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*Supplement of*

## **Mapping Asian anthropogenic emissions of non-methane volatile organic compounds to multiple chemical mechanisms**

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Table S1. 2006 Asian total NMVOC emissions and source profiles\*

Sector	Fuel/Product	Profile used in this work	Profiles used in the original INTEX-B	NMVOC Emissions /Gg
Power	Coal	1178	1178	1130.7
	Biofuel	Tsai et al. (2003), Liu et al. (2008), Wang et al. (2009), 1167, 4420, 4421, 5561 (Andreae and Merlet, 2001)	Tsai et al. (2003)	27.2
Industry Combustion	Coal/Boiler, Kilns	Liu et al. (2008), 1185	1185	1701.2
	Coke Oven Blast Furnace	5	217	297.7
	Gas/Boiler Biofuel/Boiler	Tsai et al. (2003), Liu et al. (2008), Wang et al. (2009), 1167, 4420, 4421, 5561 (Andreae and Merlet, 2001)	Tsai et al.(2003)	16.8
Industry Non-combustion	Coke	11, 217	11	477.6
	Iron/Steel	13, 16	14	198.5
	Asphalt Roofing	23, 24	24	45.0
	Pharmaceutical Solvent	3040, 3144	79	291.5
	Asphalt Production	Liu et al. (2008)	1007	61.7
	Paint Production	1094	1094	113.7
	Printing Ink	72	72	34.7
	Glue Production	2423	2423	133.7
	Tire	272, 273, 274	274	277.8
	Rubber	1008	1008	84.3
	PVC	1091	1091	434.2
	Polystyrene	1004	1004	393.6
	Pulp/Paper Production	4730, 4731, 4732	1189	107.1
	Ammonia	2420	2420	241.2
	Black Carbon	1002	1002	199.0
	Ethylene	2461	2461	88.4
	Polyethylene	2547	2547	91.6
	Styrene	1066, 1067, 1068	1066	1.5
	Polystyrene	1004	1004	6.6
	VinylCl	1091	1065	32.5
	PVC	1091	1091	35.9
	Polypropylene	68	68	129.7
	Storage	1055, 1069, 1087	2470	319.5
	NG Production and Handle	2442	2442	128.1
	Crude Oil Production and Refinery	Liu et al. (2008), 296, 305, 1207, 1208, 1212, 2487	297	1481.7

	Gasoline Deposition	Liu et al. (2008)	1190	1691.7
	Diesel Deposition	Liu et al. (2008)	1011	3.7
	Food and Drink	8538	8538	924.6
	Fabrics	1092, 1095, 1096	1096	285.0
	Waste Treatment	122, 202,3002	202	85.3
	New Vehicle Varnish Paint	Yuan et al. (2010)	2546	211.8
	Vehicle Refurnish Paint	Yuan et al. (2010)	2402	226.7
	Other Industry Varnish Paint	1003, 1013, 1016	2420	2444.3
	Printing Ink	Yuan et al. (2010), 182, 183, 1191, 2543, 2544	2545	156.6
	Passenger Vehicle Treatment Solvent	1194	2493	50.0
	Wood Treatment Solvent	2404	3087	73.8
	Printing Cleaning Gasoline Solvent	Liu et al. (2008), 1195	1022	430.3
Residential Combustion	Coal/Boiler, Stoves	Tsai et al. (2003), Liu et al. (2008)	1185	566.5
	Biofuel	Tsai et al. (2003), Liu et al. (2008), Wang et al. (2009), 1167, 4420, 4421, 5561 (Andreae and Merlet, 2001)	Tsai et al.(2003)	15649.7
Residential Non-combustion	Paint Use	Na et al. (2004), Liu et al. (2008), Yuan et al. (2010)	1013	2692.8
	Domestic Solvent Use	197, 8500	8500	2349.1
	Dry Clean C2Cl4 Solvent	1193	1193	163.7
On-road Transportation	MC	Liu et al. (2008)	1203	8447.8
	Light Duty Gasoline Vehicle	Duffy et al. (1999), Liu et al. (2008), 1203, 4556 (Schauer et al., 2002)	1203	4370.2
	Heavy Duty Gasoline Vehicle	Duffy et al. (1999), Liu et al. (2008), 1186, 1203, 4556 (Schauer et al., 2002)	1186	2559.6
	Diesel Vehicle	Liu et al. (2008), 4674 (Schauer et al., 1999)	1201	784.6
Off-road Transportation	Diesel	Liu et al. (2008), 3161	3161	1762.0
	Air	1099	1098	70.8
Others	Oil	1, 2	1	195.7
	Natural Gas	3	3	33.5

