

Table S1. Literature overview on photocatalytic decomposition of acetaldehyde, acetone, MTBE, and heptane on TiO₂ films prepared by non-vacuum methods.

Ref.	Dep. Method	Material Properties						Photocatalytic activity							
		Specific Quantity of Material	Ti-source	D, nm	RMS, nm	MCS, nm	TT-vis, %	Measurement Parameters							Degradation reaction rate/degraded amount
								Pollutant	Inlet concent.	Photocatal. surface area, cm ²	UV light intensity, mW cm ⁻²	RH, %	T, °C	Air flow rate, ml min ⁻¹	
17	Sol-Gel	0.21 mg cm ⁻²	TTIP	NA	NA	9-27	NA	Acetaldehyde	351 cm ³	1200	NA	40	NA	6.7	100% conversion
18	Spin casting	55.5 mg cm ⁻²	P25	7000	NA	20	NA	Acetaldehyde	201 μmol ml ⁻¹	36	1.23	0 - 33.6	RT	7000	100 and 45% conversion
19	Sol-gel	14-50 mg	P25	200	NA	NA	NA	Acetaldehyde	NA	NA	2.5	NA	NA	NA	460 μmol g ⁻¹ reaction rate
20	Sol-gel dip coating	NA	TPOT	900-5300	NA	NA	70	Acetaldehyde	3 ppm	NA	1.0	50	RT	500	80-90% removal
21	Sol-gel dip coating	NA	TTIP	500-600	NA	NA	80	Acetaldehyde	1350 ppm	50	1.2	NA	NA	NA	0.1 μmol ⁻¹ min ⁻¹ reaction rate
22	Wash coating	4.8x10 ⁻² mg cm ⁻²	TTIP	NA	NA	8	NA	Acetaldehyde	10 ppm	6.25	8.8	NA	RT	2x10 ⁶	1.3x10 ⁶ mol s ⁻¹ g ⁻¹ reaction rate
	Wash coating	4.8x10 ⁻² mg cm ⁻²	TTIP	NA	NA	8	NA	Acetone	10 ppm	6.25	8.8	NA	RT	2x10 ⁶	1.6x10 ⁶ mol s ⁻¹ g ⁻¹ reaction rate
	Screen Print.	3.2x10 ⁻² mg cm ⁻²	TTIP	NA	NA	NA	NA	Acetone	10 ppm	1100	8.8	60	25	2x10 ⁶	70% conversion
23	Sol-Gel	NA	TTIP	600	NA	4-35	NA	Acetone	0.017-0.02 g h ⁻¹	NA	NA	45	NA	133	86 and 64% conversion
24	Reverse Micellar Method	0.07 - 0.074 mg cm ⁻²	TTIP	200-210	NA	13	80	Acetone	400 ppm	140	NA	25	25	NA	2.6-12.2% degradation rate
	Sol-Gel	NA	TTIP	170-210	17	80	TTIP	Acetone	400 ppm	140	NA	25	25	NA	1.2-4.8% degradation rate

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		Specific Quantity of Material	Ti-source	D, nm	RMS, nm	MCS, nm	TT-vis, %	Pollutant	Measurement Parameters						Degradation reaction rate/degraded amount
									Inlet concent.	Photocatal. surface area, cm ²	UV light intensity, mWcm ⁻²	RH, %	T, °C	Air flow rate, ml min ⁻¹	
25	Reverse Micellar Method	NA	TTIP	170	1.04	13	NA	Acetone	NA	NA	NA	NA	NA	NA	10.3% degradation rate
	Sol-Gel	NA	TTIP	180	0.56	15.1	NA	Acetone	NA	NA	NA	NA	NA	NA	4.8% degradation rate
	Sol-gel dip coating	NA	TTIP	1500	21.2	NA	NA	Acetone	3 µl	25	2.3	NA	RT	NA	3.74x10 ¹³ cm ⁻² s ⁻¹
	Spray Coating	NA	TTIP	50-109	NA	NA	NA	Acetone	3 µl	25	2.3	NA	RT	NA	NA
26	Sol-gel dip coating	7.9 mg	TTIP	NA	NA	NA	NA	Acetone	450 ppm	NA	2.7	20	NA	NA	9.40x10 ⁷ mol s ⁻¹ g ⁻¹ reaction rate
27	NA	1.6 mg cm ⁻²	P25	NA	NA	NA	NA	Acetone	5-10 ppm	400	4	50	24	2.5x10 ⁶	0.29 mmol m ⁻³ min ⁻¹ initial degr. rate
	NA	1.6 mg cm ⁻²	P25	NA	NA	NA	NA	Heptane	5-10 ppm	400	4	50	24	2.5x10 ⁶	0.58 mmol m ⁻³ min ⁻¹ initial degr. rate
28	Alkoxide hydrolysis	100 mg	TiCl ₄	NA	NA	NA	NA	Heptane	16.6 g m ⁻³	NA	5.3	NA	NA	NA	99.7% conversion
5	Ultrasonic spray pyrolysis	0.2 mg cm ⁻²	TTIP	110-240	0.8-1.2	13-35	80	MTBE	10 ppm	600	3.3	40	30	500	80% conversion
29	Sol-gel dip coating	3.5 mg cm ⁻²	TTIP	5500	NA	NA	NA	MTBE	500 ppm	NA	NA	NA	RT	9–120	90% conversion
30	Sol-gel dip coating	0.6 mg cm ⁻²	P25	NA	NA	NA	NA	MTBE	100-1000 ppm	NA	5	NA	RT	NA	0.85 mmol min ⁻¹ reaction rate
31	Sol-gel dip coating	1.4 mg cm ⁻²	P25	NA	NA	NA	NA	MTBE	100 ppm	640	0.6	NA	60	3500	30% conversion

NA: not available in article, TPOT: tetraisopropyl orthotitanate, TTIP: titanium tetraispropoxide, D: thickness, RMS: root mean square, MCS: mean crystallite size, TT: total transperence, RH: relative humidity, T: temperature