Table S1. Emission factors and activity data of different sources

Sources	**Emission factors**	**Units**	**References**
Crude oil exploration	0.6	kg/t	(Wei et al., 2008)
Natural gas exploration	0.5	kg/t	
Tank loss	0.5	kg/t turnover	(Ning, 2010)
Transport loss	1.5	kg/t（production raw material average turnover）	
Leakage loss(odors)	2.4	kg/t the processing of crude oil	
Leakage loss(normal)	0.8	kg/t the processing of crude oil	
Volatile refining wastewater	0.12	kg/t the processing of crude oil	
Ethylene	0.5	kg/t Product	((Taiwan), 2012; Chen Yin, 2012)
Methyl alcohol	5.75	kg/t Product	((Taiwan), 2012; Yang, 2012; Ying Chen et al., 2012)
Benzene	0.55	kg/t Product	((Taiwan), 2012; Ying Chen et al., 2012)
Synthesis ammonia	4.72	kg/t Product	((Taiwan), 2012; Ying Chen et al., 2012)
Storage & transportation of Crude oil-Made in China	0.54	kg/t Product	(Yang, 2012)
Storage &	0.88	kg/t Product	

Sources	Emission factors	Units	References
transportation of Crude oil-Import			
Storage & transportation of Crude oil-Export	0.51	kg/t Product	
Storage & transportation of gasoline-Made in China	4.54	kg/t Product	
Storage & transportation of gasoline-Import	4.49	kg/t Product	
Storage & transportation of gasoline-Export	4.22	kg/t Product	
Storage & transportation of other oil-Made in China	2.46	kg/t Product	
Storage & transportation of other oil-Import	3.06	kg/t Product	
Storage & transportation of other oil-Export	1.84	kg/t Product	
Storage & transportation of solvent-Made in China	3.1	kg/t Product	
Storage &	3.6	kg/t Product	

Sources	Emission factors	Units	References
transportation of solvent-Import			
Storage & transportation of solvent-Export	3.2	kg/t Product	
Manufacture of paint	15	kg/t Product	(Huang et al., 2011; Wei, 2009; Yang, 2012; Ying Chen et al., 2012)
Manufacture of printing	60	kg/t Product	(Yang, 2012; Ying Chen et al., 2012)
Polyethylene resin	8	kg/t Product	(USEPA, AP-42)
PVC resins	8.5	kg/t Product	
ABS resins	1.4	kg/t Product	(EEA)
Other resins	2.2	kg/t Product	
Synthetic rubber	7.39	kg/t Product	(Yang, 2012; Ying Chen et al., 2012)
Polyester	0.6	kg/t Product	((Taiwan), 2012)
Chinlon	3.75	kg/t Product	
Acrylic fibers	125.1	kg/t Product	
Vinylon	7.7	kg/t Product	
Spandex	40	kg/t Product	
Cellulose acetate fiber	145.2	kg/t Product	
Other fiber	5.1	kg/t Product	
Other adhesive	8	kg/t Product	(Ying Chen et al., 2012)
Water-based adhesive	0.5	kg/t Product	
Vegetable oil refining	2.45	kg/t Product	(Cheng et al., 2012;

Sources	Emission factors	Units	References
			Ying Chen et al., 2012)
Sugar refining	0.6	kg/t Product	(Ying Chen et al., 2012)
Fermentation alcohol	32.1	kg/kL alcohol	((Taiwan), 2012)
Wine	16.26	kg/kL Wine	(Ying Chen et al., 2012)
Beer	0.43	kg/kL beer	
Chemical raw materials	114.14	kg/t Product	((Taiwan), 2012)
Chemical pesticide	146	kg/t Product	
Manufacture of Commodity	0.025	kg/t Product	(Ying Chen et al., 2012)
Tyre	0.28	kg/tyre	(Cheng et al., 2012; Klimont et al., 2002; Ying Chen et al., 2012)
Textile Dyeing	98	kg/t Product	((Taiwan), 2012)
PU size	245	kg/t Product	(Ying Chen et al., 2012)
Shoe adhesive	670	kg/t Product	(Ying Chen et al., 2012)
Planographic printing	216	kg/t Product	(Yang, 2012)
Gravure printing	620	kg/t Product	
Relief printing	100	kg/t Product	
Porous printing	683	kg/t Product	
Other printing	750	kg/t Product	
Packaging adhesive	1385	kg/t Product	(Ying Chen et al., 2012)

