech.	tw	8.20±0.27	328	6 d	LC50	mortality	11.92	31	Oris & Giesy, 1985; Oris et al., 1984
<i>Lepomis spec. (macrochirus)</i>	juvenile 0.5-1 g, 2-3 cm	Y	CF	tech.	tw	8.20±0.27	328	6 d	LC50	mortality	18.23	32	Oris & Giesy, 1985; Oris et al., 1984
<i>Lepomis spec. (macrochirus)</i>	juvenile 0.5-1 g, 2-3 cm	Y	CF	tech.	tw	8.20±0.27	328	6 d	LC50	mortality	26.47	30	Oris & Giesy, 1985; Oris et al., 1984
<i>Pimephales promelas</i>	5 cm, 0.8 g	N	S	anal.	-	-	-	~ 24 h	LC50	mortality	360	85	Kagan et al., 1985
Amphibia													
<i>Pleurodeles waltl</i>	larvae (stage 53)	N	R	~95%	am	-	-	6 d	LC50	mortality	6.25<->12.5	151	Fernandez & L'Haridon, 1992
<i>Rana pipiens</i>	embryo (stage 25)	N	S	-	nw	-	-	0.5 h	LC50	mortality	65	84	Kagan et al., 1984
<i>Rana pipiens</i>	embryo (stage 25)	N	S	-	nw	-	-	5 h	LC50	mortality	25	84	Kagan et al., 1984
<i>Rana pipiens</i>	embryo (stage 24-28)	N	S	-	nw	-	-	24 h	LC50	mortality	110	86	Kagan et al., 1987

Chronic toxicity of anthracene (CASnr: 120-12-7) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	7.8	167	Bisson et al., 2000
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC10	growth	290	47, 102	Cody et al., 1984
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC10	growth rate	1.5	11, 12	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC10	growth rate	2.5	11, 122	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC10	growth rate	2.3	11, 123	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC10	growth rate	8.7	11, 124	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	EC10	growth rate	7.8	11, 125	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC10	primary production	1.7	11, 12	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC10	primary production	2.7	11, 122	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC10	primary production	2.2	11, 123	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC10	primary production	2.5	11, 124	Gala & Giesy, 1992

<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	EC10	primary production	3.9	11, 125	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	NOEC	growth rate	1.42	11, 12	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	NOEC	growth rate	2.35	11, 122	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	NOEC	growth rate	<5.03	11, 123	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	NOEC	growth rate	5.93	11, 124	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	34 h	NOEC	growth rate	6.2	11, 125	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	NOEC	primary production	1.36	11, 12	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	NOEC	primary production	2.26	11, 122	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	NOEC	primary production	<4.87	11, 123	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	NOEC	primary production	5.75	11, 124	Gala & Giesy, 1992
<i>Pseudokirchneriella subcapitata</i>		Y	R	99.90%	am	7.5	-	36 h	NOEC	primary production	2.81	11, 125	Gala & Giesy, 1992
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC10	growth, area under the ci	10	203	Djomo et al., 2004
Macrophyta													
<i>Brassica napus</i>	seeds	N	R	-	am	-	-	6 d	EC50	root growth	1400	102, 115	Ren et al., 1996
<i>Brassica napus</i>	seeds	N	R	-	am	-	-	6 d	EC50	root growth	140	102, 115	Ren et al., 1996
<i>Brassica napus</i>	seeds	N	R	-	am	-	-	6 d	EC50	root growth	420	102, 115, 116	Ren et al., 1996
<i>Brassica napus</i>	seeds	N	R	-	am	-	-	6 d	EC50	root growth	150	102, 115, 116	Ren et al., 1996
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	1300	10, 102	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	470	10, 102	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	790	102, 108, 109	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	370	102, 108, 109	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	480	10, 102, 108	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	110	10, 102, 108	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC49-100	growth	2000	110	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC57-100	chlorophyll content	2000	110	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC75-100	growth	2000	111	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC100	chlorophyll content	2000	111	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC6-30	growth	2000	112	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC43-61	chlorophyll content	2000	112	Huang et al., 1993
<i>Lemna gibba</i>		Y	S	-	am	-	-	8 d	EC100	growth	2000	117	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	1100	96	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	680	96, 102	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	470	96, 118	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	110	96, 102, 118	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	200	96, 119	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	67	96, 102, 119	Huang et al., 1995
<i>Lemna gibba</i>		Y	S	-	am	-	-	8 d	EC96	growth	2000	94	Huang et al., 1997
<i>Lemna gibba</i>		Y	S	-	am	-	-	8 d	EC100	growth	2000	94, 113	Huang et al., 1997
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	LOEC	growth inhibition	60	95	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	EC10	growth inhibition	45	95	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	EC50	growth inhibition	1300	95	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	LOEC	growth inhibition	10	96	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	EC10	growth inhibition	40	96	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	EC50	growth inhibition	800	96	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	LOEC	growth inhibition	10	97	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	EC10	growth inhibition	15	97	Mallakin et al., 1999
<i>Lemna gibba</i>	-	N	R	-	am	-	-	8 d	EC50	growth inhibition	300	97	Mallakin et al., 1999
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	>3.4	168	Bisson et al., 2000
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	NOEC	population growth	3.4	13, 121	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC10	population growth	7.1	13, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	NOEC	population growth	2.2	14	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC10	population growth	2.5	14, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	NOEC	population growth	2.2	15	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC10	population growth	4.7	15, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	NOEC	population growth	1.9	16	Foran et al., 1991

<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC10	population growth	3.2	16, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC50	population growth	10	16, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	NOEC	fecundity	4.5	14	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC10	fecundity	3.3	14, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	NOEC	fecundity	2.2	15	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC10	fecundity	2	15, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	NOEC	fecundity	1.9	16	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	anal.	am	8.1	230	21 d	EC10	fecundity	1.5	16, 92	Foran et al., 1991
<i>Daphnia magna</i>		Y	R	tech.	nw	8.1±0.2	230	21 d	NOEC	reproduction (total number)	<2.1	13, 17	Holst & Giesy, 1989
<i>Daphnia magna</i>		Y	R	tech.	nw	8.1±0.2	230	21 d	EC10	reproduction (total number)	5.2	13, 17, 92	Holst & Giesy, 1989
<i>Daphnia magna</i>		Y	R	tech.	nw	8.1±0.2	230	21 d	NOEC	reproduction (total number)	<1.9	16, 17, 18	Holst & Giesy, 1989
<i>Daphnia magna</i>		Y	R	tech.	nw	8.1±0.2	230	21 d	EC50	reproduction (total number)	4.4	16, 17, 18, 10	Holst & Giesy, 1989
<i>Daphnia magna</i>		Y	R	tech.	nw	8.1±0.2	230	21 d	EC10	reproduction (total number)	1.9	16, 17, 18, 10	Holst & Giesy, 1989
<i>Hyalella azteca</i>	7-14 d	Y	R	98%	nw	7.79-8.88	140-170	10 d	LC50	mortality	5.6	161	Hatch & Burton, 1999
Insecta													
<i>Chironomus tentans</i>	8-10 d	Y	R	98%	nw	7.79-8.88	140-170	10 d	LC50	mortality	5.6	161	Hatch & Burton, 1999
<i>Chironomus riparius</i>	<24 h	Y	S	>99%	DSW	8.4	200	28 d	LC50	mortality	1.8	90	Bleeker et al., 2003
<i>Chironomus riparius</i>	<24 h	Y	S	>99%	DSW	8.4	200	28 d	NOEC	emergence	<0.53	90	Bleeker et al., 2003
Pisces													
<i>Pimephales promelas</i>	eggs	Y	CF	anal.	-	8	184	6 w	NOEC	hatching	6.7	43, 130	Hall & Oris, 1991
<i>Pimephales promelas</i>	eggs	Y	CF	anal.	-	7.9	191	9 w	NOEC	survival	12	43, 131	Hall & Oris, 1991

Acute toxicity of anthracene (CASnr: 120-12-7) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	17920	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC10	bioluminescence	1400	5, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	16780	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC10	bioluminescence	1300	6, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	17070	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	16130	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	>1000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	>1000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	35	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	11	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	640		Johnson & Long, 1998
Crustacea													
<i>Artemia salina</i>	nauplii	N	Sc	≥97%	-	-	30	24 h	LC50	mortality	>50	24	Abernethy et al., 1986
<i>Artemia salina</i>	< 1 d	N	S	anal.	-	-	-	3 h	LC50	mortality	20	61	Kagan et al., 1985, 1987
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC50	immobility	34	174, 102	Peachey & Crosby, 1996
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC10	immobility	22	174, 102	Peachey & Crosby, 1996
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC50	immobility	5.2	173, 102	Peachey & Crosby, 1996
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC10	immobility	1.7	173, 102	Peachey & Crosby, 1996
<i>Mysidopsis bahia</i>	24-48 h	Y	S	-	nw	-	30	48 h	LC50	mortality	535	180	Pelletier et al., 1997
<i>Mysidopsis bahia</i>	24-48 h	Y	S	-	nw	-	30	48 h	LC50	mortality	3.6	181	Pelletier et al., 1997
Mollusca													
<i>Mulinia lateralis</i>	embryo/larval	Y	S	-	nw	-	30	48 h	L(E)C50	survival/developm.	4260	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	embryo/larval	Y	S	-	nw	-	30	48 h	L(E)C50	survival/developm.	6.47	181	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	LC50	mortality	>13300	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	LC50	mortality	68.9	181	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	EC50	growth	>13300	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	EC50	growth	> 82.8	181	Pelletier et al., 1997

Chronic toxicity of anthracene (CASnr: 120-12-7) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	85780	5, 24	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	bioluminescence	21000	5, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	130	6, 63	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	bioluminescence	22	6, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	84880	5, 24	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	growth	17000	5, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	120	6, 63	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	growth	23	6, 102	El-Alawi et al., 2001

Acute toxicity of phenanthrene (CASnr: 85-01-8) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Chlorella vulgaris</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	1200	106	Hutchinson et al., 1980
<i>Chlamydomonas angulosa</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	940	106	Hutchinson et al., 1980
<i>Nitzschia palea</i>		Y	S	-	am	7.6	-	4 h	EC50	assimilation 14C	870		Milleman et al., 1984
<i>Pseudokirchneriella subcapitata</i>		Y	S	-	am	7.6	-	4 h	EC50	assimilation 14C	940		Milleman et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	S	>96%	am	8.1-9.0	-	3 d	EC50	growth rate	2021	165	Halling-Sørensen et al., 1996
<i>Pseudokirchneriella subcapitata</i>		N	S	>96%	am	8.1-8.4	-	2 d	EC50	growth rate	2028	165	Halling-Sørensen et al., 1996
<i>Pseudokirchneriella subcapitata</i>		Y	S/Sc	>96%	am	8.4-9.0	-	2 d	EC50	growth rate	1228	165	Halling-Sørensen et al., 1996
<i>Pseudokirchneriella subcapitata</i>		Y	Sc	>96%	am	7.0-9.0	-	2 d	EC50	growth rate	663	165	Halling-Sørensen et al., 1996
<i>Pseudokirchneriella subcapitata</i>		Y	Sc	>96%	am	7.0-7.3	-	2 d	EC50	growth rate	180	165	Halling-Sørensen et al., 1996
<i>Pseudokirchneriella subcapitata</i>		Y	Sc	>96%	am	7.0-8.4	-	3 d	EC50	growth rate	324	165	Halling-Sørensen et al., 1996
<i>Pseudokirchneriella subcapitata</i>		Y	Sc	>96%	am	7.0-7.3	-	2 d	EC50	growth rate	302	165	Halling-Sørensen et al., 1996
<i>Pseudokirchneriella subcapitata</i>		Y	Sc	>96%	am	7.0-8.2	-	3 d	EC50	growth rate	333	165	Halling-Sørensen et al., 1996
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC50	growth, area under the ci 50240		203	Djomo et al., 2004
Crustacea													
<i>Daphnia magna</i>	mature	N	S	anal.	tw	-	-	2 h	LC50	mortality	450	40	Kagan et al., 1987
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	24 h	EC50	immobility	854	24	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48 h	EC50	immobility	731	24	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48+2 h	EC50	immobility	725	64	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	24 h	EC50	immobility	678	65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48 h	EC50	immobility	604	65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48+2	EC50	immobility	273	66	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	Y	S	-	am			24 h	EC50	immobility	269	90, 65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	Y	S	-	am			48 h	EC50	immobility	199	90, 65	Verrhiest et al., 2001
<i>Daphnia magna</i>	1.5 mm, 4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	1200		Bobra et al., 1983
<i>Daphnia magna</i>	< 24 h	N	Sc	≥97%	rw	-	-	48 h	EC50	immobility	383	34	Munoz & Tarazona, 1993
<i>Daphnia magna</i>	adult, mixed age	N	S	-	nw	7.6±0.2	134±16	48 h	LC50	mortality	843	35	Eastmond et al., 1984
<i>Daphnia magna</i>	24 h	Y	Sc	-	nw	7.8	140	48 h	EC50	immobility	700	25	Milleman et al., 1984
<i>Daphnia magna</i>	4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	210	24	Abernethy et al., 1986
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>400	24	Bisson et al., 2000
<i>Daphnia magna</i>	-	-	-	-	-	-	-	48 h	LC50	mortality	1000		Parkhurst et al., 1981
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	378	105	Wernersson 2003
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC50	immobility	350		Smith et al., 1988
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC10	immobility	140		Smith et al., 1988
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	hard	48 h	EC50	immobility	734		Passino & Smith, 1987
<i>Daphnia pulex</i>	1.9-2.1 mm	N	Sc	-	nw	7.5	-	96 h	LC50	mortality	100	36	Trucco et al., 1983
<i>Daphnia pulex</i>	neonates	Y	S	-	tw	7.2 (6.8-7.1; 43-48)	-	48 h	LC50	mortality	1140		Geiger & Buikema, 1981, 1982
<i>Gammarus minus</i>	adult	Y	Sc	-	nw	-	-	48 h	LC50	mortality	460		Milleman et al., 1984

