

## Certificate of REACH Compliance

We hereby certify that all Kingbright's LEDs (except assembly products that include other components) are compliant with REACH's restriction on SVHC for limits on hazardous substances and Annex XVII of REACH regulation.

No.	Substance name	CAS number	EC number	Weight-%
1	Anthracene	120-12-7	204-371-1	<0.1%
2	4,4'- Diaminodiphenylmethane	101-77-9	202-974-4	<0.1%
3	Dibutyl phthalate	84-74-2	201-557-4	<0.1%
4	Cobalt dichloride	7646-79-9	231-589-4	<0.1%
5	Diarsenic pentaoxide	1303-28-2	215-116-9	<0.1%
6	Diarsenic trioxide	1327-53-3	215-481-4	<0.1%
7	Sodium dichromate, ehydrate	7789-12-0 10588-01-9	234-190-3	<0.1%
8	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	201-329-4	<0.1%
9	Bis (2-ethyl(hexyl)phthalate) (DEHP)	117-81-7	204-211-0	<0.1%
10	Hexabromocyclododecane (HBCDD)	25637-99-4 3194-55-6	247-148-4 221-695-9	<0.1%
11	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	287-476-5	<0.1%
12	Bis(tributyltin)oxide	56-35-9	200-268-0	<0.1%
13	Lead hydrogen arsenate	7784-40-9	232-064-2	<0.1%
14	Triethyl arsenate	15606-95-8	427-700-2	<0.1%
15	Benzyl butyl phthalate	85-68-7	201-622-7	<0.1%
16	Anthracene oil	90640-80-5	292-602-7	<0.1%
17	Anthracene oil, anthracene paste	90640-81-6	292-603-2	<0.1%
18	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	<0.1%
19	Anthracene oil, anthracene paste, distn. Lights	91995-17-4	295-278-5	<0.1%
20	Anthracene oil, anthracene-low	90640-82-7	292-604-8	<0.1%
21	Coal tar pitch, high temperature	65996-93-2	266-028-2	<0.1%
22	Aluminosilicate Refractory Ceramic Fibers(RCF)	-	-	<0.1%
23	Zirconia Aluminosilicate Refractory Ceramic Fibers (Zr-RCF)	-	-	<0.1%
24	2,4-Dinitrotoluene	121-14-2	204-450-0	<0.1%

No.	Substance name	CAS number	EC number	Weight-%
25	Diisobutyl phthalate	84-69-5	201-553-2	<0.1%
26	Lead chromate	7758-97-6	231-846-0	<0.1%
27	Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	12656-85-8	235-759-9	<0.1%
28	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	215-693-7	<0.1%
29	Tris (2-chloroethyl)phosphate	115-96-8	204-118-5	<0.1%
30	Acrylamide	79-06-1	201-173-7	<0.1%
31	Trichloroethylene	79-01-6	201-167-4	<0.1%
32	Boric acid	10043-35-3 11113-50-1	233-139-2 234-343-4	<0.1%
33	Disodium tetraborate,anhydrous	1330-43-4 12179-04-3 1303-96-4	215-540-4	<0.1%
34	Tetraboron disodium heptaoxide,hydrate	12267-73-1	235-541-3	<0.1%
35	Sodium chromate	7775-11-3	231-889-5	<0.1%
36	Potassium chromate	7789-00-6	232-140-5	<0.1%
37	Ammonium dichromate	7789-09-5	232-143-1	<0.1%
38	Potassium dichromate	7778-50-9	231-906-6	<0.1%
39	Cobalt sulfate	10124-43-3	233-334-2	<0.1%
40	Cobalt dinitrate	10141-05-6	233-402-1	<0.1%
41	Cobalt carbonate	513-79-1	208-169-4	<0.1%
42	Cobalt diacetate	71-48-7	200-755-8	<0.1%
43	2-Methoxyethanol	109-86-4	203-713-7	<0.1%
44	2-Ethoxyethanol	110-80-5	203-804-1	<0.1%
45	Chromium trioxide	1333-82-0	215-607-8	<0.1%
46	Chromic acid, Dichromic acid	7738-94-5 13530-68-2	231-801-5 236-881-5	<0.1%
47	2-ethoxyethyl acetate	111-15-9	203-839-2	<0.1%
48	strontium chromate	7789-06-2	232-142-6	<0.1%
49	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	271-084-6	<0.1%
50	Hydrazine	7803-57-8 302-01-2	206-114-9	<0.1%