Sources	Emission factors	Units	References
Binding adhesive	89	kg/t Product	(Yang, 2012)
Wood adhesive	89	kg/t Solvent consumption	(Ying Chen et al., 2012)
Wood paintings (furniture manufacturing)	640	kg/t Solvent consumption	(Wei et al., 2008)
Coiled material paintings	455	kg/t Solvent consumption	(Ying Chen et al., 2012)
Anti-corrosive paintings	440	kg/t Solvent consumption	
Ship paintings	442	kg/t Solvent consumption	
Other paintings	750	kg/t Solvent consumption	
Assembling adhesive	89	kg/t Solvent consumption	(Ying Chen et al., 2012)
Transport equipment manufacturing paintings	470	kg/t Solvent consumption	(Wei et al., 2008)
Transport equipment manufacturing adhesive	89	kg/t Solvent consumption	(Ying Chen et al., 2012)
Coating for Exterior Walls	180	kg/t Solvent consumption	(Wei, 2009)
Coating for other building	590	kg/t Solvent consumption	
Wood paintings (architecture decoration)	640	kg/t Solvent consumption	
Assembling adhesive	62	kg/t Solvent consumption	(Ying Chen et al., 2012)

Sources	Emission factors	Units	References
Tetrachloroethylene	1000	kg/t Solvent consumption	((Taiwan), 2012; USEPA, AP-42; Ying Chen et al., 2012)
Diode / Transistor	0.155	kg/thousands	((Taiwan), 2012)
Printed circuit board (PCB)	0.026	kg/m^2	
Copper clad laminate	0.1	kg/m^2 Product	(Yang, 2012)
Coke	1.25	kg/t Product	(China, 1990)
Pulp	0.25	kg/t Pulp	
Paper products	0.1	kg/t Product	
Sanitary landfill	0.23	kg/t Rubbish	(EEA; Wei et al., 2008)
Composting	0.74	kg/t Rubbish	
MSW incineration	0.74	kg/t Rubbish	
Coal for thermal power	0.15	kg/t Fuel	(Cheng et al., 2012; Ying Chen et al., 2012)
Fuel Oil for thermal power	0.13	kg/t Fuel	
Liquefied petroleum gas for thermal power	66	g/m^3 Fuel	
Natural gas for thermal power	0.18	g/m^3 Fuel	
Coal for heat supply	0.19	kg/t Fuel	
Fuel Oil for heat supply	66	kg/t Fuel	
Liquefied petroleum gas	0.18	g/m^3 Fuel	
Natural gas for heat supply	0.18	g/m^3 Fuel	

Sources	**Emission factors**	**Units**	**References**
Coal for industrial consumption	0.18	kg/t Fuel	(Wei et al., 2008)
Fuel Oil for industrial consumption	0.15	kg/t Fuel	(Yang, 2012)
Coal gas for industrial consumption	0.00044	g/m^3 Fuel	
Liquefied petroleum gas for industrial consumption	66	g/m^3 Fuel	
Natural gas for industrial consumption	0.18	g/m^3 Fuel	

Table S2. The control technologies and removal efficiency for sources.

Sources	Control technologies	Removal efficiency
Petroleum refining	Thermal combustion	60%-95%
Storage and transport	Oil and gas recovering system	80%-95%
Furniture Manufacturing	Rotary adsorption-concentration and combustion	73%-89%
Chinery equipment manufacturing	Catalytic combustion	72%-85%
Transportation Equipment Manufacturing	Catalytic combustion	75%-85%

Sources	Control technologies	Removal efficiency
Architectural ornament	Environmentally friendly materials	55%-70%[a]
Coke production	Condensation separation/Catalytic combustion	70%-85%
Chemical raw materials	Adsorption/condensation separation/ catalytic combustion	70%-90%
Chemical pesticide	Adsorption/condensation separation/ catalytic combustion	70%-90%
Textile Dyeing	Adsorption concentration and catalytic combustion	70%-85%
Printing Industry	Adsorption separation/ catalytic combustion/ Environmentally friendly materials	75%-85%/70%[a]
Dry cleaning of clothing	Condensation separation	70%-85%
Basic chemical raw materials manufacturing	Thermal combustion / Adsorption separation /RTO	70%-98%
Manufacture of food & drink	Adsorption / biological	70%-85%
Synthetic leather	Activated carbons adsorption/ catalytic combustion	70%-85%
Shoemaking industry	Adsorption concentration and catalytic combustion	70%-85%
Synthetic fiber	Activated carbons adsorption	55-60%
Tire	Adsorption concentration and	65-70%

Sources	Control technologies catalytic combustion	Removal efficiency
Wood processing	Environmentally friendly materials	70%[a]

[a] represents the equivalent efficiency of using environmentally friendly materials