EcoLeaf Environmental Label LCI Common Base Unit List (V2.1)

Note: This base unit document is a dedicated database that has been created to implement the JEMAI Program.
Unauthorized use for other purposes is prohibited.

* This list is for publishing the "base unit names" for use when preparing an EcoLeaf label, and is not to address inquiries regarding detailed information.

How to use the base unit a when preparing an EcoLeaf label:

◎ **The production amount (Output) of base materials, parts, etc., produced, or the processed amount (Input) is multiplied by the corresponding common base unit a, and then summed.**
Inventory value I (e.g., CO_2 output in kg) = Σ {common base unit a (e.g., X kg-CO_2/kg) × produced or processed amount W (kg)}

Note: In the distribution stage, the common base unit a for transportation by truck being a value for a loading factor of 100%, the processed amount W is to be calculated according to the formula below:
Processed amount W (transportation burden amount: kg･km) = transportation mass (kg) × transportation distance (km) × 100 ÷ mass loading factor (%w)

No	Field	No	Base Unit Name	Amount W	Unit	Main Source	Remarks
1	Material Production (Metal)	1	Cold-Rolled steel plate	Produc-tion	kg	Environmental Management, Vol 31, No.6 (1995) P72-P84	From resource acquisition to material (plate) production
2		2	Electroplated steel Plate	Produc-tion	kg	Environmental Management, Vol 31, No.6 (1995) P72-P84	From resource acquisition to material (plate) production
3		3	Hot Dipped steel plate	Produc-tion	kg	Environmental Management, Vol 31, No.6 (1995) P72-P84	From resource acquisition to material (plate) production
4		4	Coated steel plate	Produc-tion	kg	Environmental Management, Vol 31, No.6 (1995) P72-P84	From resource acquisition to material (plate) production
5		5	Electromagnetic steel plate	Produc-tion	kg	Environmental Management, Vol 31, No.6 (1995) P72-P84	From resource acquisition to material (plate) production
6		6	Stainless Steel Plate	Produc-tion	kg	Environmental Management, Vol 31, No.6 (1995) P72-P84	From resource acquisition to material (plate) production
7		7	Cu Plate	Produc-tion	kg	Environmental Management, Vol 31, No.6 (1995) P72-P84	From resource acquisition to material (plate) production
8		8	Al Plate	Produc-tion	kg	For secondary and virgin metal ratios: Resources statistics annual report, 1992, P.98	From resource acquisition to material (plate) production
9		9	Zinc (Zn)	Produc-tion	kg	Research Institute for Resource Recycling and Environmental Pollution Control (Narita, 2000)	From resource acquisition to material (ingot) production
10		10	Tin (Sn)	Produc-tion	kg	Plastic Waste Management Institute: Evaluation Report on the Impact of the Increase in the Use of Plastic Products on the Global Environment, (1993, 3), P31-38	From resource acquisition to material (ingot) production
11		11	Electrolytic MnO2	Produc-tion	kg	The Chemical Society of Japan Ed.: Chemistry Handbook (Applied Chemistry Edition) 2nd Revision, P216, Maruzen (1973)	From resource acquisition to material (ingot) production
12		12	Metallic Manganese (Mn)	Produc-tion	kg	National Institute of Resources (1988)	From resource acquisition to material (ingot) production
13		13	Electrical Lead (Pb)	Produc-tion	kg	Research Institute for Resource Recycling and Environmental Pollution Control (Narita, 2000)	From resource acquisition to material (ingot) production
14		14	Gold (Au)	Produc-tion	kg	Survey by the Research Institute for Resource Recycling and Environmental Pollution Control (Sugita, 1999)	From resource acquisition to material (ingot) production
15		15	Silver (Ag)	Produc-tion	kg	Survey by the Research Institute for Resource Recycling and Environmental Pollution Control (Sugita, 1999)	From resource acquisition to material (ingot) production
16	Material Production (Inorganic Chemistry)	1	Glass	Produc-tion	kg	Environmental Management, Vol.31, No.6 (1995), P.81	From resource acquisition to material (pellet) production
17		2	Cement	Produc-tion	kg	From Cement Association of Japan "Cement Handbook" 2000 Edition, P21, 1999 Data (Base Unit).	From resource acquisition to material production
18		3	Calcined Lime (CaO)	Produc-tion	kg	Statistical Survey of Energy Consumption (1996) and Resource Annual Report (1996)	From resource acquisition to material production
19		4	Hydrochloric Acid (HCl)	Produc-tion	kg	Chemical Industry Statistics Annual Report (1996)	From resource acquisition to material production
20		5	Sulfuric Acid (H2SO4)	Produc-tion	kg	Research Institute for Resource Recycling and Environmental Pollution Control (SRI), 1998	From resource acquisition to material production
21		6	Nitric Acid (HNO3)	Produc-tion	kg	CMC, 1994, P.167	From resource acquisition to material production
22		7	Acetic Acid (CH3COOH)	Produc-tion	kg	CMC, 1994, P.173	From resource acquisition to material production
23		8	Hydrofluoric Acid (HF)	Produc-tion	kg	Environmental Management, Vol.31, No.6 (1995), P.82	From resource acquisition to material production
24		9	Sodium Hydroxide (NaOH)	Produc-tion	kg	The Chemical Society of Japan "Chemistry Handbook: Applied Chemistry Edition (2)", P.207, 1986	From resource acquisition to material production
25		10	Slaked Lime (Ca(OH)2)	Produc-tion	kg	Statistical Survey of Energy Consumption (1996) and Resource Annual Report (1996)	From resource acquisition to material production

