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APPENDICES

Appendix A Characterization of Silatrane Precursor

Table A1 FTIR peak positions of silarane precursor

Peak Positions (cm^{-1})	Assignments	Peak Positions (cm^{-1})	Assignments
3000 - 3700	b, n O-H	1276	m, n C-O
2800 - 3000	s, n C-H	1040 - 1180	b & vs, n Si-O
2750 - 2670	w, NR3 salt (Si<--N)	786	vs, d Si-O-C
1445 - 1493	m, d C-H	735	s, d Si-O-C
1351	w, n C-N	576	w, Si<---N

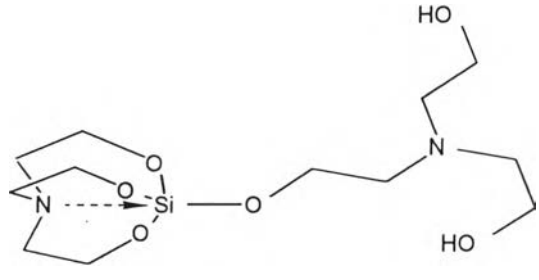

Figure A1 Structure of silatrane precursor

Appendix B Change of Catalitic Performance

Table B1 Effect of reaction time for epoxidation of styrene at 60°C

Time (°C)	Sty conv (%)	H_2O_2 conv (%)	Selectivity (%)				H_2O_2 eff(%)
			Sty oxi	Benzald	Sty gly	Benz â	
0	-	-	-	-	-	-	-
0.5	18.99	76	50.30	49.70	-	-	12.82
1	21.86	89	54.78	45.22	-	-	13.72
1.5	21.97	90	58.43	41.57	-	-	14.56
2	22	93	64.89	35.14	-	-	15.67
2.5	21.85	94	60.40	39.60	-	-	14.32
3	21.89	95	58.67	36.73	1.20	3.40	13.80
3.5	21.95	96.80	56.66	36.74	2.50	4.10	12.63
4	21.98	97	53.45	38.21	3.44	4.90	12.36
4.5	21.99	97.60	49.07	41.30	4.03	5.60	11.20
5	21.99	98	48.32	38.01	5.77	7.90	11.06

Table B2 Effect of amount of catalyst for epoxidation of styrene

Catal (g)	Sty conv (%)	H_2O_2 conv (%)	Selectivity (%)				H_2O_2 eff(%)
			Sty oxi	Benzald	Sty gly	Benz â	
0	-	38	-	-	-	-	0
0.05	18.32	86	48.98	51.02	-	-	10.65
0.1	21.89	91	64.68	35.31	-	-	15.88
0.2	22	93	64.89	35.14	-	-	15.67
0.3	21.88	95	50.23	46.57	1.12	2.08	11.80

Table B3 Effect of amount of loaded Fe for epoxidation of styrene

Fe (%)	Sty conv (%)	H_2O_2 conv (%)	Selectivity (%)				H_2O_2 eff(%)
			Sty oxi	Benzald	Sty gly	Benz â	
0	3.32	49	36.77	53.75	-	-	2.54
0.5	7.56	76	43.99	56.01	-	-	4.47
0.8	18.76	85	60.43	39.57	-	-	13.61
1	21.89	91	64.68	35.31	-	-	15.88
1.3	21.11	93	64.01	35.99	-	-	14.83
1.5	20.43	95	63.75	36.25	-	-	13.99
1.8	19.45	97	63.19	30.62	-	3.88	12.93
2	19.12	98	62.79	29.33	2.31	4.32	12.5
2.1	19.01	99	61.88	29.25	3.56	4.89	12.12
2.2	18.75	100	58.93	31.58	3.98	5.12	11.27
2.3	18.01	100	56.43	32.56	4.12	5.78	10.37
2.5	16.32	100	48.11	32.21	8.43	10.25	8.01

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