No.	Substance name	CAS number	EC number	Weight-%
51	1-methyl-2-pyrrolidone	872-50-4	212-828-1	<0.1%
52	1,2,3-trichloropropane	96-18-4	202-486-1	<0.1%
53	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	276-158-1	<0.1%
54	Dichromium tris(chromate)	24613-89-6	246-356-2	<0.1%
55	Potassium hydroxyoctaoxidizincatedi-chromate	11103-86-9	234-329-8	<0.1%
56	Pentazinc chromate octahydroxide	49663-84-5	256-418-0	<0.1%
57	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4	500-036-1	<0.1%
58	Bis(2-methoxyethyl) phthalate	117-82-8	204-212-6	<0.1%
59	2-Methoxyaniline; o-Anisidine	90-04-0	201-963-1	<0.1%
60	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	205-426-2	<0.1%
61	1,2-Dichloroethane	107-06-2	203-458-1	<0.1%
62	Bis(2-methoxyethyl) ether	111-96-6	203-924-4	<0.1%
63	Arsenic acid	7778-39-4	231-901-9	<0.1%
64	Calcium arsenate	7778-44-1	231-904-5	<0.1%
65	Trilead diarsenate	3687-31-8	222-979-5	<0.1%
66	N,N-dimethylacetamide (DMAC)	127-19-5	204-826-4	<0.1%
67	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	202-918-9	<0.1%
68	Phenolphthalein	77-09-8	201-004-7	<0.1%
69	Lead diazide Lead azide	13424-46-9	236-542-1	<0.1%
70	Lead stypnate	15245-44-0	239-290-0	<0.1%
71	Lead dipicrate	6477-64-1	229-335-2	<0.1%
72	[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	548-62-9	208-953-6	<0.1%
73	α,α-Bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	6786-83-0	229-851-8	<0.1%

No.	Substance name	CAS number	EC number	Weight-%
74	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	202-959-2	<0.1%
75	1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC)	59653-74-6	423-400-0	<0.1%
76	Diboron trioxide	1303-86-2	215-125-8	<0.1%
77	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	203-977-3	<0.1%
78	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	561-41-1	209-218-2	<0.1%
79	Lead(II) bis(methanesulfonate)	17570-76-2	401-750-5	<0.1%
80	Formamide	75-12-7	200-842-0	<0.1%
81	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	2580-56-5	219-943-6	<0.1%
82	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	203-794-9	<0.1%
83	1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	2451-62-9	219-514-3	<0.1%
84	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	202-027-5	<0.1%
85	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	214-604-9	<0.1%
86	Pentacosafuorotridecanoic acid	72629-94-8	276-745-2	<0.1%
87	Tricosafuorododecanoic acid	307-55-1	206-203-2	<0.1%
88	Henicosafuoroundecanoic acid	2058-94-8	218-165-4	<0.1%
89	Heptacosafuorotetradecanoic acid	376-06-7	206-803-4	<0.1%
90	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	204-650-8	<0.1%
91	Cyclohexane-1,2-dicarboxylic anhydride [1] cis-cyclohexane-1,2-dicarboxylic anhydride [2] trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry].	85-42-7 13149-00-3 14166-21-3	201-604-9 236-086-3 238-009-9	<0.1%
92	Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including	25550-51-0 19438-60-9 48122-14-1 57110-29-9	247-094-1 243-072-0 256-356-4 260-566-1	<0.1%