\* Profiles taken from the SPECIATE 4.2 database are presented as corresponding "P\_NUMBER"s in the database (Hsu and Divita, 2009; Simon et al., 2010).

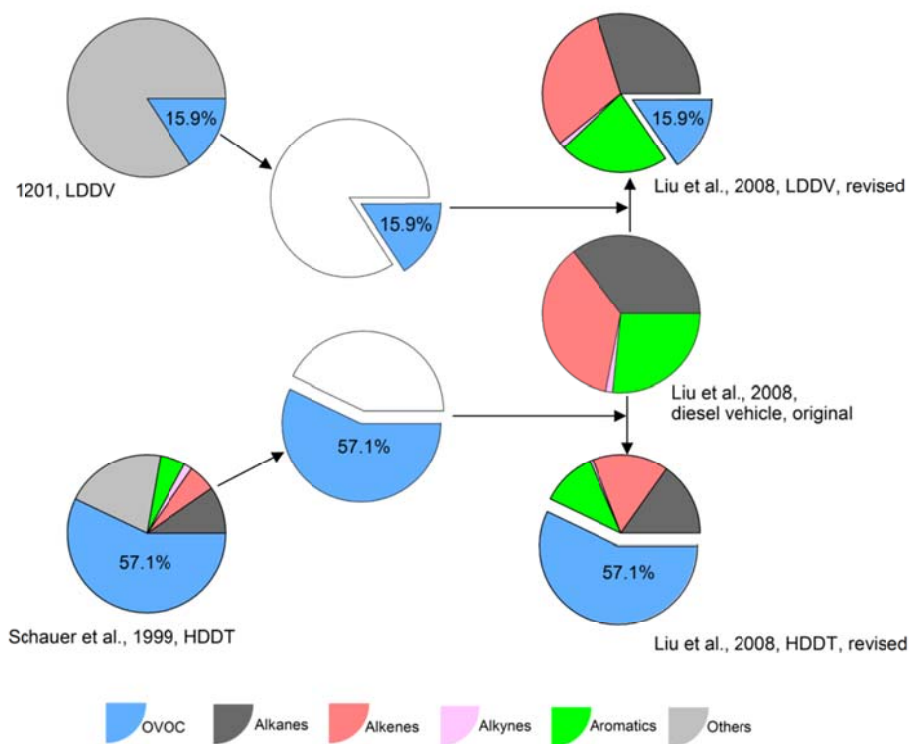


Figure S1. Inclusion of OVOC fraction for diesel truck profiles. LDDV: light duty diesel vehicles; HDDT: heavy duty diesel trucks. 1201 and 4674 are the “P\_NUMBER”s of profiles in the SPECIATE 4.2 database

