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**APPENDIX  
EXPERIMENTAL DATA**

**A.1 Photocatalytic degradation of IPA by using different forms of titanium(IV)oxide catalysts**

**CONDITIONS**

initial IPA concentration	0.65	mM	(39.25 mg/l)
catalyst dosage of TiO <sub>2</sub>			0.5 g/l
temperature			25 °C
pH			7

Form \ Time (h)	IPA Concentration (mM)	
	rutile	anatase
0	0.6500	0.6906
1.5	0.6325	0.4860
3	0.6047	0.4025
4.5	0.5732	0.2988
6	0.5223	0.2845

Form \ Time (h)	C/C <sub>0</sub>	
	rutile	anatase
0	1.0000	1.0000
1.5	0.9731	0.7038
3	0.9303	0.5828
4.5	0.8818	0.4327
6	0.8036	0.4119

## A.2 Photocatalytic degradation of IPA by using different types of catalysts

### CONDITIONS

initial IPA concentration	1.3	mM	(78.5 mg/l)
catalyst dosage			0.2 g/l
temperature			45 °C
pH			7

Time (h)	Catalyst types	IPA Concentration (mM)			
		blank	Pt	TiO <sub>2</sub>	Pt/TiO <sub>2</sub>
0		1.4030	1.4098	1.2821	1.1678
1.5		1.2600	1.2350	1.0289	0.7487
3		1.1070	1.0940	0.9215	0.4690
4.5		1.0497	1.0010	0.7395	0.3045
6		0.8961	0.8755	0.5885	0.2651

Time (h)	Catalyst types	C/Co			
		blank	Pt	TiO <sub>2</sub>	Pt/TiO <sub>2</sub>
0		1.0000	1.0000	1.0000	1.0000
1.5		0.8981	0.8760	0.8025	0.6412
3		0.7890	0.7760	0.7187	0.4016
4.5		0.7482	0.7101	0.5768	0.2607
6		0.6387	0.6210	0.4590	0.2270

### A.3 Photocatalytic degradation of IPA at different initial IPA concentration

#### CONDITIONS

initial IPA concentration	0-1.3	mM	(78.5 mg/l)
catalyst dosage of 0.23% Pt/TiO <sub>2</sub>			0.5 g/l
temperature			25 °C
pH			7

Time (h)	IPA Concentration (mM)				
	1	2	3	4	5
0	1.2359	0.8722	0.6727	0.3858	0.2011
1.5	1.1238	0.7960	0.6200	0.3380	0.1085
3	0.9668	0.6758	0.4514	0.1687	0.0000
4.5	0.8398	0.5059	0.3109	0.0622	0.0000
6	0.7241	0.3429	0.1407	0.0000	0.0000

Time (h)	C/Co				
	1	2	3	4	5
0	1.0000	1.0000	1.0000	1.0000	1.0000
1.5	0.9093	0.9127	0.9216	0.8763	0.5395
3	0.7823	0.7748	0.6711	0.4372	0.0000
4.5	0.6795	0.5801	0.4621	0.1611	0.0000
6	0.5859	0.3932	0.2092	0.0000	0.0000

#### ZERO ORDER

Time (h)	Co-C				
	1	2	3	4	5
0	0.0000	0.0000	0.0000	0.0000	0.0000
1.5	0.1120	0.0761	0.0527	0.0477	0.0926
3	0.2691	0.1964	0.2213	0.2171	0.2011
4.5	0.3961	0.3662	0.3618	0.3236	0.2011
6	0.5118	0.5292	0.5320	0.3858	0.2011

#### A.4 Photocatalytic degradation of IPA at different catalyst dosage

##### CONDITIONS

initial IPA concentration	0.65	mM	(39.25 mg/l)
catalyst dosage of 0.23% Pt/TiO <sub>2</sub>			0.1-0.75 g/l
temperature			25 °C
pH			7

Time (h)	Catalyst dosage (g/l)	IPA Concentration (mM)			
		0.10	0.30	0.50	0.75
0		0.6402	0.6365	0.6727	0.6415
1.5		0.6138	0.5918	0.6200	0.4811
3		0.4818	0.4442	0.4514	0.3887
4.5		0.3476	0.3147	0.3109	0.2531
6		0.2340	0.1784	0.1407	0.0887

Time (h)	Catalyst dosage (g/l)	IPA Concentration (mM)			
		0.10	0.30	0.50	0.75
0		1.0000	1.0000	1.0000	1.0000
1.5		0.9588	0.9298	0.9216	0.7500
3		0.7526	0.6979	0.6711	0.6058
4.5		0.5429	0.4945	0.4621	0.3945
6		0.3655	0.2802	0.2092	0.1382

### A.5 Photocatalytic degradation of IPA at different pH

#### CONDITIONS

initial IPA concentration	0.65 mM	(39.25 mg/l)
catalyst dosage of 0.23% Pt/TiO <sub>2</sub>		0.5 g/l
temperature		25 °C
pH		2-12.

Time(h) \ pH	IPA Concentration (mM)					
	2	4	6	8	10	12
0	0.6710	0.6225	0.6562	0.6160	0.6667	0.6676
1.5	0.3011	0.3980	0.5788	0.5906	0.6410	0.5804
3	0.0506	0.3012	0.3842	0.3886	0.5538	0.4368
4.5	0	0.2147	0.2632	0.2583	0.3913	0.3143
6	0	0.1189	0.1702	0.1980	0.3007	0.2538

Time(h) \ pH	C/Co					
	2	4	6	8	10	12
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.5	0.4487	0.6393	0.8820	0.9588	0.9616	0.8694
3	0.0755	0.4839	0.5855	0.6308	0.8306	0.6543
4.5	0	0.3449	0.4012	0.4193	0.5870	0.4708
6	0	0.1910	0.2593	0.3215	0.4511	0.3802



**A.6 Photocatalytic degradation of IPA under deaerated and saturated oxygen condition**

**CONDITIONS**

initial IPA concentration	0.65 mM	(39.25 mg/l)
catalyst dosage of 0.23% Pt/TiO <sub>2</sub>		0.5 g/l
temperature		25 °C
pH		7

Time (h)	IPA Concentration (mM)		
	DO = 0 mg/l	DO = 8.8 mg/l	DO = 37.7 mg/l
0	0.6251	0.6554	0.6719
1.5	0.5142	0.0847	0
3	0.3865	0	0
4.5	0.2350	0	0
6	0.1550	0	0

Time (h)	C/Co		
	DO = 0 mg/l	DO = 8.8 mg/l	DO = 37.7 mg/l
0	1	1	1
1.5	0.8226	0.1292	0
3	0.6183	0	0
4.5	0.3759	0	0
6	0.2480	0	0

Time (h)	C/Co (No UV illumination)	
	DO = 8.8 mg/l	DO = 37.7 mg/l
0	1	1
1.5	0.8983	0.9169
3	0.7587	0.8731
4.5	0.5385	0.6024
6	0.4197	0.3147

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