<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	10 d	LC50	mortality	232		Lee et al., 2001
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	10 d	LC50	mortality	235		Lee et al., 2001
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	14 d	LC50	mortality	225		Lee et al., 2001
Insecta													
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	-	-	-	<24 h	LC50	mortality	500	41	Kagan et al., 1987
<i>Chironomus tentans</i>	4th instar	Y	Sc	-	nw	7.8	140	48 h	EC50	immobility	490	24	Milleman et al., 1984
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	99.5%	DSW	-	-	96 h	LC50	mortality	41	82	Bleeker et al., 2003
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	99.5%	DSW	-	-	96 h	LC50	mortality	160	83	Bleeker et al., 2003
Pisces													
<i>Oncorhynchus mykiss</i>	fry (Arlee), 13-21 d	N	S	≥95%	nw	-	160-190	96 h	LC50	mortality	3200		Edsall, 1991
<i>Pimephales promelas</i>	larvae	Y	R	high	tw	-	-	96 h	NOEC	mortality	≥10	48	Oris & Giesy, 1987

Chronic toxicity of phenanthrene (CASnr: 85-01-8) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Protozoa													
	<i>Colpidium colpoda</i>	Y	S	≥98%	am	-	-	18 h	NOEC	mortality	≥6600		Rogerson et al., 1983
	<i>Tetrahymena ellioti</i>	Y	Sc	≥98%	am	-	-	24 h	NOEC	mortality	≥6600		Rogerson et al., 1983
Cyanophyta													
	<i>Anabaena flos-aqua</i>	Y	S	anal.	am	-	-	2 w	NOEC	growth	320	143	Bastian & Toetz, 1982
	<i>Anabaena flos-aqua</i>	Y	S	anal.	am	-	-	2 w	EC10	growth	450	143, 92	Bastian & Toetz, 1982
Algae													
	<i>Pseudokirchneriella subcapitata</i>	Y	S	-	am	-	215	72 h	EC10	growth	26	167	Bisson et al., 2000
	<i>Pseudokirchneriella subcapitata</i>	N	S	>96%	am	8.1-9.0	-	3 d	EC10	growth rate	803	165	Halling-Sørensen et al., 1996
	<i>Pseudokirchneriella subcapitata</i>	N	S	>96%	am	8.1-8.4	-	2 d	EC10	growth rate	720	165	Halling-Sørensen et al., 1996
	<i>Pseudokirchneriella subcapitata</i>	Y	S/Sc	>96%	am	8.4-9.0	-	2 d	EC10	growth rate	110	165	Halling-Sørensen et al., 1996
	<i>Pseudokirchneriella subcapitata</i>	Y	Sc	>96%	am	7.0-9.0	-	2 d	EC10	growth rate	139	165	Halling-Sørensen et al., 1996
	<i>Pseudokirchneriella subcapitata</i>	Y	Sc	>96%	am	7.0-7.3	-	2 d	EC10	growth rate	10	165	Halling-Sørensen et al., 1996
	<i>Pseudokirchneriella subcapitata</i>	Y	Sc	>96%	am	7.0-8.4	-	3 d	EC10	growth rate	50	165	Halling-Sørensen et al., 1996
	<i>Pseudokirchneriella subcapitata</i>	Y	Sc	>96%	am	7.0-7.3	-	2 d	EC10	growth rate	24	165	Halling-Sørensen et al., 1996
	<i>Pseudokirchneriella subcapitata</i>	Y	Sc	>96%	am	7.0-8.2	-	3 d	EC10	growth rate	37	165	Halling-Sørensen et al., 1996
	<i>Scenedesmus subspicatus</i>	N	S	>98%	am	-	-	7 d	EC10	growth, area under the cl	4910	203	Djomo et al., 2004
Macrophyta													
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC50	growth	3200	10, 102	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC10	growth	590	10, 102	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC50	growth	1900	102, 108, 109	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC10	growth	880	102, 108, 109	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC50	growth	880	10, 102, 108	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC10	growth	240	10, 102, 108	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC32-59	growth	2000	110	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC29-32	chlorophyll content	2000	110	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC33-73	growth	2000	111	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC42-100	chlorophyll content	2000	111	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC16-22	growth	2000	112	Huang et al., 1993
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC18-25	chlorophyll content	2000	112	Huang et al., 1993
	<i>Lemna gibba</i>	Y	S	-	am	-	-	8 d	EC40	growth	2000	117	Huang et al., 1995
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC50	growth	3000	96	Huang et al., 1995
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC10	growth	530	96, 102	Huang et al., 1995
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC50	growth	2200	96, 118	Huang et al., 1995
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC10	growth	730	96, 102, 118	Huang et al., 1995
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC50	growth	710	96, 119	Huang et al., 1995
	<i>Lemna gibba</i>	Y	R	-	am	-	-	8 d	EC10	growth	270	96, 102, 119	Huang et al., 1995
	<i>Lemna gibba</i>	Y	S	-	am	-	-	8 d	EC16	growth	2000	94	Huang et al., 1997
	<i>Lemna gibba</i>	Y	S	-	am	-	-	8 d	EC28	growth	2000	94, 113	Huang et al., 1997
	<i>Lemna gibba</i>	Y	R	99%	am	-	-	8 d	EC50	growth	>5000	183	McConkey et al., 1997

<i>Lemna gibba</i>		Y	R	99%	am	-	-	8 d	EC50	growth	3480	184	McConkey et al., 1997
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	13	168	Bisson et al., 2000
<i>Daphnia magna</i>		Y	R	-	-	-	-	19-21 d	NOEC	reproduction	75	134	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	R	-	-	-	-	19 d	EC50	reproduction	42-75	134	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	R	-	-	-	-	21 d	EC50	reproduction	~130	134	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	R	-	-	-	-	19 d	NOEC	mortality	75	134	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	R	-	-	-	-	19 d	LC50	mortality	120	134	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	IF	-	-	-	-	21 d	NOEC	reproduction	21	133	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	IF	-	-	-	-	21 d	EC50	reproduction	50	133	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	IF	-	-	-	-	21 d	NOEC	mortality	66	133	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	IF	-	-	-	-	21 d	LC50	mortality	130	133	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia magna</i>		Y	IF	-	-	-	-	21 d	NOEC	length	38	133	Hoofman & Evers-de Rooter, 1992d
<i>Daphnia pulex</i>	< 24 h	Y	R	-	tw	6.9-7.5	41-50	lifetime	NOEC	reproduction, growth	110	19, 20, 21	Geiger & Buikema, 1982
<i>Daphnia pulex</i>	neonates	Y	R	≥97%	rw	-	160-200	16 d	NOEC	reproduction, growth	<60	152	Savino & Tanabe, 1989
<i>Daphnia pulex</i>	neonates	Y	R	≥97%	rw	-	160-200	16 d	EC10	reproduction, growth	31	152, 102	Savino & Tanabe, 1989
<i>Daphnia pulex</i>	neonates	Y	R	≥97%	rw	-	160-200	16 d	EC50	reproduction, growth	79	152, 102	Savino & Tanabe, 1989
<i>Daphnia pulex</i>	neonates	Y	R	≥97%	rw	-	160-200	16 d	EC10	growth	41	152, 102	Savino & Tanabe, 1989
<i>Daphnia pulex</i>	neonates	Y	R	≥97%	rw	-	160-200	16 d	EC50	growth	100	152, 102	Savino & Tanabe, 1989
Insecta													
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	2 d	EC50	immobility	295	202	Landrum et al., 2003
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	5 d	EC50	immobility	74.3	202	Landrum et al., 2003
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	10 d	EC50	immobility	38.2	202	Landrum et al., 2003
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	10 d	LC50	mortality	168.4	202	Landrum et al., 2003
<i>Diporeia</i> spp.	1-2 mm, 5-11 m, juvenile	Y	R	>98%	nw	8.1-8.3	165-250	28 d	LC50	mortality	95.2	202	Landrum et al., 2003
<i>Chironomus riparius</i>	<24 h	Y	S	>99%	DSW	8.4	200	28 d	LC50	mortality	55	90	Bleeker et al., 2003
<i>Chironomus riparius</i>	<24 h	Y	S	>99%	DSW	8.4	200	28 d	LOEC	emergence	43	90	Bleeker et al., 2003
Pisces													
<i>Brachydanio rerio</i>	ELS	Y	R	-	-	-	-	28 d	NOEC	length	14	132	Hoofman & Evers-de Rooter, 1992d
<i>Brachydanio rerio</i>	ELS	Y	R	-	-	-	-	28 d	NOEC	weight	24	132	Hoofman & Evers-de Rooter, 1992d
<i>Brachydanio rerio</i>	ELS	Y	R	-	-	-	-	28 d	NOEC	mortality/hatching	≥ 240	132	Hoofman & Evers-de Rooter, 1992d
<i>Micropterus salmoides</i>	eggs 2-4 d post spawning	Y	CF	-	am	7.4-8.1	86.8-116.3	7 d incl. 4 post-hatch	LC50	mortality	180		Black et al., 1983
<i>Micropterus salmoides</i>	eggs 2-4 d post spawning	Y	CF	-	am	7.4-8.1	86.8-116.3	7 d incl. 4 post-hatch	LC10	mortality	10	91	Black et al., 1983
<i>Micropterus salmoides</i>	eggs 2-4 d post spawning	Y	CF	-	rw	7.41-8.1	86.8-116.3	7 d incl. 4 post-hatch	LC50	mortality	250		Milleman et al., 1984
<i>Oncorhynchus mykiss</i>	eggs 20 min post fertilizat	Y	CF	-	rw	7.4-8.1	86.8-116.3	27 d incl. 4 post-hatch	LC50	mortality	40		Black et al., 1983
<i>Oncorhynchus mykiss</i>	eggs 20 min post fertilizat	Y	CF	-	rw	7.4-8.1	86.8-116.3	27 d incl. 4 post-hatch	LC10	mortality	28	92	Black et al., 1983
<i>Oncorhynchus mykiss</i>	eggs 20 min post fertilizat	Y	CF	-	rw	7.41-8.1	86.8-116.3	27 d incl. 4 post-hatch	LC50	mortality	30		Milleman et al., 1984
<i>Oncorhynchus mykiss</i>	ELS	N	S	98%	tw	8.25 0.25		22 d	NOEC	mortality/hatching/abnorr	<500		Hawkins et al., 2002
<i>Oncorhynchus mykiss</i>	fry, 4 d	N	CF	>98%	tw/nw	8.2	120	60 d	LC50	mortality	100-200	177	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, 4 d	N	CF	>98%	tw/nw	8.2	120	60 d	EC50	mortality	67	177, 102	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, 4 d	N	CF	>98%	tw/nw	8.2	120	60 d	EC10	mortality	46	177, 102	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, 4 d	N	CF	>98%	tw/nw	8.2	120	60 d	NOEC	length	<44	177	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, newly hatched to 7 d	N	CF	>98%	tw/nw	8.2	120	60 d	NOEC	length	38	177	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, newly hatched to 7 d	N	CF	>98%	tw/nw	8.2	120	60 d	EC50	length	71	177, 102	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, newly hatched to 7 d	N	CF	>98%	tw/nw	8.2	120	60 d	EC10	length	37	177, 102	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, 4 d	N	CF	>98%	tw/nw	8.2	120	60 d	NOEC	weight	44	177	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, newly hatched to 7 d	N	CF	>98%	tw/nw	8.2	120	60 d	NOEC	weight	38	177	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, newly hatched to 7 d	N	CF	>98%	tw/nw	8.2	120	60 d	EC50	weight	63	177, 102	Passino-Reader et al., 1995
<i>Oncorhynchus mykiss</i>	fry, newly hatched to 7 d	N	CF	>98%	tw/nw	8.2	120	60 d	EC10	weight	33	177, 102	Passino-Reader et al., 1995