No.	Substance name	CAS number	EC number	Weight-%
	their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]			
93	4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	-	-	<0.1%
94	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	-	-	<0.1%
95	Methoxy acetic acid	625-45-6	210-894-6	<0.1%
96	N,N-dimethylformamide	68-12-2	200-679-5	<0.1%
97	Dibutyltin dichloride (DBT)	683-18-1	211-670-0	<0.1%
98	Lead monoxide (Lead oxide)	1317-36-8	215-267-0	<0.1%
99	Orange lead (Lead tetroxide)	1314-41-6	215-235-6	<0.1%
100	Lead bis(tetrafluoroborate)	13814-96-5	237-486-0	<0.1%
101	Trilead bis(carbonate)dihydroxide	1319-46-6	215-290-6	<0.1%
102	Lead titanium trioxide	12060-00-3	235-038-9	<0.1%
103	Lead titanium zirconium oxide	12626-81-2	235-727-4	<0.1%
104	Silicic acid, lead salt	11120-22-2	234-363-3	<0.1%
105	Silicic acid (H <sub>2</sub> Si <sub>2</sub> O <sub>5</sub> ), barium salt (1:1), lead-doped[with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]	68784-75-8	272-271-5	<0.1%
106	1-bromopropane (n-propyl bromide)	106-94-5	203-445-0	<0.1%
107	Methyloxirane (Propylene oxide)	75-56-9	200-879-2	<0.1%
108	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	284-032-2	<0.1%
109	Diisopentylphthalate (DIPP)	605-50-5	210-088-4	<0.1%
110	N-pentyl-isopentylphthalate	-	-	<0.1%
111	1,2-diethoxyethane	629-14-1	211-076-1	<0.1%
112	Acetic acid, lead salt, basic	51404-69-4	257-175-3	<0.1%

No.	Substance name	CAS number	EC number	Weight-%
113	Lead oxide sulfate	12036-76-9	234-853-7	<0.1%
114	[Phthalato(2-)]dioxotrilead	69011-06-9	273-688-5	<0.1%
115	Dioxobis(stearato)trilead	12578-12-0	235-702-8	<0.1%
116	Fatty acids, C16-18, lead salts	91031-62-8	292-966-7	<0.1%
117	Lead cyanamidate	20837-86-9	244-073-9	<0.1%
118	Lead dinitrate	10099-74-8	233-245-9	<0.1%
119	Pentalead tetraoxide sulphate	12065-90-6	235-067-7	<0.1%
120	Pyrochlore, antimony lead yellow	8012-00-8	232-382-1	<0.1%
121	Sulfurous acid, lead salt, dibasic	62229-08-7	263-467-1	<0.1%
122	Tetraethyllead	78-00-2	201-075-4	<0.1%
123	Tetralead trioxide sulphate	12202-17-4	235-380-9	<0.1%
124	Trilead dioxide phosphonate	12141-20-7	235-252-2	<0.1%
125	Furan	110-00-9	203-727-3	<0.1%
126	Diethyl sulphate	64-67-5	200-589-6	<0.1%
127	Dimethyl sulphate	77-78-1	201-058-1	<0.1%
128	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	421-150-7	<0.1%
129	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	201-861-7	<0.1%
130	4,4'-methylenedi-o-toluidine	838-88-0	212-658-8	<0.1%
131	4,4'-oxydianiline and its salts	101-80-4	202-977-0	<0.1%
132	4-aminoazobenzene	60-09-3	200-453-6	<0.1%
133	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7	202-453-1	<0.1%
134	6-methoxy-m-toluidine (p-cresidine)	120-71-8	204-419-1	<0.1%
135	Biphenyl-4-ylamine	92-67-1	202-177-1	<0.1%
136	o-aminoazotoluene [(4-o-tolylazo-o-toluidine)]	97-56-3	202-591-2	<0.1%
137	o-toluidine	95-53-4	202-429-0	<0.1%
138	N-methylacetamide	79-16-3	201-182-6	<0.1%
139	Cadmium	7440-43-9	231-152-8	<0.1%
140	Cadmium oxide	1306-19-0	215-146-2	<0.1%
141	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	223-320-4	<0.1%
142	Pentadecafluorooctanoic acid (PFOA)	335-67-1	206-397-9	<0.1%
143	Dipentyl phthalate (DPP)	131-18-0	205-017-9	<0.1%
144	4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in	---	---	<0.1%