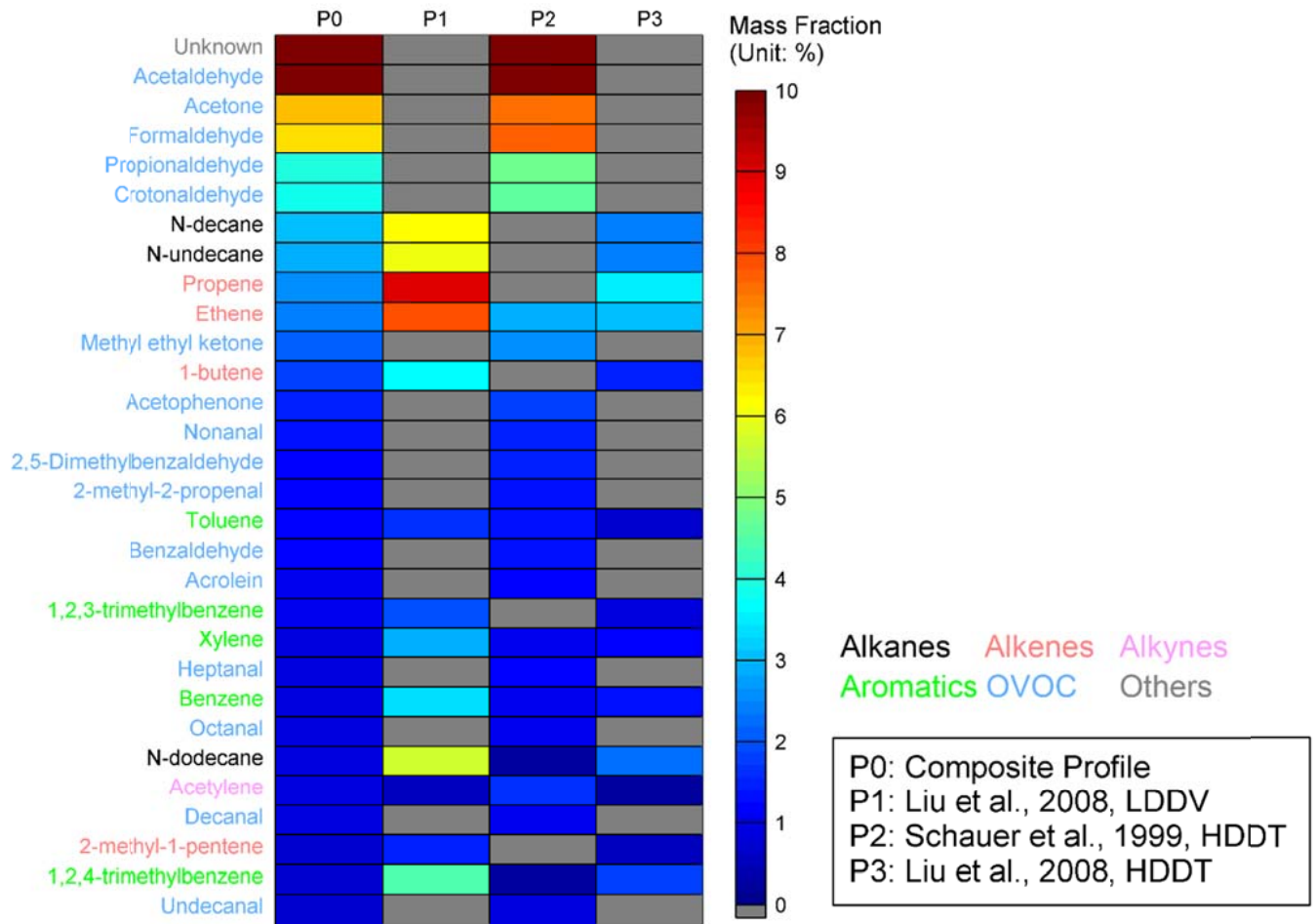


Figure S2. Sensitivity of emissions for individual species for the diesel vehicle source