Acute toxicity of phenanthrene (CASnr: 85-01-8) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
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Bacteria

<i>Vibrio fischeri</i>		N	S	anal	am	-	-	15 min	EC50	bioluminescence	240	1	Arfsten et al., 1994
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<i>Vibrio fischeri</i>		N	S	anal	am	-	-	30 min	EC50	bioluminescence	310	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	230	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	210	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		Y	S	99%	am	-	-	15 min	EC50	bioluminescence	530	24, 185	McConkey et al., 1997
<i>Vibrio fischeri</i>		Y	S	99%	am	-	-	15 min	EC50	bioluminescence	530	184, 185	McConkey et al., 1997
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	480		Johnson & Long, 1998
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	7330	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC10	bioluminescence	700	3, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	6890	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC10	bioluminescence	690	4, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	510	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC10	bioluminescence	58	5, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	520	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC10	bioluminescence	59	6, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	510	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	510	63	El-Alawi et al., 2002
Annelida													
<i>Neanthes arenaceodentata</i>	emergent juvenile	N	S	98%	am	-	30	96 h	LC50	mortality	51		Emery & Dillon, 1996
<i>Neanthes arenaceodentata</i>		Y	S	≥98%	am	-	32	96 h	LC50	mortality	600	50, 137	Rossi & Neff, 1978
Crustacea													
<i>Artemia salina</i>	nauplii	N	Sc	≥97%	-	-	30	24 h	LC50	mortality	680	24	Abernethy et al., 1986
<i>Artemia salina</i>	nauplii	Y	S	≥98%	am	8.5-8.7	32	24 h	EC50	immobility	520	53	Foster & Tullis, 1984
Mollusca													
<i>Mytilus edulis</i>		N	R	≥98%	nw	-	33	48 h	EC50	feeding filtration	148		Donkin et al., 1989, 1991
Pisces													
<i>Cyprinodon variegatus</i>	fry, 6-8 d	N	R	-	am	-	18	96 h	LC50	mortality	478		Moreau et al., 1999

Chronic toxicity of phenanthrene (CASnr: 85-01-8) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	8090	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	bioluminescence	960	3, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	7150	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	bioluminescence	870	4, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	4530	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	bioluminescence	180	5, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	1930	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	bioluminescence	260	6, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	7380	3	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	growth	810	3, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	6720	4	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	growth	810	4, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	4480	5	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	growth	170	5, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	1920	6	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC10	growth	240	6, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	4530	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	1930	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	4480	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	1920	63	El-Alawi et al., 2002
Crustacea													
<i>Rhithropanopeus harrissi</i>	zoaeae	N	R	-	am	-	5	zoael development until rNOEC	mortality	100	25	Laughlin & Neff, 1979	
<i>Rhithropanopeus harrissi</i>	zoaeae	N	R	-	am	-	15, 25	zoael development until rNOEC	mortality	150	25	Laughlin & Neff, 1979	
Annelida													

<i>Neanthes arenaceodentata</i>	immature adult	N	S	98%	am	-	30	14 d	LC50	mortality	501		Emery & Dillon, 1996
<i>Neanthes arenaceodentata</i>	emergent juvenile	N	S	98%	am	-	30	8 w	NOEC	growth, fecundity and nur	<20	136, 176	Emery & Dillon, 1996

Acute toxicity of fluoranthene (CASnr: 206-44-0) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Scenedesmus subspicatus</i>		Y	S	-	am	8.3	-	7 d	EC50	growth (rate)	192	73	Sepic et al., 2003
<i>Scenedesmus subspicatus</i>		Y	S	-	am	8.3	-	7 d	EC50	biomass	229	73	Sepic et al., 2003
Annelida													
<i>Lumbriculus variegatus</i>	adult	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	>178	69	Spehar et al., 1999
<i>Lumbriculus variegatus</i>	adult	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	1.2	71	Spehar et al., 1999
<i>Stylaria lacustris</i>		N	S	-	nw	6.5-7.3	4-18	48 h	NOEC	mortality	>220		Suedel & Rodgers, 1996
<i>Stylaria lacustris</i>		N	S	-	nw	6.5-7.3	4-18	48 h	LC50	mortality	>220		Suedel & Rodgers, 1996
Macrophyta													
<i>Lemna minor</i>	2 frond	Y	-	98%	rw	7.10-8.42	83.9-85.8	96 h	EC50	growth	>166	69	Spehar et al., 1999
<i>Lemna minor</i>	2 frond	Y	-	98%	rw	7.10-8.42	83.9-85.8	96 h	EC50	growth	>159	70	Spehar et al., 1999
Coelenterata													
<i>Hydra americana</i>	nonbudding	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	70	69	Spehar et al., 1999
<i>Hydra americana</i>	nonbudding	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	2.2	71	Spehar et al., 1999
Crustacea													
<i>Coriodaphnia dubia</i>	< 12 h	Y	R	>99%	rw	8.18±0.04	57.07±4.14	48 h	LC50	mortality	45	178	Oris et al., 1991
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>112	24	Bisson et al., 2000
<i>Daphnia magna</i>	mature	N	S	anal.	tw	-	-	2 h	LC50	mortality	4	40	Kagan et al., 1985, 1987
<i>Daphnia magna</i>	24 h	Y	S	-	am	7.8	-	24 h	EC50	immobility	190	24	Sepic et al., 2003
<i>Daphnia magna</i>		N	S	-	nw	6.5-7.3	4-18	48 h	NOEC	mortality	85		Suedel & Rodgers, 1996
<i>Daphnia magna</i>		N	S	-	nw	6.5-7.3	4-18	48 h	LC50	mortality	105.7		Suedel & Rodgers, 1996
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48 h	EC30	immobility	180	24	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48+2 h	EC50	immobility	20.2	64	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	24 h	EC50	immobility	63.3	65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48 h	EC50	immobility	34.4	65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48+2	EC90	immobility	18	66	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	Y	S	-	am	-	-	24 h	EC50	immobility	30.7	90, 65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	Y	S	-	am	-	-	48 h	EC50	immobility	13.1	90, 65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	Y	R	98%	rw	7.10-8.42	169-219	48 h	LC50	mortality	117	69	Spehar et al., 1999
<i>Daphnia magna</i>	<24 h	Y	R	98%	rw	7.10-8.42	169-219	48 h	LC50	mortality	1.6	70	Spehar et al., 1999
<i>Daphnia magna</i>	< 24 h	N	Sc	-	rw	7.4-9.4	173	48 h	LC50	mortality	320000		LeBlanc 1980
<i>Daphnia magna</i>	< 24 h	N	Sc	-	rw	7.4-9.4	173	48 h	NOEC	mortality	<8800		LeBlanc 1980
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	5.01	105	Wernersson 2003
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h	EC50	immobility	196	80	Wernersson & Dave, 1997
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h+2 h +2 h	EC50	immobility	35	81	Wernersson & Dave, 1997
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	LC50	mortality	75.22	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	LC10	mortality	73.7	160	Barata & Baird, 2000
<i>Daphnia magna</i>	eggs	Y	S	98%	am	-	hard	1 instar, 3-4 d	LC50	mortality	58.64	160	Barata & Baird, 2000
<i>Daphnia magna</i>	eggs	Y	S	98%	am	-	hard	1 instar, 3-4 d	LC10	mortality	35.74	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC50	feeding	37.83	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC10	feeding	19.51	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	NOEC	feeding	10	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC50	number of offspring	51.53	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC10	number of offspring	31.37	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	NOEC	number of offspring	30	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC50	brood mass	43.85	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC10	brood mass	17.8	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC50	body mass	104.38	160	Barata & Baird, 2000

<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	EC10	body mass	13.54	160	Barata & Baird, 2000
<i>Daphnia magna</i>	8-9 d female	Y	S	98%	am	-	hard	1 instar, 3-4 d	NOEC	body and brood mass	20	160	Barata & Baird, 2000
<i>Gammarus pseudolimnaeus</i>	adult	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	108	69	Spehar et al., 1999
<i>Hyalella azteca</i>	7-14 d	Y	R	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	44	69	Spehar et al., 1999
<i>Hyalella azteca</i>		N	S	-	nw	6.5-7.3	4-18	48 h	NOEC	mortality	<74		Suedel & Rodgers, 1996
<i>Hyalella azteca</i>		N	S	-	nw	6.5-7.3	4-18	48 h	LC50	mortality	92.2		Suedel & Rodgers, 1996
<i>Hyalella azteca</i>		N	S	-	nw	7.7-8.4	160-180	24 h	LC50	mortality	>500	163	Werner & Nagel, 1997
Mollusca													
<i>Physella virgata</i>	adult	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	>178	69	Spehar et al., 1999
<i>Physella virgata</i>	adult	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	82	70	Spehar et al., 1999
Insecta													
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	-	-	-	<24 h	LC50	mortality	12	41	Kagan et al., 1985, 1987
<i>Aedes aegypti</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	10	144	Borovsky et al., 1987
<i>Aedes taeniorhynchus</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	48	144	Borovsky et al., 1987
<i>Chironomus tentans</i>		N	S	-	nw	6.5-7.3	4-18	48 h	NOEC	mortality	>250		Suedel & Rodgers, 1996
<i>Chironomus tentans</i>		N	S	-	nw	6.5-7.3	4-18	48 h	LC50	mortality	>250		Suedel & Rodgers, 1996
<i>Culex quinquefasciatus</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	45	144	Borovsky et al., 1987
<i>Ophiogemphus spec.</i>	nymph	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	>178	69	Spehar et al., 1999
<i>Ophiogemphus spec.</i>	nymph	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	>110	70	Spehar et al., 1999
Pisces													
<i>Lepomis macrochirus</i>	juvenile	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	>117	69	Spehar et al., 1999
<i>Lepomis macrochirus</i>	juvenile	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	12.3	70	Spehar et al., 1999
<i>Lepomis macrochirus</i>	0.32-1.2 g	N	Sc	>80%	rw	6.5-7.9	32-48	96 h	LC50	mortality	4000	141	Buccafusco et al., 1981
<i>Oncorhynchus mykiss</i>	30-50 d	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	>91	69	Spehar et al., 1999
<i>Oncorhynchus mykiss</i>	30-50 d	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	7.7	70	Spehar et al., 1999
<i>Pimephales promelas</i>	larvae (0-48 h)	Y	CF	-	tw	7.12±0.6	284.9±10.4	96 h	LC50	mortality	9.46	179	Diamond et al., 1995
<i>Pimephales promelas</i>	larvae (0-48 h)	Y	CF	-	tw	7.12±0.6	284.9±10.4	96 h	LC50	mortality	6.83	179, 166	Diamond et al., 1995
<i>Pimephales promelas</i>	5 cm, 0.8 g	N	S	anal.	-	-	-	~ 24 h	LC50	mortality	200	42	Kagan et al., 1985
<i>Pimephales promelas</i>	5 d	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	>212	69	Spehar et al., 1999
<i>Pimephales promelas</i>	30-50 d	Y	CF	98%	tw	7.10-8.42	46.5-61.7	96 h	LC50	mortality	12.2	70	Spehar et al., 1999
Amphibia													
<i>Rana pipiens</i>	96-118 h	Y	CF	98%	tw	7.6-7.8	70	48 h	LC50	mortality	>30.6	74	Monson et al., 1999
<i>Rana pipiens</i>	96-118 h	Y	CF	98%	tw	7.6-7.8	70	48 +36 h	LC50	mortality	6.99	79	Monson et al., 1999
<i>Rana pipiens</i>	96-118 h	Y	CF	98%	tw	7.6-7.8	70	48 +36 h	LC92	mortality	6.99	78	Monson et al., 1999
<i>Rana pipiens</i>	embryo (stage 24-28)	N	S	-	tw	-	-	24 h	LC50	mortality	90	86	Kagan et al., 1987
<i>Rana pipiens</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	LC50	mortality	366	87	Hatch & Burton Jr., 1998
<i>Rana pipiens</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	EC50	malformation	276	87	Hatch & Burton Jr., 1998
<i>Rana pipiens</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	NOEC	mortality, malformation	125	87, 197	Hatch & Burton Jr., 1998
<i>Xenopus laevis</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	LC50	mortality	193	87	Hatch & Burton Jr., 1998
<i>Xenopus laevis</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	LC10	mortality	50	87, 91, 102	Hatch & Burton Jr., 1998
<i>Xenopus laevis</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	NOEC	mortality	125	87, 197	Hatch & Burton Jr., 1998
<i>Xenopus laevis</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	EC50	malformation	52	87	Hatch & Burton Jr., 1998
<i>Xenopus laevis</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	EC10	malformation	30	87, 91, 102	Hatch & Burton Jr., 1998
<i>Xenopus laevis</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	96 h	NOEC	malformation	25	87, 197	Hatch & Burton Jr., 1998
<i>Rana pipiens</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	2 d post-hatching	NOEC	hatching	25	198	Hatch & Burton Jr., 1998
<i>Rana pipiens</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	2 d post-hatching	LC100	mortality	<5	198	Hatch & Burton Jr., 1998