EcoLeaf Environmental Label LCI Common Base Unit List (V2.1)

Note: This base unit document is a dedicated database that has been created to implement the JEMAI Program.
Unauthorized use for other purposes is prohibited.

* This list is for publishing the "base unit names" for use when preparing an EcoLeaf label, and is not to address inquiries regarding detailed information.

How to use the base unit a when preparing an EcoLeaf label:

◎ **The production amount (Output) of base materials, parts, etc., produced, or the processed amount (Input) is multiplied by the corresponding common base unit a, and then summed.**
Inventory value I (e.g., CO_2 output in kg) = Σ {common base unit a (e.g., X kg-CO_2/kg) × produced or processed amount W (kg)}

Note: In the distribution stage, the common base unit a for transportation by truck being a value for a loading factor of 100%, the processed amount W is to be calculated according to the formula below:
Processed amount W (transportation burden amount: kg･km) = transportation mass (kg) × transportation distance (km) × 100 ÷ mass loading factor (%w)

No	Field	No	Base Unit Name	Amount W	Unit	Main Source	Remarks
26	Material Production (Synthetic Resin)	1	PE (High-density)	Production	kg	1993 Chemical Economy Research Institute Report, p103	From resource acquisition to material (pellet) production
27		2	PE (Low-density)	Production	kg	1993 Chemical Economy Research Institute Report	From resource acquisition to material (pellet) production
28		3	PP	Production	kg	1993 Chemical Economy Research Institute Report, p104	From resource acquisition to material (pellet) production
29		4	PS	Production	kg	NEDO-GET, 9410-1, P64	From resource acquisition to material (pellet) production
30		5	PVC	Production	kg	1993 Chemical Economy Research Institute Report, p81, 111	From resource acquisition to material (pellet) production
31		6	PBT (Polybutylene Terephthalate)	Production	kg	1993 Chemical Economy Research Institute Report, p89, 119	From resource acquisition to material (pellet) production
32		7	PC (Polycarbonate)	Production	kg	1993 Chemical Economy Research Institute Report, p88, 118	From resource acquisition to material (pellet) production
33		8	PC-ABS resin (70/30)	Production	kg	Distribution and addition with 70:30 from PC and ABS data; PC and ABS data have been prepared from the 1993 Chemical Economy Research Institute Report	From resource acquisition to material (pellet) production
34		9	POM (Polyacetal)	Production	kg	1993 Chemical Economy Research Institute Report, p87, 117	From resource acquisition to material (pellet) production
35		10	PVDC (Vinylidene Chloride Resin)	Production	kg	1993 Chemical Economy Research Institute Report, p83, 112	From resource acquisition to material (pellet) production
36		11	ABS	Production	kg	1993 Chemical Economy Research Institute Report, p79, 108	From resource acquisition to material (pellet) production
37		12	AS Resin	Production	kg	1993 Chemical Economy Research Institute Report, p80, 109	From resource acquisition to material (pellet) production
38		13	MMA Resin	Production	kg	1993 Chemical Economy Research Institute Report, p83, 113	From resource acquisition to material (pellet) production