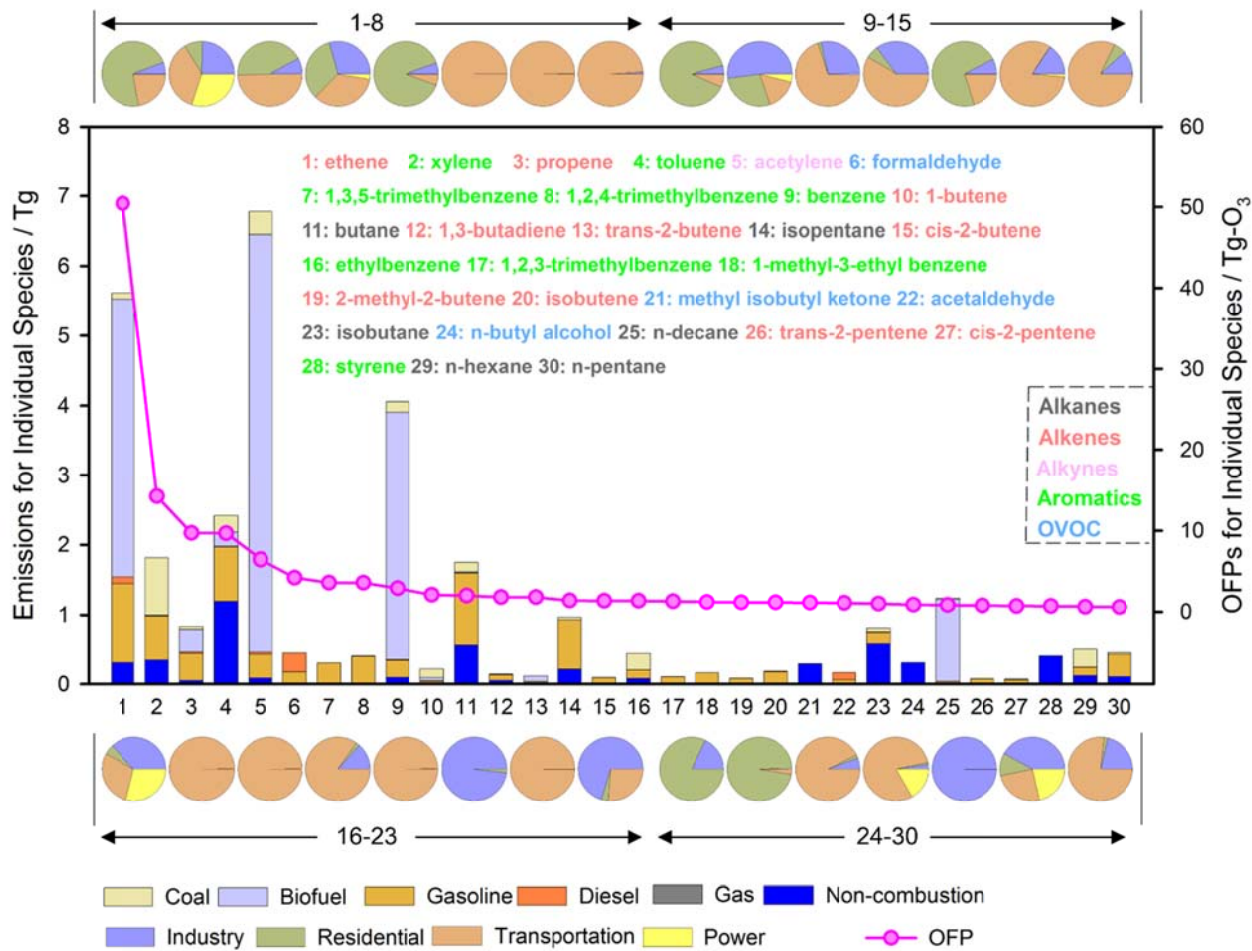


Figure S3. Emissions by individual NMVOC species and corresponding OFPs in the original INTEX-B emission inventory

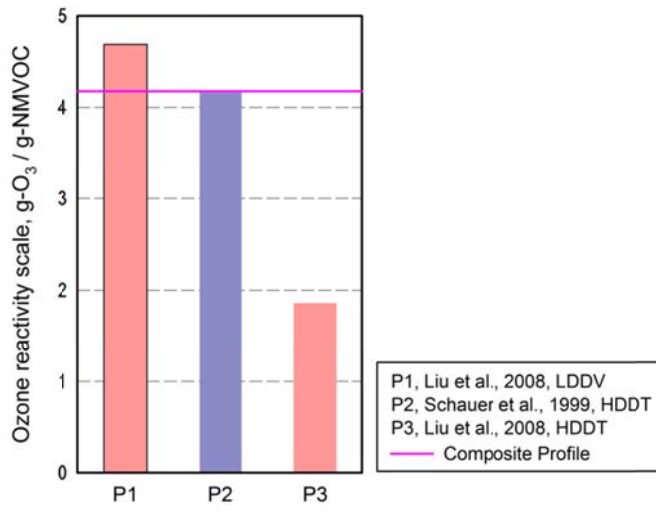


Figure S4. Sensitivity of OFPs to profile selection for the diesel vehicle source