Chronic toxicity of fluoranthene (CASnr: 206-44-0) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	8.6	167	Bisson et al., 2000
Annelida													
<i>Stylaria lacustris</i>		N	S	-	nw	6.4-7.2	72-80	10 d	LC50	mortality	>137	90	Suedel & Rodgers, 1996
<i>Stylaria lacustris</i>		N	S	-	nw	6.4-7.2	72-80	10 d	NOEC	mortality	115	90	Suedel & Rodgers, 1996

<i>Hyalella azteca</i>	2-3 w	Y	S	-	nw	8.2	165	10 d	LC10	mortality	65	91, 101	Kane Driscoll et al., 1997b
<i>Hyalella azteca</i>	2-3 w	Y	S	-	nw	8.2	165	10 d	LC50	mortality	114	101	Kane Driscoll et al., 1997b
<i>Hyalella azteca</i>	2-3 w	Y	S	-	nw	8.2	165	10 d	LC50	mortality	97.3	101	Kane Driscoll et al., 1997b
<i>Hyalella azteca</i>	0.355-0.5 mm	Y	R	-	nw	8.2±0.18	259±23	10 d	LC10	mortality	56	98	Wilcoxon et al., 2003
<i>Hyalella azteca</i>	0.355-0.5 mm	Y	R	-	nw	8.2±0.18	259±23	10 d	LC10	mortality	8.0	99	Wilcoxon et al., 2003
<i>Hyalella azteca</i>	0.355-0.5 mm	Y	R	-	nw	8.2±0.18	259±23	10 d	LC10	mortality	1.1	100	Wilcoxon et al., 2003
<i>Hyalella azteca</i>	0.355-0.5 mm	Y	R	-	nw	8.2±0.18	259±23	10 d	LC50	mortality	83.1	98	Wilcoxon et al., 2003
<i>Hyalella azteca</i>	0.355-0.5 mm	Y	R	-	nw	8.2±0.18	259±23	10 d	LC50	mortality	13.8	99	Wilcoxon et al., 2003
<i>Hyalella azteca</i>	0.355-0.5 mm	Y	R	-	nw	8.2±0.18	259±23	10 d	LC50	mortality	2.22	100	Wilcoxon et al., 2003
<i>Hyalella azteca</i>	7-14 d	Y	R	98%	nw	7.79-8.88	140-170	10 d	LC50	mortality	7.3	161	Hatch & Burton, 1999
<i>Hyalella azteca</i>	7-14 d	Y	R	98%	nw	7.79-8.88	140-170	10 d	LC50	mortality	71	74, 162	Hatch & Burton, 1999
<i>Hyalella azteca</i>	0.6-1.0 mm (2-3 w)	Y	S	-	nw	7.0±0.5	120±20	10 d	EC50	immobility	44.9	145	Suedel et al., 1993
<i>Hyalella azteca</i>	0.6-1.0 mm (2-3 w)	Y	S	-	nw	6.5-8.5	100-140	10 d	EC50	immobility	44.7	90, 145	Suedel et al., 1993
<i>Hyalella azteca</i>	0.6-1.0 mm (2-3 w)	Y	S	-	nw	6.5-8.5	100-140	10 d	EC50	immobility	54	90, 145	Suedel et al., 1993
<i>Hyalella azteca</i>	0.6-1.0 mm (2-3 w)	Y	S	-	nw	6.5-8.5	100-140	10 d	EC50	immobility	32.4	90, 145	Suedel et al., 1993
Insecta													
<i>Chironomus tentans</i>	8-10 d	Y	R	98%	nw	7.79-8.88	140-170	10 d	LC50	mortality	12.6	161	Hatch & Burton, 1999
<i>Chironomus tentans</i>	10-12 d	Y	S	-	nw	7.0±0.5	120±20	10 d	EC50	growth	31.9	145	Suedel et al., 1993
<i>Chironomus tentans</i>	10-12 d	Y	S	-	nw	6.5-8.5	100-140	10 d	EC50	growth	61	90, 145	Suedel et al., 1993
<i>Chironomus tentans</i>	10-12 d	Y	S	-	nw	6.5-8.5	100-140	10 d	EC50	growth	50.6	90, 145	Suedel et al., 1993
<i>Chironomus tentans</i>	10-12 d	Y	S	-	nw	6.5-8.5	100-140	10 d	EC50	growth	30.4	90, 145	Suedel et al., 1993
<i>Chironomus tentans</i>		N	S	-	nw	8.1-8.4	100-130	10 d	NOEC	mortality	30		Suedel & Rodgers, 1996
<i>Chironomus tentans</i>		N	S	-	nw	6.4-7.2	72-80	10 d	NOEC	mortality	20	90	Suedel & Rodgers, 1996
<i>Chironomus tentans</i>		N	S	-	nw	8.1-8.4	100-130	10 d	LC50	mortality	37.8		Suedel & Rodgers, 1996
<i>Chironomus tentans</i>		N	S	-	nw	6.4-7.2	72-80	10 d	LC50	mortality	23.6	90	Suedel & Rodgers, 1996
<i>Chironomus riparius</i>	larvae, 24 h post-hatch	Y	S	98%	rw	8.2	82	11 d	LC50	mortality	64.1	90, 163	Stewart & Thompson, 1995
<i>Chironomus riparius</i>	larvae, 24 h post-hatch	Y	S	98%	rw	8.2	82	11 d	LC50	mortality	70.5	90, 163	Stewart & Thompson, 1995
<i>Chironomus riparius</i>	larvae, 24 h post-hatch	Y	S	98%	rw	8.2	82	11 d	LC50	mortality	61.5	90, 163	Stewart & Thompson, 1995
<i>Chironomus riparius</i>	larvae, 24 h post-hatch	Y	S	98%	rw	8.2	82	11 d	LC50	mortality	86.1	90, 163	Stewart & Thompson, 1995
<i>Chironomus riparius</i>	larvae, 24 h post-hatch	Y	S	98%	rw	8.2	82	28 d	NOEC	total emergence, emerge	43	90, 163	Stewart & Thompson, 1995
Pisces													
<i>Brachydanio rerio</i>	ELS	Y	IF	96%	rw	7.3-7.8	210	41 d	NOEC	mortality	47	22	Hoofman & Evers-de Ruiters, 1992a
<i>Brachydanio rerio</i>	ELS	Y	IF	96%	rw	7.3-7.8	210	41 d	NOEC	length	4.4	22	Hoofman & Evers-de Ruiters, 1992a
<i>Brachydanio rerio</i>	ELS	Y	IF	96%	rw	7.3-7.8	210	41 d	EC10	length	18	22, 92	Hoofman & Evers-de Ruiters, 1992a
<i>Brachydanio rerio</i>	ELS	Y	IF	96%	rw	7.3-7.8	210	41 d	NOEC	weight	16	22	Hoofman & Evers-de Ruiters, 1992a
<i>Brachydanio rerio</i>	ELS	Y	IF	96%	rw	7.3-7.8	210	41 d	EC10	weight	21	22, 92	Hoofman & Evers-de Ruiters, 1992a
<i>Brachydanio rerio</i>	ELS	Y	IF	96%	rw	7.3-7.8	210	41 d	LC100	mortality	130	22	Hoofman & Evers-de Ruiters, 1992a
<i>Brachydanio rerio</i>	ELS	Y	IF	96%	rw	7.8-8.2		28 d	LC100	mortality	240		Hoofman & Evers-de Ruiters, 1992b
<i>Pimephales promelas</i>		Y	CF	-	tw	7.12±0.6	284.9±10.4	14 w	NOEC	number of eggs	<7.9	179	Diamond et al., 1995
<i>Pimephales promelas</i>		Y	CF	-	tw	7.12±0.6	284.9±10.4	11 w	NOEC	survival of hatchlings	<6.2	179	Diamond et al., 1995
<i>Pimephales promelas</i>	ELS	Y	CF	98%	tw	7.10-8.42	46.5-61.7	32 d	NOEC	growth	10.4	69	Spehar et al., 1999
<i>Pimephales promelas</i>	ELS	Y	CF	98%	tw	7.10-8.42	46.5-61.7	32 d	NOEC	growth	1.4	188	Spehar et al., 1999
Amphibia													
<i>Ambystoma maculatum</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	12 d	L(E)C50	mortality, malformation	247	87	Hatch & Burton Jr., 1998
<i>Ambystoma maculatum</i>	embryo	Y	R	98%	nw	7.96-8.62	100-140	12 d	NOEC	mortality	125	87, 197	Hatch & Burton Jr., 1998

Acute toxicity of fluoranthene (CASnr: 206-44-0) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	>20000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	>20000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	1090	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	luminescence	470	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	2160	24	El-Alawi et al., 2002

