

## Tricresyl phosphate (CAS no. 1330-78-5)

### Tier 1 *in vivo* Test

#### (1) Results

Fish were exposed to concentrations of 2.55, 7.82 and 25.7 µg/L (measured). No significant differences were observed in mortality, total length, body weight, total number of eggs, number of fertile eggs, fertility rate, gonadosomatic index, male hepatosomatic index, female secondary sex characteristics and male hepatic vitellogenin level.

At 2.55 µg/L, a significant decrease in female hepatosomatic index was observed.

At 2.55 µg/L and higher, a significant decrease in female hepatic vitellogenin level and male secondary sex characteristics was observed.

#### (2) Summary

Estrogenic activity of tricresyl phosphate has been indicated from literature. In this study, no significant increase in male hepatic vitellogenin level was observed at sublethal concentrations to suggest estrogenic effect. A decrease in female hepatic vitellogenin level to suggest antiestrogenic effect and a decrease in male secondary sex characteristics to suggest antiandrogenic effect were observed. But these decreases were small without concentration response, thus inconclusive.

Table 1-A Results

Measured concentration ( $\mu\text{g/L}$ )	Number of survived fish male and female	Mortality (%) male and female	Total length (mm)		Body weight (mg)	
			male	female	male	female
Control (<0.500)	24	0	31.4 $\pm$ 1.0	32.4 $\pm$ 0.9	331 $\pm$ 42	431 $\pm$ 67
Solvent Control (nd)	23	4.2	31.9 $\pm$ 1.7	33.1 $\pm$ 0.9	342 $\pm$ 63	446 $\pm$ 52
2.55	22	8.3	32.0 $\pm$ 1.6	32.5 $\pm$ 1.2	339 $\pm$ 43	411 $\pm$ 90
7.82	24	0	32.1 $\pm$ 1.6	33.1 $\pm$ 1.0	340 $\pm$ 61	433 $\pm$ 50
25.7	24	0	31.3 $\pm$ 1.6	33.6 $\pm$ 1.6	323 $\pm$ 45	414 $\pm$ 65

Table 1-B Results (continued)

Measured concentration ( $\mu\text{g/L}$ )	Number of eggs (eggs/female/day)	Number of fertile eggs (eggs/female/day)	Fertility rate (%)	Gonadosomatic Index (%)	
				male	female
Control (<0.500)	24.3 $\pm$ 4.6	23.7 $\pm$ 4.6	97.6 $\pm$ 1.3	1.2 $\pm$ 0.4	10.3 $\pm$ 1.3
Solvent Control (nd)	24.7 $\pm$ 1.8	23.5 $\pm$ 1.5	95.3 $\pm$ 3.8	1.2 $\pm$ 0.4	9.5 $\pm$ 1.1
2.55	20.8 $\pm$ 3.9	19.4 $\pm$ 4.5	93.1 $\pm$ 6.2	1.2 $\pm$ 0.6	11.9 $\pm$ 5.9
7.82	23.6 $\pm$ 1.6	22.3 $\pm$ 1.4	94.3 $\pm$ 1.7	1.3 $\pm$ 0.8	10.6 $\pm$ 2.0
25.7	23.6 $\pm$ 2.6	22.7 $\pm$ 2.4	96.2 $\pm$ 1.4	1.0 $\pm$ 0.4	10.6 $\pm$ 3.6

Table 1-C Results (continued)

Measured concentration ( $\mu\text{g/L}$ )	Hepatosomatic Index (%)		Vitellogenin (ng/mg liver)		Secondary sex characteristics	
	male	female	male	female	male	female
Control (<0.500)	2.3 $\pm$ 0.5	5.9 $\pm$ 0.9	0.23 $\pm$ 0.09	1,064 $\pm$ 147	82 $\pm$ 10	0 $\pm$ 0
Solvent Control (nd)	2.4 $\pm$ 0.6	5.9 $\pm$ 1.0	0.50 $\pm$ 0.34	990 $\pm$ 156	94 $\pm$ 16	4 $\pm$ 13
2.55	2.4 $\pm$ 0.6	4.8 $\pm$ 1.0*	0.73 $\pm$ 0.07	848 $\pm$ 170**	79 $\pm$ 11*	0 $\pm$ 0
7.82	2.5 $\pm$ 1.0	5.3 $\pm$ 1.2	0.79 $\pm$ 0.87	785 $\pm$ 73**	80 $\pm$ 18**	0 $\pm$ 0
25.7	2.7 $\pm$ 1.1	5.8 $\pm$ 1.0	0.48 $\pm$ 0.05	858 $\pm$ 175**	75 $\pm$ 16**	0 $\pm$ 0

Table 1-D Results (continued)

Measured concentration ( $\mu\text{g/L}$ )	Other observations
Control (<0.500)	Not found
Solvent Control (nd)	Not found
2.55	Not found
7.82	Not found
25.7	Not found

Data show mean  $\pm$  SD (standard deviation)

Statistically significant differences from control group (\*\* $p$ <0.01, \* $p$ <0.05)

nd: not detected (below detection limit of vitellogenin: 1ng/mg liver)

(-): not measured

Secondary sex characteristics: number of joint plates with papillary processes