No.	Substance name	CAS number	EC number	Weight-%
	position 4 to phenol,ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]			
145	Cadmium sulphide	1306-23-6	215-147-8	<0.1%
146	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo] [1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo) naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	217-710-3	<0.1%
147	Dihexyl phthalate	84-75-3	201-559-5	<0.1%
148	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	202-506-9	<0.1%
149	Trixylyl phosphate	25155-23-1	246-677-8	<0.1%
150	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)] bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	209-358-4	<0.1%
151	Lead di(acetate)	301-04-2	206-104-4	<0.1%
152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	271-093-5	<0.1%
153	Sodium perborate; perboric acid, sodium salt	-	239-172-9 234-390-0	<0.1%
154	Sodium peroxometaborate	7632-04-4	231-556-4	<0.1%
155	Cadmium chloride	10108-64-2	233-296-7	<0.1%
156	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	223-346-6	<0.1%
157	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stanna tetradecanoate (DOTE)	15571-58-1	239-622-4	<0.1%
158	reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stanna tetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	-	-	<0.1%
159	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	247-384-8	<0.1%
160	Cadmium fluoride	7790-79-6	232-222-0	<0.1%
161	Cadmium sulphate	10124-36-4, 31119-53-6	233-331-6	<0.1%

No.	Substance name	CAS number	EC number	Weight-%
162	5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	-	-	<0.1%
163	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate (EC No. 201-559-5)	68515-51-5 68648-93-1	271-094-0 272-013-1	<0.1%
164	1,3-propanesultone	1120-71-4	214-317-9	<0.1%
165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	223-383-8	<0.1%
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	253-037-1	<0.1%
167	Nitrobenzene	98-95-3	202-716-0	<0.1%
168	Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluorononanoic acid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4	206-801-3	<0.1%
169	Benzo[def]chrysene(Benzo[a]pyrene)	50-32-8	200-028-5	<0.1%
170	4,4'-isopropylidenediphenol (bisphenol A)	80-05-7	201-245-8	<0.1%
171	4-Heptylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	-	-	<0.1%
172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3108-42-7 335-76-2 3830-45-3	- 206-400-3 221-470-5	<0.1%
173	p-(1,1-dimethylpropyl)phenol	80-46-6	201-280-9	<0.1%
174	Perfluorohexane-1-sulphonic acid and its salts(PFHxS)	-	-	<0.1%
175	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) with ≥0.1% w/w 4-heptylphenol, branched and linear (4-HPbl)	-	-	<0.1%



No.	Substance name	CAS number	EC number	Weight-%
176	Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus") covering any of its individual anti- and syn-isomers or any combination thereof	-	-	<0.1%
177	Chrysene	218-01-9 1719-03-5	205-923-4	<0.1%
178	Cadmium nitrate	10022-68-1 10325-94-7	233-710-6	<0.1%
179	Cadmium hydroxide	21041-95-2	244-168-5	<0.1%
180	Cadmium carbonate	513-78-0	208-168-9	<0.1%
181	Benz[a]anthracene	56-55-3 1718-53-2	200-280-6	<0.1%
182	Benzene-1,2,4-tricarboxylic acid 1,2 anhydride, trimellitic anhydride; TMA	552-30-7	209-008-0	<0.1%
183	Benzo[ghi]perylene	191-24-2	205-883-8	<0.1%
184	Decamethylcyclotetrasiloxane,D5	541-02-6	208-764-9	<0.1%
185	Dicyclohexyl phthalate,DCHP	84-61-7	201-545-9	<0.1%
186	Disodium octaborate	12008-41-2	234-541-0	<0.1%
187	Dodecamethylcyclohexasiloxane,D6	540-97-6	208-762-8	<0.1%
188	Ethylenediamine,EDA	107-15-3	203-468-6	<0.1%
189	Lead	7439-92-1	231-100-4	<0.1%
190	Octamethylcyclotetrasiloxane,D4	556-67-2	209-136-7	<0.1%
191	Terphenyl, hydrogenated	61788-32-7	262-967-7	<0.1%
192	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one (3-benzylidene camphor; 3-BC)	15087-24-8	239-139-9	<0.1%
193	2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6	401-720-1	<0.1%
194	Benzo[k]fluoranthene	207-08-9	205-916-6	<0.1%
195	Fluoranthene	206-44-0 93951-69-0	205-912-4	<0.1%
196	Phenanthrene	85-01-8	201-581-5	<0.1%
197	Pyrene	129-00-0 1718-52-1	204-927-3	<0.1%

Kingbright Electronic Co., Ltd.

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