<i>Vibrio fischeri</i>		N	S	am	7.2	-	15 min	EC50	bioluminescence	2120	63	El-Alawi et al., 2002	
<i>Vibrio fischeri</i>		N	S	anal.	am	-	5 min	EC50	bioluminescence	830		Johnson & Long, 1998	
Annelida													
<i>Monopylephorus rubroniveus</i>		Y	R	98	nw	8.1±0.1	29.0±1.9	72 h	LC50	mortality	>120.4	24	Weinstein et al., 2003
<i>Monopylephorus rubroniveus</i>		Y	R	98	nw	8.1±0.1	29.0±1.9	72 h	LC50	mortality	0.7	204	Weinstein et al., 2003
<i>Neanthes arenaceodentata</i>		Y	S	≥98%	am	-	32	96 h	LC50	mortality	500	50, 60	Rossi & Neff, 1978
<i>Neanthes arenaceodentata</i>	adult	Y	R	98%	nw	-	30-32	96 h	LC50	mortality	>127	189	Spehar et al., 1999
Crustacea													
<i>Ampelisca abdita</i>	juvenile	Y	R	98%	nw	-	30-32	96 h	LC50	mortality	67	189	Spehar et al., 1999
<i>Ampelisca abdita</i>		N	S	-	nw	7.7-8.4	25	24 h	LC50	mortality	>100	24	Werner & Nagel, 1997
<i>Artemia salina</i>	< 1 d	N	S	anal.	-	-	-	3 h	LC50	mortality	40	61	Kagan et al., 1985, 1987
<i>Homarus americanus</i>	larvae	Y	R	98%	nw	-	30-32	96 h	LC50	mortality	317	189	Spehar et al., 1999
<i>Homarus americanus</i>	larvae	N	R	98%	nw	-	30-32	96 h	LC50	mortality	13	190	Spehar et al., 1999
<i>Homarus americanus</i>	larvae	N	R	98%	nw	-	30-32	96 h	LC50	mortality	22	72	Spehar et al., 1999
<i>Mysidopsis bahia</i>	24-48 h	Y	S	-	nw	-	30	48 h	LC50	mortality	63.8	180	Pelletier et al., 1997
<i>Mysidopsis bahia</i>	24-48 h	Y	S	-	nw	-	30	48 h	LC50	mortality	5.32	181	Pelletier et al., 1997
<i>Mysidopsis bahia</i>	< 24 h	Y	CF	98%	nw	-	30-32	96 h	LC50	mortality	31	189	Spehar et al., 1999
<i>Mysidopsis bahia</i>	< 24 h	N	CF	98%	nw	-	30-32	96 h	LC50	mortality	1.4	190	Spehar et al., 1999
<i>Mysidopsis bahia</i>	< 24 h	N	CF	98%	nw	-	30-32	96 h	LC50	mortality	1.7	72	Spehar et al., 1999
<i>Mysidopsis bahia</i>	< 24 h	N	CF	98%	nw	-	30-32	96 h	LC50	mortality	58	191	Spehar et al., 1999
<i>Mysidopsis bahia</i>	< 24 h	N	CF	98%	nw	-	30-32	96 h	LC50	mortality	12	192	Spehar et al., 1999
<i>Mysidopsis bahia</i>	< 24 h	N	CF	98%	nw	-	30-32	96 h	LC50	mortality	12	193	Spehar et al., 1999
<i>Mysidopsis bahia</i>	< 24 h	N	CF	98%	nw	-	30-32	96 h	LC50	mortality	2.8	194	Spehar et al., 1999
<i>Mysidopsis bahia</i>	< 24 h	N	CF	98%	nw	-	30-32	96 h	LC50	mortality	1.7	195	Spehar et al., 1999
<i>Palaemonetes spec.</i>	3 d	Y	R	98%	nw	-	30-32	96 h	LC50	mortality	142	189	Spehar et al., 1999
<i>Palaemonetes spec.</i>	3 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	22	190	Spehar et al., 1999
<i>Palaemonetes spec.</i>	3 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	6.6	72	Spehar et al., 1999
<i>Ampelisca abdita</i>		N	S	-	nw	7.7-8.4	31	24 h	LC50	mortality	>100	24	Werner & Nagel, 1997
<i>Rhepoxynius abronius</i>		Y	R	-	nw	-	28	96 h	LC50	mortality	>70	74	Boese et al., 1997
<i>Rhepoxynius abronius</i>		Y	R	-	nw	-	28	96 +1 h	LC50	mortality	14	75	Boese et al., 1997
<i>Rhepoxynius abronius</i>		Y	R	-	nw	-	28	96 +1 h	EC50	reburial	63	76	Boese et al., 1997
<i>Rhepoxynius abronius</i>		Y	R	-	nw	-	28	96+1+1 h	EC50	reburial	<5	77	Boese et al., 1997
<i>Eohaustorius estuarius</i>		Y	R	-	nw	-	28	96 h	LC50	mortality	>70	74	Boese et al., 1997
<i>Eohaustorius estuarius</i>		Y	R	-	nw	-	28	96 +1 h	LC50	mortality	66	75	Boese et al., 1997
<i>Eohaustorius estuarius</i>		Y	R	-	nw	-	28	96 +1 h	EC50	reburial	>70	76	Boese et al., 1997
<i>Eohaustorius estuarius</i>		Y	R	-	nw	-	28	96+1+1 h	EC50	reburial	7	77	Boese et al., 1997
<i>Leptocheirus plumulosus</i>		Y	R	-	nw	-	20	96 h	LC50	mortality	>98	74	Boese et al., 1997
<i>Leptocheirus plumulosus</i>		Y	R	-	nw	-	28	96 +1 h	LC50	mortality	69	75	Boese et al., 1997
<i>Leptocheirus plumulosus</i>		Y	R	-	nw	-	28	96 +1 h	EC50	reburial	51	76	Boese et al., 1997
<i>Leptocheirus plumulosus</i>		Y	R	-	nw	-	28	96+1+1 h	EC50	reburial	20	77	Boese et al., 1997
<i>Grandidierella japonica</i>		Y	R	-	nw	-	28	96 h	LC50	mortality	36	74	Boese et al., 1997
<i>Grandidierella japonica</i>		Y	R	-	nw	-	28	96 +1 h	LC50	mortality	26	75	Boese et al., 1997
<i>Grandidierella japonica</i>		Y	R	-	nw	-	28	96 +1 h	EC50	reburial	27	76	Boese et al., 1997
<i>Grandidierella japonica</i>		Y	R	-	nw	-	28	96+1+1 h	EC50	reburial	19	77	Boese et al., 1997
<i>Corophium insidiosum</i>		Y	R	-	nw	-	28	96 h	LC50	mortality	85	74	Boese et al., 1997
<i>Corophium insidiosum</i>		Y	R	-	nw	-	28	96 +1 h	LC50	mortality	32	75	Boese et al., 1997
<i>Corophium insidiosum</i>		Y	R	-	nw	-	28	96 +1 h	EC50	reburial	54	76	Boese et al., 1997
<i>Corophium insidiosum</i>		Y	R	-	nw	-	28	96+1+1 h	EC50	reburial	20	77	Boese et al., 1997
<i>Excirella vancouverensis</i>		Y	R	-	nw	-	28	96 h	LC50	mortality	>70	74	Boese et al., 1997
<i>Excirella vancouverensis</i>		Y	R	-	nw	-	28	96 +1 h	LC50	mortality	>70	75	Boese et al., 1997
<i>Excirella vancouverensis</i>		Y	R	-	nw	-	28	96 +1 h	EC50	reburial	>70	76	Boese et al., 1997
<i>Excirella vancouverensis</i>		Y	R	-	nw	-	28	96+1+1 h	EC50	reburial	>70	77	Boese et al., 1997
<i>Emerita analoga</i>		Y	R	-	nw	-	28	96 h	LC50	mortality	74	74	Boese et al., 1997
<i>Emerita analoga</i>		Y	R	-	nw	-	28	96 +1 h	LC50	mortality	74	75	Boese et al., 1997
<i>Emerita analoga</i>		Y	R	-	nw	-	28	96 +1 h	EC50	reburial	74	76	Boese et al., 1997
<i>Emerita analoga</i>		Y	R	-	nw	-	28	96+1+1 h	EC50	reburial	73	77	Boese et al., 1997

Mollusca

<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	EC50	reburial	153	205	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	NOEC	reburial	50	205	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	EC50	reburial	46	206	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	NOEC	reburial	10	206	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	EC50	reburial	49	206, 102	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	NOEC	reburial	14	206, 102	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	EC50	reburial	48	205	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	EC50	reburial	207	205	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	EC50	reburial	12	206	Ahrens et al., 2002		
<i>Macomona liliana</i>	0.5-2 mm juvenile	Y	S	nw	34	96 h	EC50	reburial	51	206	Ahrens et al., 2002		
<i>Mulinia lateralis</i>	embryo/larval	Y	S	-	nw	-	30	48 h	L(E)C50	survival/developm.	58.8	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	embryo/larval	Y	S	-	nw	-	30	48 h	L(E)C50	survival/developm.	1.09	181	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	LC50	mortality	3310	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	LC50	mortality	1.8	181	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	EC50	growth	900	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	EC50	growth	>0.81	181	Pelletier et al., 1997
<i>Mulinia lateralis</i>	embryo/larval	Y	S	98%	nw	-	30-32	96 h	LC50	mortality	>127	189	Spehar et al., 1999
<i>Mulinia lateralis</i>	embryo/larval	N	S	98%	nw	-	30-32	96 h	LC50	mortality	2.8	190	Spehar et al., 1999
<i>Mytilus edulis</i>		N	R	≥98%	nw	-	33	48 h	EC50	feeding filtration	80		Donkin et al., 1989, 1991

Echinodermata

<i>Arbacia punctulata</i>	embryo/larval	Y	S	98%	nw	-	30-32	96 h	LC50	mortality	>127	189	Spehar et al., 1999
<i>Arbacia punctulata</i>	embryo/larval	N	S	98%	nw	-	30-32	96 h	LC50	mortality	3.9	190	Spehar et al., 1999
<i>Arbacia punctulata</i>	embryo/larval	N	S	98%	nw	-	30-32	96 h	LC50	mortality	3.9	72	Spehar et al., 1999

Pisces

<i>Cyprinodon variegatus</i>	8-15 mm, 14-28 d	N	S	>80%	nw	-	10-31	96 h	LC50	mortality	>560000		Heitmuller et al., 1981
<i>Cyprinodon variegatus</i>	42 d	Y	R	98%	nw	-	30-32	96 h	LC50	mortality	>127	189	Spehar et al., 1999
<i>Cyprinodon variegatus</i>	42 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	159	190	Spehar et al., 1999
<i>Cyprinodon variegatus</i>	42 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	172	72	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	Y	R	98%	nw	-	30-32	96 h	LC50	mortality	616	189	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	30	190	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	13	72	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	620	191	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	103	192	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	49	193	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	30	194	Spehar et al., 1999
<i>Menidia beryllina</i>	21 d	N	R	98%	nw	-	30-32	96 h	LC50	mortality	13	195	Spehar et al., 1999
<i>Pleuronectus americanus</i>	28 d	Y	S	98%	nw	-	30-32	96 h	LC50	mortality	>188	189	Spehar et al., 1999
<i>Pleuronectus americanus</i>	28 d	N	S	98%	nw	-	30-32	96 h	LC50	mortality	0.1	190	Spehar et al., 1999

Chronic toxicity of fluoranthene (CASnr: 206-44-0) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	83960	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	700	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	83850	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	700	63	El-Alawi et al., 2002
Crustacea													
<i>Corophium spinicorne</i>	<1 mm, >0.5 mm	Y	S	-	nw	-	28	10 d	LC50	mortality	23.9	90	Swartz et al., 1990
<i>Mysidopsis bahia</i>		Y	CF	98%	nw	-	30-32	31 d	NOEC	reproduction	11.1	189	Spehar et al., 1999
<i>Mysidopsis bahia</i>		N	CF	98%	nw	-	30-32	31 d	NOEC	reproduction	0.6	190	Spehar et al., 1999
<i>Rhepoxynius abronius</i>		Y	S	-	nw	-	28	10 d	EC4	mortality	77	74, 90, 94	Boese et al., 1999
<i>Rhepoxynius abronius</i>		Y	S	-	nw	-	28	10 d	EC3	mortality	77	93, 90, 94	Boese et al., 1999
<i>Rhepoxynius abronius</i>		Y	S	-	nw	-	28	10 d	EC4	reburial	77	74, 90, 94	Boese et al., 1999

<i>Rhepoxynius abronius</i>		Y	S	-	nw	-	28	10 d	EC100	reburial	77	93, 90, 94	Boese et al., 1999
<i>Rhepoxynius abronius</i>	<1 mm, >0.5 mm	Y	S	-	nw	-	28	10 d	LC50	mortality	11.1	90	Swartz et al., 1990

Acute toxicity of chrysene (CASnr: 218-01-9) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
											[µg/l]		
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>1.3	24	Bisson et al., 2000
<i>Daphnia magna</i>	mature	N	S	anal.	tw	-	-	2 h	LC50	mortality	1900	40	Kagan et al., 1987
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	>1024	105	Wernersson 2003
Insecta													
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal.	-	-	-	<24 h	LC50	mortality	1700	41	Kagan et al., 1987
Bacteria													
<i>Escherichia coli</i>		N	S	95	-	-	-	48 h	EC2	growth	0.96	103	Jamroz et al., 2003
<i>Escherichia coli</i>		N	S	95	-	-	-	48 h	EC1	growth	0.96	103, 104	Jamroz et al., 2003

Chronic toxicity of chrysene (CASnr: 218-01-9) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
											[µg/l]		
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	>1	167	Bisson et al., 2000
Cyanophyta													
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	-	2 w	NOEC	growth	640	143	Bastian & Toetz, 1982
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	-	2 w	EC10	growth	440	143, 92	Bastian & Toetz, 1982
Macrophyta													
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC5	growth	2000	94	Huang et al., 1997
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC74	growth	2000	94, 113	Huang et al., 1997
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	>0.09	168	Bisson et al., 2000
<i>Daphnia magna</i>	<24 h	Y	IF	99-100%	rw	7.3-8.1	212	21 d	NOEC	mortality	≥1.4	45	Hoofman, 1991
<i>Daphnia magna</i>	<24 h	Y	IF	99-100%	rw	7.3-8.1	212	21 d	NOEC	reproduction	≥1.4	45	Hoofman, 1991
Pisces													
<i>Brachydanio rerio</i>	ELS	Y	IF		rw	7.8-8.2		28 d	NOEC	mortality, hatchability, ler	>0.91		Hoofman & Evers-de Ruiters, 1992b

