

Table S.1: plastic composition and embodied exergy of critical car parts in SEAT Ibiza IV REF

Car part	Plastic mass (g)	EE (MJ)	Other (g)	E/P (g)	PP (g)	NR (g)	PA (g)	PU (g)	PE (g)	EPDM (g)	PET (g)	ABS (g)	PC (g)	PVC (g)	PO (g)	PVB (g)	SBR (g)	PMMA (g)	VMQ (g)	FKM (g)	ACM (g)	EVOH (g)	ECO (g)	PS (g)	PPS (g)	PES (g)
Front cover	7,311.38	180.76	1,143.04	2,147.53	677.62	0.00	0.00	0.00	3,238.67	87.30	0.00	17.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fuel tank	7,485.75	166.92	243.31	0.00	3.01	0.00	76.21	0.00	6,669.08	0.00	0.01	0.00	0.00	0.90	453.78	0.00	0.00	0.00	1.36	2.92	0.00	9.02	0.00	0.00	26.16	0.00
Rear cover	4,871.00	138.12	45.08	4,108.38	0.00	0.00	3.82	0.00	34.77	0.00	0.00	0.00	59.72	0.00	0.00	0.00	0.00	35.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Door trim panel front	4,278.56	137.53	13.00	2,126.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front lighting	3,762.00	123.49	134.66	0.00	425.11	0.00	58.92	0.00	3.26	0.32	0.29	0.00	592.15	4.20	5.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77.55	0.00	0.00
Rear lighting	2,317.85	120.98	107.15	0.00	33.00	0.00	14.38	0.00	0.00	1.63	0.00	0.00	832.00	0.76	0.00	0.00	0.00	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backrest pad	2,798.40	113.39	16.00	0.00	0.00	0.00	0.00	1,364.00	0.00	0.00	14.00	0.00	0.00	0.00	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastic foam rear seat	2,834.00	110.33	145.68	0.00	0.00	0.00	0.00	2,688.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Door trim panel rear	3,162.00	101.20	16.40	1,564.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foam part seat	2,461.00	96.43	120.64	0.00	0.00	0.00	11.10	2,327.07	0.00	0.00	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Floor covering	3,400.00	88.86	551.56	157.60	674.49	0.00	7.47	0.00	2,152.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seat padding	2,153.20	87.87	0.00	0.00	0.00	0.00	0.00	1,070.60	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wheel trim	1,396.00	78.08	0.00	0.00	0.00	0.00	0.00	0.00	1,396.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Radiator shroud	1,170.00	69.40	0.00	0.00	0.00	0.00	1,170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover (engine)	1,648.26	66.07	387.80	0.00	0.00	0.00	785.00	475.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd-enhancing under	1,680.00	64.74	0.00	0.00	1,660.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Door trim panel front	4,279.11	137.79	10.00	2,126.50	0.00	0.00	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front lighting	3,751.81	123.49	134.66	0.00	425.11	0.00	58.92	0.00	3.26	0.32	0.29	0.00	592.15	4.20	5.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77.55	0.00	0.00	0.00
Plastic foam rear seat	2,990.00	122.71	0.00	0.00	0.00	0.00	0.00	2,990.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rear lighting	2,317.85	120.98	107.15	0.00	33.00	0.00	14.38	0.00	0.00	1.63	0.00	0.00	832.00	0.76	0.00	0.00	0.00	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backrest pad	2,798.40	113.39	16.00	0.00	0.00	0.00	0.00	1,364.00	0.00	0.00	14.00	0.00	0.00	0.00	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Door trim panel rear	3,162.00	102.54	0.00	1,564.60	0.00	0.00	0.00	16.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glove compartment	1,953.00	99.51	9.70	390.00	0.00	0.00	23.85	0.00	0.00	1,528.30	0.00	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foam part seat	2,461.00	96.43	120.64	0.00	0.00	0.00	11.10	2,327.07	0.00	0.00	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seat padding	2,114.00	86.27	0.00	0.00	0.00	0.00	0.00	1,051.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover	1,541.86	70.77	348.86	0.00	0.00	0.00	1,193.