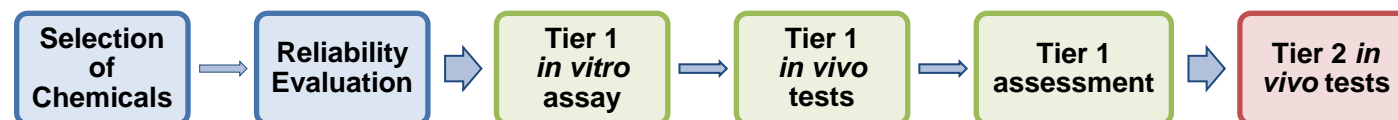


4-Nonylphenol (branched) (CAS no. 84852-15-3)

[Current status]

Finished Tier 2 *In vivo* tests (Hazard assessment to be implemented)



Results of Reliability Evaluation (based on literature information)

Suggested Effects							
Estrogenic	Anti-estrogenic	Androgenic	Anti-androgenic	Thyroidal	Anti-thyroidal	Ecdysone	Others*
P	-	P	P	P	P	-	P

P: Effects suggested by existing information

-: Effects NOT suggested by existing information

Others*: Hypothalamic-Pituitary-Gonad Axis etc.

**: Effects suggested by USEPA EDSP

Results of Tier 1 *in vitro* tests

Tested Mode of Actions							
Estrogenic	Anti-estrogenic	Androgenic	Anti-androgenic	Thyroidal	Anti-thyroidal	Ecdysone	Others
P	-	N	N	N	N	-	-

P: EC₅₀ or IC₅₀ values were detected

N: EC₅₀ or IC₅₀ values were not detected

To be implemented: Mode of actions selected but not tested yet

-: Mode of actions not selected for testing

Results of Tier 1 *In vivo* tests

Fish Short Term Reproduction Assay (FSTRA: OECD TG229) using Medaka

An increase in male hepatic vitellogenin level was observed at sublethal concentrations, indicating its estrogenic effect.

Results of Tier 2 *In vivo* tests

The Medaka Extended One-Generation Test (MEOGRT: OECD TG240)

Fish were exposed to 1.27, 2.95, 9.81, 27.8 and 89.4 µg/L (measured mean concentrations) for 19 weeks. At levels where mortality was not dose-dependent (ie. below 9.81 µg/L), a significant increase in male liver vitellogenin level was observed and male secondary sex characteristics (the number of plates with papillary process on the anal fin per fish) were suppressed, indicating estrogenic effects. Thus, 4-nonylphenol (branched) was identified as estrogenic.

At 1.27 µg/L and higher, a significant decrease was observed in total egg and fertile egg, indicating reproductive toxicity to Medaka. This lowest observed effect concentration (LOEC) was ca. 2 times as high as the highest environmental water concentration of 0.69 µg/L (sum of 4-nonylphenol branched isomers) that was measured in MOE's Water Quality Survey of Public Water Areas in FY2015.