Electronic Supplementary Material (ESI) for Nanoscale Advances.

Table S1 - Statistical analysis of TiO_2 embryotoxic risk at different developmental traits of zebrafish. Abbreviations stand for: h_{pf} - hours post-fertilization; NOAEL - highest concentration at which there was not registered a statistically relevant toxic or adverse effect. Test range of TiO_2 pristine material and thermo-treated nanoparticles: 0-100 $mg.L^{-1}$. Test range of TiO_2 released at catalyst reuse: 0-4.25 $mg.L^{-1}$.

	h_{pf}	Indep. variables	Analysis	TiO_2 pristine material	NOAEL	TiO_2 thermo-treated	NOAEL	TiO_2 released (reuse)	NOAEL
Structural Benckmarks	8	*epipolic arc*	one-way ANOVA	$F(5,111)=2.199$; $P=0.060$	100 $mg.L^{-1}$	**$F(5,109)=3.758$; $P<0.050$**	0.1 $mg.L^{-1}$	$F(3,74)=2.630$; $P=0.056$	4.25 $mg.L^{-1}$
	8	*yolk volume*	ANCOVA	$F(5,107)=2.250$; $P=0.055$	100 $mg.L^{-1}$	**$F(5,73)=7.845$; $P<0.050$**	10 $mg.L^{-1}$	$F(3,73)=2.169$; $P=0.099$	4.25 $mg.L^{-1}$
	32	*head-trunk angle*	one-way ANOVA	$F(4,74)=0.722$; $P=0.580$	100 $mg.L^{-1}$	**$F(5,96)=2.562$; $P<0.050$**	10 $mg.L^{-1}$	$F(3,73)=2.044$; $P=0.115$	4.25 $mg.L^{-1}$
	56	*pupil surface*	one-way ANOVA	**$F(4,73)=7.177$; $P<0.050$**	0 $mg.L^{-1}$	**$F(4,86)=11.550$; $P<0.050$**	0.01 $mg.L^{-1}$	$F(3,72)=1.446$; $P=0.237$	4.25 $mg.L^{-1}$
	56	*yolk extension*	ANCOVA	$F(5,54)=1.720$; $P=0.146$	100 $mg.L^{-1}$	**$F(5,82)=5.421$; $P<0.050$**	1 $mg.L^{-1}$	**$F(3,46)=15.346$; $P<0.050$**	0 $mg.L^{-1}$
	56	*total body length*	one-way ANOVA	$F(5,55)=2.268$; $P=0.060$	100 $mg.L^{-1}$	**$F(5,83)=2.711$; $P<0.050$**	0 $mg.L^{-1}$	**$F(3,47)=16.054$; $P<0.050$**	0 $mg.L^{-1}$
Neuro-Motor Performance	32	*spontaneous movements*	one-way ANOVA	**$F(5,24)=5.952$; $P<0.050$**	0.01 $mg.L^{-1}$	**$F(5,24)=6.447$; $P<0.050$**	10 $mg.L^{-1}$	$F(3,16)=0.482$; $P=0.700$	4.25 $mg.L^{-1}$
	32	*heart rate*	factorial ANOVA	**$F(5,108)=30.821$; $P<0.050$**	0 $mg.L^{-1}$	**$F(5,108)=3.334$; $P<0.050$**	10 $mg.L^{-1}$	$F(3,68)=2.638$; $P=0.056$	4.25 $mg.L^{-1}$
	56	*heart rate*			0.01 $mg.L^{-1}$		100 $mg.L^{-1}$		4.25 $mg.L^{-1}$
	56	*hatching rate*	chi-square test	$\chi2=5.825$; DF=5; $P=0.324$	100 $mg.L^{-1}$	$\chi2=6.529$; DF=5; $P=0.258$	100 $mg.L^{-1}$	$\chi2=7.269$; DF=5; $P=0.064$	4.25 $mg.L^{-1}$
	80	*burst swimming*	one-way ANOVA	$F(5,18)=1.776$; $P=0.169$	100 $mg.L^{-1}$	$F(5,18)=1.000$; $P=0.446$	100 $mg.L^{-1}$	$F(3,12)=1.986$; $P=0.170$	4.25 $mg.L^{-1}$
	80	*survival*	chi-square test	$\chi2=5.740$; DF=5; $P=0.332$	100 $mg.L^{-1}$	$\chi2=1.817$; DF=5; $P=0.874$	100 $mg.L^{-1}$	$\chi2=0.878$; DF=5; $P=0.831$	4.25 $mg.L^{-1}$

Table S2. Particles Characterization

		Pristine	Heat-Treated
Dry	**TEM Dp (nm)**	20 ± 5	38 ± 6
Mili-Q Water	**DLS Dp (nm)**	27.03	37.43
	ZP (mV)	-24.17 ± 0.04	20.77 ± 0.51
	pH	7.29	7.28
Freshwater	**DLS Dp (nm)**	629.43	580.87
	ZP (mV)	-6.47 ± 0.50	-1.12 ± 0.51
	pH	7.30	7.70

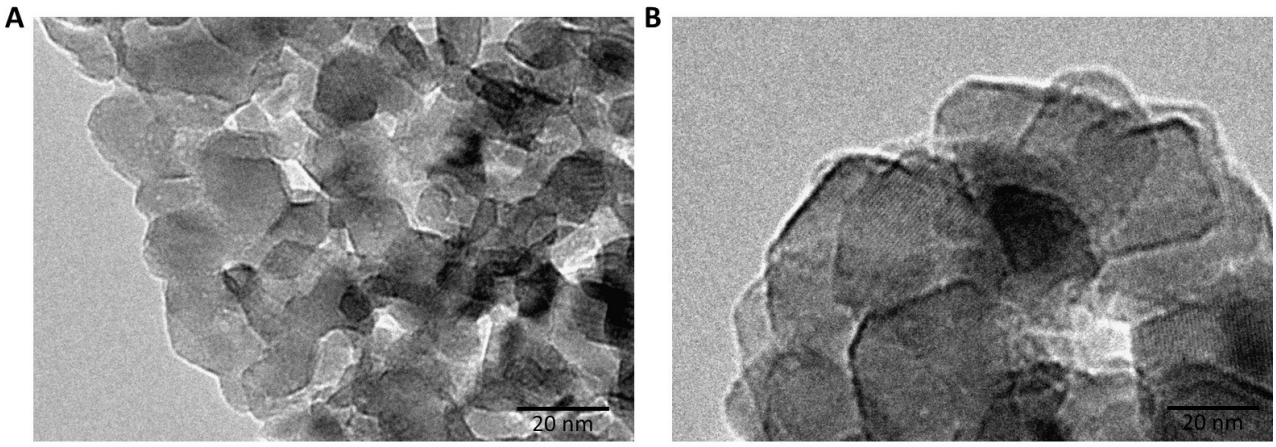

Figure S1. Effective TiO_2 **A-** pristine nanoparticles, **B-** heat-treated nanoparticles size by Transmission Scanning Microscopy (TEM).