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Radiator shroud	1,170.00	69.40	0.00	0.00	0.00	0.00	1,170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trunk lid	2,216.54	52.84	853.47	0.00	1,349.39	0.00	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intake muffler, pre-assy	1,428.77	48.49	198.25	0.00	1,197.72	0.00	0.00	0.00	0.00	31.289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Center console	1,328.41	42.91	0.00	1,322.40	0.00	0.00	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Floor sound insulation	3,850.00	38.85	565.73	0.00	0.00	0.00	0.00	946.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,318.54
Molded headliner	1,490.42	2.37	1,450.42	0.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine hood damping	1,011.11	1.13	992.00	0.00	0.00	0.00	19.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bulkhead sound insulation	2,100.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wheel housing liner, rear	2,188.00	85.33	0.00	0.00	2,188.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Center console	2,438.00	78.84	0.00	2,438.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crossmember damping	1,600.00	65.66	0.00	0.00	0.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Damping	1,100.00	65.25	0.00	0.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Door trim panel rear	3,263.81	62.06	36.80	26.10	1,567.50	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lining, trunk lid	1,894.88	61.35	0.00	1,894.88	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glove compartment	1,498.81	49.29	11.46	1,498.81	1.40	0.00	42.44	3.30	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air filter/muffler unit	1,420.35	48.33	186.03	0.00	1,420.35	0.00	0.00	49.00	0.00	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastic foam rear seat	1,160.00	47.61	0.00	0.00	0.00	0.00	0.00	1,160.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shield	1,450.00	46.65	0.00	1,450.00	0.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Damping	2,666.00	43.75	1,600.00	0.00	0.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover strip	1,026.42	33.60	12.99	964.40	0.00	0.00	25.07	0.00	0.40	16.28	0.00	0.00	0.00	0.00	0.00	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Floor sound insulation	3,300.00	12.31	3,000.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine hood damping	1,132.11	1.13	1,132.11	0.00	0.00	0.00	19.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Luggage compartment floor covering	1,140.00	0.00	1,140.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table S.4: plastic composition and embodied exergy of critical car parts in SEAT Leon II FR

Car part	Plastic mass (g)	EE (MJ)	Oth ers (g)	E/P (g)	PP (g)	NR (g)	PA (g)	PU (g)	PE (g)	EPD M (g)	PET (g)	ABS (g)	PC (g)	PVC (g)	PO M (g)	PVBSBR (g)	PM MA (g)	VM Q (g)	FK M (g)	AC M (g)	EV OH (g)	ECO (g)	PS (g)	PPS (g)	PES (g)
Dashboard	9,998.40	365.05	208.00	6,542.70	939.60	0.00	6.00	400.00	520.00	603.60	0.00	114.50	652.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front cover	9,340.48	297.85	437.88	8,235.00	329.22	0.00	15.35	0.00	83.71	7.60	0.00	147.90	71.37	0.00	3.40	0.00	0.00	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Door trim panel front	5,014.80	189.61	54.35	156.90	2,286.00	0.0	0.0	0.0	0.0	9.6	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floor covering	3,829.35	183.75	37.00	0.0	771.30	0.0	18.35	0.0	226.60	0.0	2,549.50	0.0	0.0	0.0	0.0	0.0	226.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rear cover	5,625.97	181.59	56.35	5,375.00	0.0	0.0	57.76	13.60	0.0	0.0	0.0	49.40	0.0	12.73	0.0	0.0	57.60	3.