Acute toxicity of chrysene (CASnr: 218-01-9) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%-]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
											[µg/l]		
Bacteria													
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	>100000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	>100000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	>100000	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	>100000	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	1430	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	1370	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	920		Johnson & Long, 1998
<i>Vibrio fischeri</i>		N	S	95	-	-	-	15 min	EC7	bioluminescence	0.96	103	Jamroz et al., 2003
<i>Vibrio fischeri</i>		N	S	95	-	-	-	15 min	EC5	bioluminescence	0.96	103, 104	Jamroz et al., 2003
Annelida													
<i>Neanthes arenaceodentata</i>		Y	S	≥98%	am	-	32	96 h	LC50	mortality	>1000	50	Rossi & Neff, 1978
Crustacea													
<i>Artemia salina</i>	< 1 d	N	S	anal.	-	-	-	3 h	LC50	mortality	3000	61	Kagan et al., 1987

Chronic toxicity of chrysene (CASnr: 218-01-9) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	89980	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	84750	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	89680	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	growth	84940	63	El-Alawi et al., 2002

Acute toxicity of benzo[a]anthracene (CASnr: 56-55-3) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC50	growth	>40000	47	Cody et al., 1984
Crustacea													
<i>Daphnia pulex</i>	1.9-2.1 mm	N	Sc	-	nw	7.5	-	96 h	LC50	mortality	10	36	Trucco et al., 1983
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>9.1	24	Bisson et al., 2000
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	3.37	105	Wernersson 2003
Amphibia													
<i>Pleurodeles waltl</i>	larvae (stage 53)	N	R	~95%	am	-	-	6 d	LC50	mortality	3.125->6.2	151	Fernandez & L'Haridon, 1992

Chronic toxicity of benzo[a]anthracene (CASnr: 56-55-3) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	1.2	167	Bisson et al., 2000
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC10	growth	18	47, 102	Cody et al., 1984
Cyanophyta													
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	-	2 w	NOEC	growth	8.3	143	Bastian & Toetz, 1982
Macrophyta													
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC70	growth	2000	94	Huang et al., 1997
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC100	growth	2000	94, 113	Huang et al., 1997
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	>8.7	168	Bisson et al., 2000

Acute toxicity of benzo[a]anthracene (CASnr: 56-55-3) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	300	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	290	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	730		Johnson & Long, 1958

Chronic toxicity of benzo[a]anthracene (CASnr: 56-55-3) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		18 h	EC50	bioluminescence	89810	24	El-Alawi et al., 2002

<i>Vibrio fischeri</i>	N	S	am	7.2				18 h	EC50	bioluminescence	230	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>	N	S	am	7.2				18 h	EC50	growth	89250	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>	N	S	am	7.2				18 h	EC50	growth	220	63	El-Alawi et al., 2002

Acute toxicity of benzo[b]fluoranthene (CASnr: 205-99-2) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>1.1	24	Bisson et al., 2000
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h	EC50	immobility	>1024	80	Wernersson & Dave, 1997
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h+2 h +2 h	EC50	immobility	4.2	81	Wernersson & Dave, 1997

Chronic toxicity of benzo[b]fluoranthene (CASnr: 205-99-2) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S	-	am	-	215	72 h	EC10	growth	>1	167	Bisson et al., 2000
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	>1.083	168	Bisson et al., 2000

Acute toxicity of benzo[ghi]perylene (CASnr: 191-24-2) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>0.2	24	Bisson et al., 2000
Pisces													
<i>Pimephales promelas</i>	larvae	Y	R	high	tw	-	-	96 h	LC20	mortality	>0.15	48	Oris & Giesy, 1987

Chronic toxicity of benzo[ghi]perylene (CASnr: 191-21-2) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [‰]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S	-	am	-	215	72 h	EC10	growth	>0.16	167	Bisson et al., 2000
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	0.082	168	Bisson et al., 2000
Pisces													
<i>Brachydanio rerio</i>	ELS	Y	IF	-	rw	7.8-8.2	-	28 d	NOEC	mortality, hatchability, ler	>0.16		Hoofman & Evers-de Ruiter, 1992b
Macrophyta													
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC13	growth	2000	94	Huang et al., 1997
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC27	growth	2000	94, 113	Huang et al., 1997

Acute toxicity of benzo[ghi]perylene (CASnr: 191-21-2) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [‰]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC50	bioluminescence	89380	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC50	bioluminescence	88910	63	El-Alawi et al., 2002

Chronic toxicity of benzo[ghi]perylene (CASnr: 191-21-2) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity	Exp	Criterion	Test	Value	Notes	Reference
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properties	type	purity	water	[%]	time	endpoint	[µg/l]
Bacteria							
<i>Vibrio fischeri</i>	N	S	am	7.2	18 h	EC50 bioluminescence	93770 24
<i>Vibrio fischeri</i>	N	S	am	7.2	18 h	EC50 bioluminescence	18490 63
<i>Vibrio fischeri</i>	N	S	am	7.2	18 h	EC50 growth	93210 24
<i>Vibrio fischeri</i>	N	S	am	7.2	18 h	EC50 growth	17750 63

Acute toxicity of benzo[k]fluoranthene (CASnr: 207-08-9) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>1.1	24	Bisson et al., 2000
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48 h	EC30	immobility	>1	24	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48+2 h	EC50	immobility	>1	64	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48 h	EC50	immobility	>1	65	Verrhiest et al., 2001
<i>Daphnia magna</i>	<24 h	N	S	-	am	7.8	250	48+2	EC90	immobility	>1	66	Verrhiest et al., 2001

Chronic toxicity of benzo[k]fluoranthene (CASnr: 207-08-9) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	>1	167	Bisson et al., 2000
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	>1.08	168	Bisson et al., 2000
Pisces													
<i>Brachydanio rerio</i>	ELS	Y	IF		rw	7.8-8.2		28 d	NOEC	length, weight	<0.58		Hooftman & Evers-de Ruyter, 1992b
<i>Brachydanio rerio</i>	ELS	Y	IF		rw	7.8-8.2		28 d	LC50	length, weight	0.58		Hooftman & Evers-de Ruyter, 1992b
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	NOEC	mortality	0.35	23	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	LC50	mortality	0.65	23, 92	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	LC10	mortality	0.62	23, 92	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	NOEC	length	<0.19	23	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	EC50	length	0.86	23, 92	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	EC10	length	0.17	23, 92	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	NOEC	weight	0.35	23	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	EC50	weight	0.50	23, 92	Hooftman & Evers-de Ruyter, 1992c
<i>Brachydanio rerio</i>	ELS	Y	IF	100%	rw	7.9-8.2	206	42 d	EC10	weight	0.31	23, 92	Hooftman & Evers-de Ruyter, 1992c

Acute toxicity of benzo[a]pyrene (CASnr: 50-32-8) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
Algae													
(Cyanophyta)													
<i>Ankistrodesmus braunii</i>		N	S	≥99%	am	-	-	72 h	EC50	growth	1300	37	Schoeny et al., 1988
<i>Chlamydomonas reinhardtii</i>		N	S	≥99%	am	-	-	72 h	EC50	growth	>4000	37	Schoeny et al., 1988
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC50	growth	>13000	38	Cody et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC50	growth	40	47, 102	Cody et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC50	growth	2.8	46, 102	Cody et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	72 h	EC50	growth	15	37	Schoeny et al., 1988
<i>Scenedesmus acutus</i>		N	S	≥99%	am	-	-	72 h	EC50	growth	5	37	Schoeny et al., 1988
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC50	growth, area under the ci	1.48	203	Djomo et al., 2004
(Euglenophyta)													

<i>Euglena gracilis</i> (Heterokontophyta)		N	S	≥99%	am	-	-	72 h	EC50	growth	>4000	37	Schoeny et al., 1988
<i>Ochromonas malhamensis</i>		N	S	≥99%	am	-	-	72 h	EC50	growth	>4000	37	Schoeny et al., 1988
Cyanophyta													
<i>Anabaena flosaquae</i>		N	S	≥99%	am	-	-	72 h	EC50	growth	>4000	37	Schoeny et al., 1988
Bacteria													
<i>Escherichia coli</i>		N	S	98	-	-	-	48 h	EC2	growth	0.96	103	Jamroz et al., 2003
<i>Escherichia coli</i>		N	S	98	-	-	-	48 h	EC2	growth	0.96	103, 104	Jamroz et al., 2003
Crustacea													
<i>Daphnia magna</i>	neonates <48 h	N	S	-	am	-	-	48 h	LC50	mortality	250	146	Atienzar et al., 1999
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>2.7	24	Bisson et al., 2000
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h	EC50	immobility	40	80	Wernersson & Dave, 1997
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h+2 h +2 h	EC50	immobility	8.6	81	Wernersson & Dave, 1997
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	59.7	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	1.16	105	Wernersson 2003
<i>Daphnia pulex</i>	1.9-2.1 mm	N	Sc	-	nw	7.5	-	96 h	LC50	mortality	5	36	Trucco et al., 1983
Insecta													
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	tw	-	-	<24 h	LC50	mortality	8	135	Kagan & Kagan, 1986
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	tw	-	-	<24 h	LC50	mortality	1.2	135, 208	Kagan & Kagan, 1986
Amphibia													
<i>Pleurodeles waltl</i>	embryo (stage 7 to 20)	N	R	98%	tw	-	-	48 h	LC50	mortality	11	92, 200	Fernandeze & L'Haridon, 1994
<i>Pleurodeles waltl</i>	larvae	N	R	98%	tw	-	-	6 d	LC100	mortality	<12.5	201	Fernandeze & L'Haridon, 1994
<i>Pleurodeles waltl</i>	larvae	N	R	98%	tw	-	-	6 d	LC100	mortality	25	200	Fernandeze & L'Haridon, 1994
<i>Pleurodeles waltl</i>	larvae	N	R	98%	tw	-	-	48 h	LC50	mortality	11	92, 200	Fernandeze & L'Haridon, 1994
<i>Xenopus leavis</i>	embryo (stage 46)	N	R	-	rw	-	-	96 h	LC50	mortality	13400	199	Propst et al., 1997
<i>Xenopus leavis</i>	embryo (stage 46)	N	R	-	rw	-	-	96 h	LC50	mortality	16700	199	Propst et al., 1997
<i>Xenopus leavis</i>	embryo (stage 46)	N	R	-	rw	-	-	96 h	EC50	malformations	8700	199	Propst et al., 1997
<i>Xenopus leavis</i>	embryo (stage 46)	N	R	-	rw	-	-	96 h	EC50	malformations	9600	199	Propst et al., 1997
<i>Xenopus leavis</i>	embryo (stage 46)	N	R	-	rw	-	-	96 h	LOEC	growth	10000	199	Propst et al., 1997

Chronic toxicity of benzo[a]pyrene (CASnr: 50-32-8) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Macrophyta													
<i>Brassica napus</i>	seeds	N	R	-	am	-	-	6 d	EC50	root growth	9500	102, 115	Ren et al., 1996
<i>Brassica napus</i>	seeds	N	R	-	am	-	-	6 d	EC50	root growth	620	102, 115	Ren et al., 1996
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	6200	10, 102	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	1200	102, 108, 109	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	860	102, 108, 109	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	730	10, 102, 108	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	250	10, 102, 108	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC0-44	growth	2000	110	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC0-49	chlorophyll content	2000	110	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC3-21	growth	2000	111	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC6-42	chlorophyll content	2000	111	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC2-17	growth	2000	112	Huang et al., 1993
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC22-51	chlorophyll content	2000	112	Huang et al., 1993
<i>Lemna gibba</i>		Y	S	-	am	-	-	8 d	EC35	growth	2000	117	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	>8000	96	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	5600	96, 102	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	560	96, 118	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	160	96, 102, 118	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC50	growth	130	96, 119	Huang et al., 1995
<i>Lemna gibba</i>		Y	R	-	am	-	-	8 d	EC10	growth	54	96, 102, 119	Huang et al., 1995
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC21	growth	2000	94	Huang et al., 1997