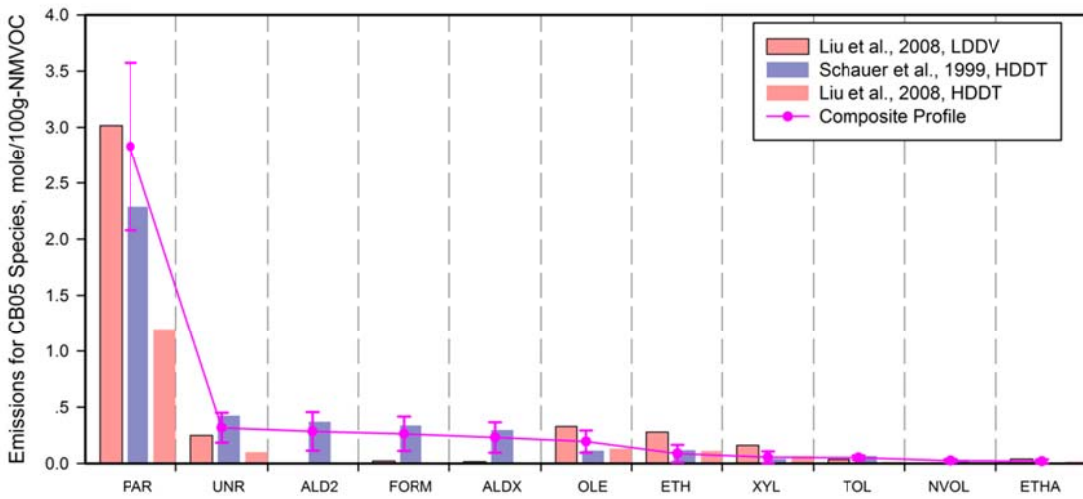
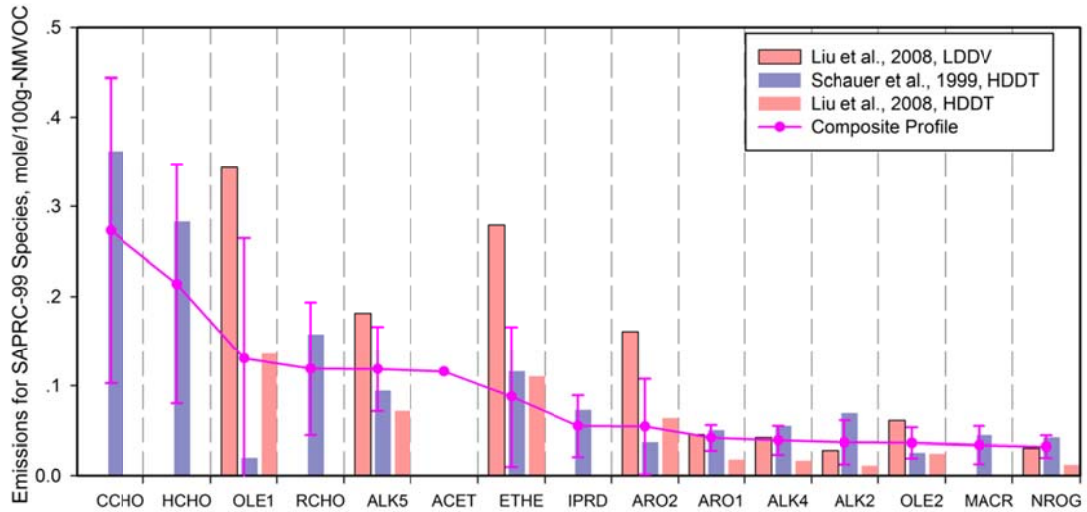


Figure S5. Sensitivity of model-ready emissions to profile selection for the diesel vehicle source



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