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plastic front	4,355.00	169.85	0.0	0.0	4,355.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Window guide	2,884.70	160.96	0.0	0.0	0.0	0.0	0.6	0.0	4.2	1,424.70	12.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel tank	7,609.79	143.29	1,526.28	0.0	11.00	0.0	72.65	0.0	5,691.45	0.0	0.0	0.0	0.0	3.2	303.4	0.0	0.0	0.0	0.9	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Molded headliner	3,098.32	126.62	69.49	0.0	0.0	0.0	11.80	2,940.26	0.0	0.0	0.0	15.00	60.00	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bulkhead sound insulation	2,412.00	124.15	0.0	0.0	0.0	0.0	0.0	722.00	0.0	1,690.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Door trim panel rear	3,263.81	124.12	36.80	26.10	1,567.50	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foam part seat	2,757.90	112.04	0.0	0.0	0.0	0.0	0.0	2,730.00	0.0	0.0	0.0	0.0	0.0	0.0	27.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Window guide	2,016.00	111.76	17.80	0.0	0.0	0.0	1.2	0.0	0.0	1,997.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backrest pad	2,600.00	106.70	0.0	0.0	0.0	0.0	0.0	2,600.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wheel housing liner	2,676.00	104.36	0.0	0.0	2,676.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Front lighting	3,057.90	99.96	1,248.43	0.0	650.00	0.0	178.15	0.1	0.3	84.16	0.0	0.0	847.2	0.0	49.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seat padding	2,301.20	92.75	11.20	0.0	0.0	0.0	0.0	2,260.00	0.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trunk lid	2,381.10	89.19	130.00	0.0	2,141.38	0.0	25.90	20.60	0.0	11.72	51.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wheel housing liner, rear	2,188.00	85.33	0.0	0.0	2,188.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cover part	1,552.76	84.11	8.0	0.0	0.0	0.0	1,112.00	405.90	0.4	26.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Center console	2,446.50	79.63	0.0	2,433.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Radiator shroud	1,120.60	66.24	0.00	0.00	0.00	0.00	0.00	1,052.00	0.00	0.00	68.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crossmember damping	1,600.00	65.66	0.00	0.00	0.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lining, trunk lid	1,894.88	61.35	0.00	1,892.00	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glove compartment	1,498.81	49.68	0.00	1,450.00	1.40	0.00	42.44	3.30	0.00	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Luggage compartm. mat	1,429.23	49.41	240.02	0.00	0.00	0.00	497.70	0.00	577.41	0.00	114.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastic foam rear seat	1,201.95	48.77	2.15	0.00	0.00	0.00	0.00	1,188.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air filter/muffler unit	1,474.67	48.12	250.67	0.00	1,161.00	0.00	0.00	46.00	0.00	17.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shield	1,450.00	46.65	0.00	1,420.00	0.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Damping	2,666.00	43.75	1,600.00	0.00	0.00	0.00	0.00	1,666.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover strip	1,026.42	33.60	6.47	964.40	0.00	0.00	25.07	0.00	0.40	16.28	0.00	0.00	0.00	0.00	0.00	13.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Floor sound insulation	3,300.00	12.31	3,000.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine hood damping	1,132.11	1.13	1,113.00	0.00	0.00	0.00	19.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Luggage compartm. floor covering	1,140.00	0.00	1,140.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Damping	1,100.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table S.5: plastic composition and embodied exergy of critical car parts in SEAT Leon III REF