<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC99	growth	2000	94, 113	Huang et al., 1997
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	0.78	167	Bisson et al., 2000
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC10	growth	4400	38, 102	Cody et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC10	growth	10	47, 102	Cody et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	S	≥99%	am	-	-	96 h	EC10	growth	0.96	46, 102	Cody et al., 1984
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC10	growth, area under the c	0.03	203	Djomo et al., 2004
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	72 h	EC10	growth rate	30	102	Djomo et al., 2004
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	0.503	168	Bisson et al., 2000
<i>Daphnia magna</i>	neonates <48 h	N	S	-	am	-	-	14 d	EC50	total number of young	30	92, 146	Atienzar et al., 1999
<i>Daphnia magna</i>	neonates <48 h	N	S	-	am	-	-	14 d	EC10	total number of young	12.5	92, 146	Atienzar et al., 1999
<i>Daphnia magna</i>	neonates <48 h	N	S	-	am	-	-	14 d	NOEC	total number of young	12.5	146	Atienzar et al., 1999
Pisces													
<i>Brachydanio rerio</i>	ELS	Y	IF		nw	7.8-8.2	-	28 d	NOEC	mortality, hatchability, ler	≥4.0		Hoofman & Evers-de Ruiter, 1992b
<i>Onchyrhynchus mykiss</i>	ELS	Y	R	purified >99%	nw	6.85-7.10	-	36 d	NOEC	abnormalities	1.48		Hannah et al., 1982
<i>Onchyrhynchus mykiss</i>	ELS	Y	R	purified >99%	nw	6.85-7.10	-	36 d	EC10	abnormalities	2.9	92	Hannah et al., 1982
<i>Onchyrhynchus mykiss</i>	ELS	Y	R	purified >99%	nw	6.85-7.10	-	36 d	NOEC	length	<0.08		Hannah et al., 1982

Acute toxicity of benzo[a]pyrene (CASnr: 50-32-8) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	>100000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	>100000	1	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	15 min	EC50	bioluminescence	49950	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	30 min	EC50	bioluminescence	27240	2	Arfsten et al., 1994
<i>Vibrio fischeri</i>		N	S		am	7.2	-	15 min	EC50	bioluminescence	8040	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2	-	15 min	EC50	bioluminescence	7930	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	10700		Johnson & Long, 1998
<i>Vibrio fischeri</i>		N	S	98	-	-	-	15 min	EC2	bioluminescence	0.96	103	Jamroz et al., 2003
<i>Vibrio fischeri</i>		N	S	98	-	-	-	15 min	EC2	bioluminescence	0.96	103, 104	Jamroz et al., 2003
Annelida													
<i>Neanthes arenaceodentata</i>		Y	S	≥98%	am	-	32	96 h	LC50	mortality	>1000	50, 138	Rossi & Neff, 1978
Echinodermata													
<i>Strongylocentrotus purpuratus</i>	eggs and sperm	Y	S	99%	nw	7.88	33-34	48 h	NOEC	deformities	0.5	150	Hose et al., 1983

Chronic toxicity of benzo[a]pyrene (CASnr: 50-32-8) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2	-	18 h	EC50	bioluminescence	67810	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2	-	18 h	EC50	bioluminescence	810	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2	-	18 h	EC50	growth	67110	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2	-	18 h	EC50	growth	800	63	El-Alawi et al., 2002
Mollusca													
<i>Crassostrea gigas</i>	embryo/larval	N	S	97%	nw	-	32-33	48 h	NOEC	abnormal shell	1	182	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	97%	nw	-	32-33	48 h	EC50	abnormal shell	3.1	182, 92	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	97%	nw	-	32-33	48 h	EC10	abnormal shell	1.1	182, 92	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	97%	nw	-	32-33	48 h	NOEC	abnormal shell	0.5	89	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	97%	nw	-	32-33	48 h	EC50	abnormal shell	0.44	89, 92	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	97%	nw	-	32-33	48 h	EC10	abnormal shell	0.22	89, 92	Lyons et al., 2002
Pisces													
<i>Fundulus heteroclitus</i>	eggs	N	S	-	am	-	20	7 d	NOEC	EROD activity	0.25		Wassenberg et al., 2002

<i>Fundulus heteroclitus</i>	eggs	N	S	-	am	-	20	7 d	NOEC	deformities	<0.25		Wassenberg et al., 2002
<i>Psettiichthys melanostichus</i>	eggs	Y	S	technical pur	am	7.1-7.5	25	6 d	NOEC	hatchability	<0.1		Hose et al., 1982

Acute toxicity of dibenzo[a,h]anthracene (CASnr: 53-70-3) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
												[µg/l]	
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>0.35	24	Bisson et al., 2000
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h	EC50	immobility	496	80	Wernersson & Dave, 1997
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h+2 h +2 h	EC50	immobility	4.6	81	Wernersson & Dave, 1997
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	1.76	105	Wernersson 2003
Pisces													
<i>Pimephales promelas</i>	larvae	Y	R	high	tw	-	-	96 h	NOEC	mortality	≥0.15	48	Oris & Giesy, 1987
Amphibia													
<i>Pleurodeles waltl</i>	larvae (stage 53)	N	R	~95%	am	-	-	6 d	LC50	mortality	>200	151	Fernandez & L'Haridon, 1992

Chronic toxicity of dibenzo[a,h]anthracene (CASnr: 53-70-3) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
												[µg/l]	
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S	-	am	-	215	72 h	EC10	growth	0.14	167	Bisson et al., 2000
Macrophyta													
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC11	growth	2000	94	Huang et al., 1997
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC18	growth	2000	94, 113	Huang et al., 1997
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	>0.032	168	Bisson et al., 2000

Acute toxicity of dibenzo[a,h]anthracene (CASnr: 53-70-3) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
												[µg/l]	
Bacteria													
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC50	bioluminescence	97180	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC50	bioluminescence	96550	63	El-Alawi et al., 2002
Annelida													
<i>Neanthes arenaceodentata</i>		Y	S	≥98%	am	-	32	96 h	LC50	mortality	>1000	50	Rossi & Neff, 1978

Chronic toxicity of dibenzo[a,h]anthracene (CASnr: 53-70-3) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
												[µg/l]	
Bacteria													
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	18 h	EC50	bioluminescence	94850	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	18 h	EC50	bioluminescence	1350	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	18 h	EC50	growth	93990	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	18 h	EC50	growth	1340	63	El-Alawi et al., 2002

Acute toxicity of pyrene (CASnr: 129-00-0) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
												[µg/l]	
Algae													

<i>Chlorella vulgaris</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	330	106	Hutchinson et al., 1980
<i>Chlamydomonas angulosa</i>		N	S	-	am	6.5	-	3 h	EC50	photosynthesis	200	106	Hutchinson et al., 1980
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	-	7 d	EC50	growth, area under the ci	18.72	203	Djomo et al., 2004
Mollusca													
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	24 h	LC50	mortality	>28.2	67	Weinstein & Polk, 2001
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	8 h	LC50	mortality	7.71	68	Weinstein & Polk, 2001
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	16 h	LC50	mortality	3.35	68	Weinstein & Polk, 2001
<i>Utterbackia imbecilis</i>	glochidia	N	R	98%	rw	8.09	81.3	24 h	LC50	mortality	2.63	68	Weinstein & Polk, 2001
Crustacea													
<i>Daphnia magna</i>	4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	91	24	Abernethy et al., 1986
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	24.6	24	Bisson et al., 2000
<i>Daphnia magna</i>	1.5 mm, 4-6 d	N	Sc	≥97%	am	6.0-7.0	-	48 h	LC50	mortality	1800		Bobra et al., 1983
<i>Daphnia magna</i>	mature	N	S	anal.	tw	-	-	2 h	LC50	mortality	4	40	Kagan et al., 1985, 1987
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h	EC50	immobility	>1024	80	Wernersson & Dave, 1997
<i>Daphnia magna</i>	4 d	N	S	97%	nw	8	250	24 h+2 h +2 h	EC50	immobility	5.7	81	Wernersson & Dave, 1997
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	1.38	105	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	am	7.0±0.1	10	48 h	EC50	immobility	2.7	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	am	7.0±0.1	10	48 h	EC50	immobility	22	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	am	7.0±0.1	50	48 h	EC50	immobility	4.1	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	am	7.0±0.1	50	48 h	EC50	immobility	30	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	am	7.0±0.1	250	48 h	EC50	immobility	1.8	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	am	7.0±0.1	250	48 h	EC50	immobility	31	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	97	48 h	EC50	immobility	2.0	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	97	48 h	EC50	immobility	22	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	200	48 h	EC50	immobility	2.9	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	200	48 h	EC50	immobility	19	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	29	48 h	EC50	immobility	6.8	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	29	48 h	EC50	immobility	19	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	8.0	48 h	EC50	immobility	7.7	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	8.0	48 h	EC50	immobility	33	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	11	48 h	EC50	immobility	20	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	11	48 h	EC50	immobility	27	24	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	6.5	48 h	EC50	immobility	20	107	Nikkilä et al., 1999
<i>Daphnia magna</i>	neonates <24 h	N	S	98.7%	nw	7.0±0.1	6.5	48 h	EC50	immobility	27	24	Nikkilä et al., 1999
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	10 d	LC50	mortality	77.1		Lee et al., 2001
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	14 d	LC50	mortality	60.1		Lee et al., 2001
Insecta													
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	-	-	-	<24 h	LC50	mortality	20	41	Kagan et al., 1985, 1987
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	tw	-	-	<24 h	LC50	mortality	12	135	Kagan & Kagan, 1986
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	tw	-	-	<24 h	LC50	mortality	9	135, 208	Kagan & Kagan, 1986
<i>Aedes aegypti</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	35	144	Borovsky et al., 1987
<i>Aedes taeniorhynchus</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	60	144	Borovsky et al., 1987
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	98%	DSW	-	-	96 h	LC50	mortality	75	82	Bleeker et al., 2003
<i>Chironomus riparius</i>	1st instar, <24 h	Y	S	98%	DSW	-	-	96 h	LC50	mortality	38	83	Bleeker et al., 2003
<i>Culex quinquefasciatus</i>	late-3rd/4th instar	N	S	-	-	-	-	24 h	LC50	mortality	37	144	Borovsky et al., 1987
<i>Diporeia sp.</i>	1-2 mm, juvenile, 5-11 m	Y	R	>98%	nw	8.1-8.3	165-250	28 d	LC50	mortality	79.1	202	Landrum et al., 2003
Pisces													
<i>Pimephales promelas</i>	5 cm, 0.8 g	N	S	anal.	-	-	-	~24 h	LC50	mortality	220	42	Kagan et al., 1985
Amphibia													
<i>Rana pipiens</i>	embryo (stage 24-28)	N	S	-	tw	-	-	24 h	LC50	mortality	140	86	Kagan et al., 1987

Chronic toxicity of pyrene (CASnr: 129-00-0) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [‰]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
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Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S	am	-	215	72 h	EC10	growth	1.2	167	Bisson et al., 2000	
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	7 d	EC10	growth, area under the ci	2.41	203	Djomo et al., 2004	
<i>Scenedesmus subspicatus</i>		N	S	>98%	am	-	72 h	EC10	growth rate	8.4	102	Djomo et al., 2004	
Cyanophyta													
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	2 w	NOEC	growth	≥120	143	Bastian & Toetz, 1982	
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	2.1	168	Bisson et al., 2000
Macrophyta													
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC50	growth	45000	10, 102	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC10	growth	430	10, 102	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC50	growth	2600	102, 108, 109	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC10	growth	270	102, 108, 109	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC10	growth	2000	10, 102, 108	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC14-21	growth	2000	110	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC0-29	chlorophyll content	2000	110	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC11-39	growth	2000	111	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC0-34	chlorophyll content	2000	111	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC0-5	growth	2000	112	Ren et al., 1994	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC0-15	chlorophyll content	2000	112	Ren et al., 1994	
<i>Lemna gibba</i>		Y	S	-	am	-	8 d	EC78	growth	2000	117	Huang et al., 1995	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC50	growth	>8000	96	Huang et al., 1995	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC10	growth	440	96, 102	Huang et al., 1995	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC50	growth	2800	96, 118	Huang et al., 1995	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC10	growth	690	96, 102, 118	Huang et al., 1995	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC50	growth	1000	96, 119	Huang et al., 1995	
<i>Lemna gibba</i>		Y	R	-	am	-	8 d	EC10	growth	230	96, 102, 119	Huang et al., 1995	
<i>Lemna gibba</i>		N	S	-	am	-	8 d	EC24	growth	2000	94	Huang et al., 1997	
<i>Lemna gibba</i>		N	S	-	am	-	8 d	EC46	growth	2000	94, 113	Huang et al., 1997	

Acute toxicity of pyrene (CASnr: 129-00-0) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [%]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Annelida													
<i>Platynereis dumeralii</i>		N	S	-	nw	-	-	10 h	EC50	immobility	22	172, 102	Peachey & Crosby, 1996
<i>Platynereis dumeralii</i>		N	S	-	nw	-	-	10 h	EC10	immobility	16	172, 102	Peachey & Crosby, 1996
Bacteria													
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC50	bioluminescence	15070	5, 24	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC10	bioluminescence	1200	5, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC50	bioluminescence	14530	6, 63	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2	-	15 min	EC10	bioluminescence	1100	6, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	>500000		Johnson & Long, 1998
Crustacea													
<i>Artemia salina</i>	nauplii	N	Sc	≥97%	-	-	30	24 h	LC50	mortality	>99	24	Abernethy et al., 1986
<i>Artemia salina</i>	< 1 d	N	S	anal.	-	-	-	3 h	LC50	mortality	8	61	Kagan et al., 1985, 1987
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC50	immobility	36	172, 102	Peachey & Crosby, 1996
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC10	immobility	20	172, 102	Peachey & Crosby, 1996
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC50	immobility	3.4	173, 102	Peachey & Crosby, 1996
<i>Artemia salina</i>	nauplii	N	S	-	nw	-	-	10 h	EC10	immobility	1.8	173, 102	Peachey & Crosby, 1996
<i>Amphilocus likelike</i>	larvae	N	S	-	nw	-	-	10 h	EC50	immobility	22	172, 102	Peachey & Crosby, 1996
<i>Amphilocus likelike</i>	larvae	N	S	-	nw	-	-	10 h	EC10	immobility	8.4	172, 102	Peachey & Crosby, 1996
<i>Mysidopsis bahia</i>	24-48 h	Y	S	-	nw	-	30	48 h	LC50	mortality	24.8	180	Pelletier et al., 1997
<i>Mysidopsis bahia</i>	24-48 h	Y	S	-	nw	-	30	48 h	LC50	mortality	0.89	181	Pelletier et al., 1997
Mollusca													
<i>Crassostrea gigas</i>	embryo/larval	N	S	98%	nw	-	32-33	48 h	NOEC	abnormal shell	25	182	Lyons et al., 2002

<i>Crassostrea gigas</i>	embryo/larval	N	S	98%	nw	-	32-33	48 h	EC50	abnormal shell	110	182, 92	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	98%	nw	-	32-33	48 h	EC10	abnormal shell	32	182, 92	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	98%	nw	-	32-33	48 h	NOEC	abnormal shell	0.5	89	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	98%	nw	-	32-33	48 h	EC50	abnormal shell	0.98	89, 92	Lyons et al., 2002
<i>Crassostrea gigas</i>	embryo/larval	N	S	98%	nw	-	32-33	48 h	EC10	abnormal shell	0.93	89, 92	Lyons et al., 2002
<i>Mulinia lateralis</i>	embryo/larval	Y	S	-	nw	-	30	48 h	L(E)C50	survival/developm.	>11900	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	embryo/larval	Y	S	-	nw	-	30	48 h	L(E)C50	survival/developm.	0.23	181	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	LC50	mortality	>9454	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	LC50	mortality	1.68	181	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	EC50	growth	>9454	180	Pelletier et al., 1997
<i>Mulinia lateralis</i>	juv. 1-1.5 mm	Y	S	-	nw	-	30	96 h	EC50	growth	>0.91	181	Pelletier et al., 1997
<i>Mytilus edulis</i>		N	R	≥98%	nw	-	33	48 h	EC50	feeding filtration	>40		Donkin et al., 1989, 1991
Coelenterata													
<i>Fungia scutaria</i>	planulae	N	S	-	nw	-	-	10 h	EC50	immobility	32	172, 102	Peachey & Crosby, 1996
<i>Fungia scutaria</i>	planulae	N	S	-	nw	-	-	10 h	EC10	immobility	26	172, 102	Peachey & Crosby, 1996

Chronic toxicity of pyrene (CASnr: 129-00-0) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [‰]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC50	bioluminescence	97510	5	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC10	bioluminescence	21000	5, 24, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC50	bioluminescence	1430	6	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC10	bioluminescence	83	6, 63, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC50	growth	97210	5	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC10	growth	17000	5, 24, 102	El-Alawi et al., 2001
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC50	growth	1420	6	El-Alawi et al., 2001, 2002
<i>Vibrio fischeri</i>		N	S	-	am	7.2		18 h	EC10	growth	75	6, 63, 102	El-Alawi et al., 2001

Acute toxicity of fluorene (CASnr: 86-73-7) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Dunaliella bioculata</i>		N	S	purified	am	-	-	50-72 h	EC50	growth rate	15500	169	Heldal et al., 1984
<i>Pseudokirchneriella subcapitata</i>		N	S	98.6	-	-	-	96 h	EC50	CO ₂ incorporation, prod.	3400	102	Finger et al., 1985
<i>Pseudokirchneriella subcapitata</i>		N	S	98.6	-	-	-	7 d	EC50	cell number	2200	102	Finger et al., 1985
Bacteria													
<i>Escherichia coli</i>		N	S	-	-	-	-	48 h	EC3	growth	1340	103	Jamroz et al., 2003
<i>Escherichia coli</i>		N	S	-	-	-	-	48 h	EC2	growth	1340	103, 104	Jamroz et al., 2003
Crustacea													
<i>Daphnia magna</i>			S	98%		7.5	280	48 h	EC50	immobility	430		Mayer & Ellersieck, 1986
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	408	24	Bisson et al., 2000
<i>Daphnia magna</i>		Y	S	98.6	nw	7.2-7.4	270	48 h	EC50	immobility	430	163, 171	Finger et al., 1985
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h	EC50	immobility	>1024	80	Wernersson 2003
<i>Daphnia magna</i>	neonates <24 h	N	S	-	am	8	250	24 h+2 h+1 h	EC50	immobility	>1024	105	Wernersson 2003
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC50	immobility	212		Smith et al., 1988
<i>Daphnia pulex</i>	< 24 h	N	S	≥96%	rw	-	160-180	48 h	EC10	immobility	23		Smith et al., 1988
<i>Gammarus pseudolimnaeus</i>		Y	S	98.6	nw	7.2-7.4	270	96 h	LC50	mortality	600	163, 171	Finger et al., 1985
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	10 d	LC50	mortality	525		Lee et al., 2001
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	10 d	LC50	mortality	452		Lee et al., 2001
<i>Hyalella azteca</i>	2-3 w	N	R	98%	nw	8.2	165	14 d	LC50	mortality	404		Lee et al., 2001
Insecta													
<i>Aedes aegypti</i>	< 8 h, first instar	N	S	anal	-	-	-	<24 h	LC50	mortality	2700	41	Kagan et al., 1987
<i>Chironomus plumosus</i>			S	98%		7.5	280	48 h	EC50	immobility	2350		Mayer & Ellersieck, 1986

<i>Chironomus riparius</i>	larvae	Y	S	98.6	nw	7.2-7.4	270	48 h	EC50	immobility	2350	163, 171	Finger et al., 1985
<i>Hexagenia bilineata</i>	nymphs	Y	S	98.6	nw	7.2-7.4	270	120 h	LC50	mortality	5800	163, 171	Finger et al., 1985
Mollusca													
<i>Mudalia potosensis</i>		Y	S	98.6	nw	7.2-7.4	270	96 h	LC50	mortality	5600	163, 171	Finger et al., 1985
Pisces													
<i>Lepomis macrochirus</i>			S	98%		7.5	280	96 h	LC50	mortality	760		Mayer & Ellersieck, 1986
<i>Lepomis macrochirus</i>		Y	S	98.6	nw	7.2-7.4	270	96 h	LC50	mortality	910	163, 171	Finger et al., 1985
<i>Oncorhynchus mykiss</i>		Y	S	98.6	nw	7.2-7.4	270	96 h	LC50	mortality	820	163, 171	Finger et al., 1985
<i>Pimephales promelas</i>		Y	S	98.6	nw	7.2-7.4	270	96 h	LC50	mortality	>100000	163, 171	Finger et al., 1985

Chronic toxicity of fluorene (CASnr: 86-73-7) to freshwater organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	820	167	Bisson et al., 2000
<i>Pseudokirchneriella subcapitata</i>		N	S	98.6	-	-	-	7 d	EC10	cell number	1400	102	Finger et al., 1985
<i>Pseudokirchneriella subcapitata</i>		N	S	98.6	-	-	-	7 d	NOEC	biomass, cell number, chl	1670		Finger et al., 1985
Cyanophyta													
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	-	2 w	NOEC	growth	<110	143	Bastian & Toetz, 1982
<i>Anabaena flos-aqua</i>		Y	S	anal.	am	-	-	2 w	EC10	growth	430	143, 92	Bastian & Toetz, 1982
Macrophyta													
<i>Chara</i> sp.	pre-emergence	N	S	98.6	nw	-	-	21 d	NOEC	weight	14000	170	Finger et al., 1985
<i>Chara</i> sp.	pre-emergence	N	S	98.6	nw	-	-	21 d	EC50	weight	20300	170	Finger et al., 1985
<i>Chara</i> sp.	21 d, post-emergence	N	S	98.6	nw	-	-	21 d	NOEC	weight	>35000	170	Finger et al., 1985
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC7	growth	2000	94	Huang et al., 1997
<i>Lemna gibba</i>		N	S	-	am	-	-	8 d	EC30	growth	2000	94, 113	Huang et al., 1997
Insecta													
<i>Chironomus riparius</i>	larvae	Y	IF	98.6	nw	7.2-7.4	270	30 d	NOEC	emergence	290	163, 171	Finger et al., 1985
<i>Diporeia</i> sp.	1-2 mm, juvenile, 5-11 m	Y	R	>98%	nw	8.1-8.3	165-250	28 d	LC50	mortality	542.7	202	Landrum et al., 2003
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	25	168	Bisson et al., 2000
<i>Daphnia magna</i>		Y	IF	98.6	nw	7.2-7.4	270	21 d	NOEC	reproduction	62.5	163, 171	Finger et al., 1985
Pisces													
<i>Lepomis macrochirus</i>	fingerlings, 0.74 g	Y	CF	98.6	nw	7.2-7.4	270	30 d	NOEC	growth	125	163, 171	Finger et al., 1985
<i>Lepomis macrochirus</i>	fingerlings, 0.74 g	Y	CF	98.6	nw	7.2-7.4	270	30 d	NOEC	mortality	250	163, 171	Finger et al., 1985

Acute toxicity of fluorene (CASnr: 86-73-7) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [‰]	Exp time	Criterion	Test endpoint	Value [µg/l]	Notes	Reference
Bacteria													
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	3200	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S		am	7.2		15 min	EC50	bioluminescence	3130	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	anal.	am	-	-	5 min	EC50	bioluminescence	500		Johnson & Long, 1998
<i>Vibrio fischeri</i>		N	S	-	-	-	-	15 min	EC18	bioluminescence	1340	103	Jamroz et al., 2003
<i>Vibrio fischeri</i>		N	S	-	-	-	-	15 min	EC5	bioluminescence	1340	103, 104	Jamroz et al., 2003
Annelida													
<i>Neanthes arenaceodentata</i>		Y	S	≥98%	am	-	32	96 h	LC50	mortality	1000	50	Rossi & Neff, 1978
Crustacea													
<i>Artemia salina</i>	< 1 d	N	S	anal.	-	-	-	3 h	LC50	mortality	3000	61	Kagan et al., 1987

Chronic toxicity of fluorene (CASnr: 86-73-7) to marine organisms.

Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Salinity [‰]	Exp time	Criterion	Test endpoint	Value	Notes	Reference
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													[µg/l]
Bacteria													
<i>Vibrio fischeri</i>		N	S	am	7.2			18 h	EC50	bioluminescence	80990	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	am	7.2			18 h	EC50	bioluminescence	1040	63	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	am	7.2			18 h	EC50	growth	81290	24	El-Alawi et al., 2002
<i>Vibrio fischeri</i>		N	S	am	7.2			18 h	EC50	growth	1040	63	El-Alawi et al., 2002
Acute toxicity of indeno[1,2,3-cd]pyrene (CASnr: 193-39-5) to freshwater organisms.													
Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
													[µg/l]
Crustacea													
<i>Daphnia magna</i>	< 24 h	Y	S	-	am	7.8±0.2	250±30	48 h	EC50	immobility	>357	24	Bisson et al., 2000
Chronic toxicity of indeno[1,2,3-cd]pyrene (CASnr: 193-39-5) to freshwater organisms.													
Species	Species properties	Analyzed	Test type	Substance purity	Test water	pH	Hardness mg CaCO ₃ /l	Exp time	Criterion	Test endpoint	Value	Notes	Reference
													[µg/l]
Algae													
<i>Pseudokirchneriella subcapitata</i>		Y	S		am	-	215	72 h	EC10	growth	1.5	167	Bisson et al., 2000
Crustacea													
<i>Ceriodaphnia dubia</i>	< 24 h	Y	R	-	nw	8.1±0.4	240±40	7 d	EC10	reproduction	0.27	168	Bisson et al., 2000