Car part	Plastic mass (g)	EE (MJ)	Oth ers (g)	E/P (g)	PP (g)	NR (g)	PA (g)	PU (g)	PE (g)	EPD M (g)	PET (g)	ABS (g)	PC (g)	PVC (g)	PO M (g)	PVBSBR (g)	PM MA (g)	VM Q (g)	FK M (g)	AC M (g)	EV OH (g)	ECO (g)	PS (g)	PPS (g)	PES (g)
Dashboard	8,906.06	317.03	0.00	1,388.90	5,306.90	0.00	0.00	611.16	629.10	0.00	0.00	0.00	0.00	970.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front cover	7,278.78	246.69	815.00	1,278.00	4,936.70	0.00	2.06	0.00	0.00	0.00	0.00	182.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.00	0.00	0.00
Door trim panel pocket	4,517.88	198.47	62.99	1,755.00	0.00	0.00	87.14	286.76	0.00	0.00	72.42	1,413.34	37.60	775.25	15.31	0.00	0.00	6.75	0.00	0.00	0.00	0.00	5.27	0.00	0.00

Rear cover	4,883.32	183.53	36.44	1,219.00	3,503.00	0.00	11.88	0.00	7.20	1.32	41.28	0.00	63.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fuel tank	7,803.94	179.89	66.41	0.00	6.09	0.00	158.05	0.00	6,970.21	0.00	0.37	0.00	0.00	26.44	553.67	0.00	0.00	0.00	3.20	2.94	0.00	15.58	0.00	0.97	0.00	0.00	0.00
Front lighting	4,537.24	179.58	131.31	0.00	1,466.28	0.00	170.50	0.00	108.85	11.16	0.38	0.00	1,557.00	0.00	31.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,060.00	0.00	0.00	0.00
Door trim panel front	5,328.00	176.47	0.00	2,502.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.00	0.00	90.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Door trim panel rear	4,540.00	153.39	0.00	2,179.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Floor covering	3,119.30	150.41	0.00	0.00	581.30	0.00	19.28	0.00	219.05	0.00	2,137.77	0.00	0.00	0.00	0.00	0.00	161.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wheel trim	2,020.00	119.83	0.00	0.00	0.00	0.00	2,020.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastic front	2,901.00	113.14	0.00	0.00	2,901.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backrest pad	2,385.70	97.16	0.00	0.00	0.00	0.00	0.00	2,360.00	0.80	0.00	5.60	0.00	0.00	0.00	19.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd-enhancing underbody panel	2,468.80	94.70	0.00	0.00	1,214.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Floor sound insulation	3,900.00	92.20	780.00	0.00	0.00	0.00	0.00	975.00	2,145.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glove compartment	2,508.12	82.54	6.19	2,438.40	1.30	0.00	41.70	0.00	0.00	6.41	0.01	11.28	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00
Seat padding	1,910.29	77.32	0.00	0.00	0.00	0.00	0.00	1,883.60	0.72	0.00	0.00	0.00	0.00	0.00	25.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover	1,296.86	71.41	10.00	0.00	0.00	0.00	996.00	264.00	0.46	26.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Damping	2,958.53	70.72	1,223.33	12.20	0.00	0.00	0.00	1,700.00	23.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shield	1,677.80	67.52	0.00	0.00	1,506.60	0.00	0.00	0.00	0.00	0.00	171.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trunk lid	1,752.93	66.96	0.00	0.00	1,668.00	0.00	0.00	1.27	76.10	0.00	0.00	0.00	0.00	0.00	7.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lining, trunk lid	1,977.60	64.18	0.00	1,968.00	0.00	0.00	0.00	0.00	0.00	9.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastic foam rear seat	1,482.22	60.18	0.00	0.00	0.00	0.00	0.00	1,466.40	0.00	0.00	0.00	0.00	0.00	0.00	15.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Air filter/muffler unit	1,539.53	54.34	165.26	0.00	1,286.00	0.00	0.00	48.00	0.68	39.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover	1,085.00	38.42	0.00	585.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Washer fluid reservoir	1,011.54	37.92	4.90	0.00	829.53	0.00	55.26	0.00	94.05	0.00	0.00	0.00	0.00	0.00	26.80	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Center console	1,046.18	36.03	0.00	755.00	270.00	13.10	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.00	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table S.6: plastic composition and embodied exergy of critical car parts in SEAT Leon III FR

Car part	Plastic mass (g)	EE (MJ)	Oth ers (g)	E/P (g)	PP (g)	NR (g)	PA (g)	PU (g)	PE (g)	EPD M (g)	PET (g)	ABS (g)	PC (g)	PVC (g)	PO M (g)	PVBSBR (g)	PM MA (g)	VM Q (g)	FK M (g)	AC M (g)	EV OH (g)	ECO (g)	PS (g)	PPS (g)	PES (g)
Dashboard	8,906.06	317.03	0.00	1,388.90	5,306.90	0.00	0.00	611.16	629.10	0.00	0.00	0.00	0.00	970.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Door trim panel front	6,151.54	269.68	0.00	1,749.60	4.00	0.00	0.00	73.96	137.79	0.00	0.00	972.00	18.81	100.00	0.00	0.00	19.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front cover	7,553.55	259.81	1,111.16	1,313.00	4,415.31	0.00	14.03	0.00	0.00	4.00	0.13	182.02	448.33	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	65.00	0.00	0.00
Door trim panel pocket	4,517.88	198.44	68.60	1,755.00	0.00	0.00	86.55	286.76	0.00	0.00	72.42	1,413.34	37.60	775.25	15.31	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.25	0.00	0.00
Rear cover	5,293.03	194.94	56.19	1,623.00	3,503.00	0.00	3.56	0.00	15.60	0.00	32.88	0.00	50.80	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front lighting	4,748.32	188.46	261.63	0.00	1,477.96	0.00	164.78	0.20	20.19	7.84	1.12	0.00	1,715.00	0.00	31.56	0.00	0.00	8.04	0.00	0.00	0.00	0.00	1,060.00	0.00	0.00
Door trim panel rear	4,539.16	182.55	0.00	3,278.00	8.00	0.00	0.00	87.08	192.08	0.00	0.00	974.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fuel tank	7,583.07	169.27	176.70	0.00	0.52	0.00	158.29	0.00	6,544.89	0.00	0.00	0.00	0.00	24.39	545.55	0.00	0.00	2.93	3.68	0.00	126.13	0.00	0.00	0.00	0.00
Floor covering	3,119.30	150.41	0.00	0.00	581.30	0.00	19.28	0.00	219.05	0.00	2,137.77	0.00	0.00	0.00	0.00	0.00	161.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastic front	2,901.00	113.14	0.00	0.00	2,901.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backrest pad	2,534.62	103.68	0.00	0.00	0.00	0.00	0.00	2,448.00	0.00	0.00	62.80	0.00	0.00	0.00	23.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CD-enhancing underbody panel	2,468.80	94.70	0.00	0.00	1,214.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Floor sound insulation	3,900.00	92.20	780.00	0.00	0.00	0.00	0.00	975.00	2,145.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glove compartment	2,508.12	82.54	6.19	2,438.40	1.30	0.00	41.70	0.00	0.00	6.41	0.00	0.12	11.28	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00

Seat padding	2,012.39	80.90	3.60	0.00	0.00	0.00	0.00	1,970.80	0.72	0.00	0.00	0.00	0.00	0.00	0.00	37.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover	1,296.86	71.41	10.00	0.00	0.00	0.00	996.00	264.00	0.46	26.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Damping	2,958.53	70.33	1,235.53	0.00	0.00	0.00	0.00	1,700.00	23.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shield	1,677.80	67.52	0.00	0.00	1,506.60	0.00	0.00	0.00	0.00	0.00	171.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trunk Lid	1,752.93	66.90	1.27	0.00	1,668.00	0.00	0.00	0.00	76.10	0.00	0.00	0.00	0.00	0.00	7.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lining trunk lid	2,020.92	66.40	0.00	1,968.00	0.00	0.00	0.00	0.00	0.00	9.60	43.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastic foam rear seat	1,482.22	60.18	0.00	0.00	0.00	0.00	0.00	1,466.40	0.00	0.00	0.00	0.00	0.00	0.00	15.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cover	1,085.00	38.42	0.00	585.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00