39		14	PA66 (Polyamide 66)	Production	kg	1993 Chemical Economy Research Institute Report, p85, 115	From resource acquisition to material (pellet) production
40		15	PET	Production	kg	NEDO-GET-9410-1, P.36	From resource acquisition to material (pellet) production
41		16	Epoxy Resin (EP)	Production	kg	1993 Chemical Economy Research Institute Report, p92, 123	From resource acquisition to material (pellet) production
42		17	Rigid Urethane Foam	Production	kg	1993 Chemical Economy Research Institute Report, p96, 126	From resource acquisition to material (pellet) production
43		18	Soft Urethane Foam (for Automobile)	Production	kg	1993 Chemical Economy Research Institute Report, p95, 125	From resource acquisition to material (pellet) production
44		19	Soft Urethane Foam (for Bedding)	Production	kg	1993 Chemical Economy Research Institute Report, p94, 124	From resource acquisition to material (pellet) production
45		20	Unsaturated Polyester (UP)	Production	kg	1993 Chemical Economy Research Institute Report, p97, 127	From resource acquisition to material (pellet) production
46		21	Acrylonitrile Resin	Production	kg	1993 Chemical Economy Research Institute Report, P81, 110	From resource acquisition to material (pellet) production
47		22	Phenol Resin (PF)	Production	kg	1993 Chemical Economy Research Institute Report, P81, 110	From resource acquisition to material (pellet) production
48	Material Production (Rubber)	1	Nitrile-butadiene rubber (NBR)	Production	kg	Rubber Industry Manual, The Chemical Daily: 13599 Chemical Products	From resource acquisition to material (pellet) production
49		2	Styrene-butadiene rubber (SBR)	Production	kg	CRC Research Institute, March 1999, Survey Report, P66	From resource acquisition to material (pellet) production
50		3	Natural rubber	Production	kg	Malaysian Rubber Board homepage	From resource acquisition to material (pellet) production
51		4	Butadiene rubber (BR)	Production	kg	CRC Research Institute, March 1999, Survey Report	From resource acquisition to material (pellet) production
52	Material Production (Organic Chemistry)	1	Ethylene	Production	kg	NEDO-GET-9410, P26	From resource acquisition to material production
53		2	Xylene	Production	kg	NEDO-GET-9410, P26	From resource acquisition to material production
54		3	Carbon Tetrachloride (CCl4)	Production	kg	Used data from: CMC "Costs of Chemicals in the 80's", Volume 2, P281, 1979	From resource acquisition to material production
55		4	Methanol (CH3OH)	Production	kg	Research Institute for Resource Recycling and Environmental Pollution Control SRI (1998) New Zealand: in charge of methanol	From resource acquisition to material production
56		5	Naphtha	Production	kg	NEDO-GET-9410, P24	From resource acquisition to material production
57		6	Propylene	Production	kg	NEDO-GET-9410, P26	From resource acquisition to material production
58		7	Styrene	Production	kg	NEDO-GET-9410-1, P64	From resource acquisition to material production
59		8	Toluene	Production	kg	NEDO-GET-9410, P26	From resource acquisition to material production
60		9	Trichloro ethane	Production	kg	Environmental Management, Vol.31, No.6, 1995, P.83	From resource acquisition to material production
61		10	Trichloro ethylene	Production	kg	CMC, 1994, P191	From resource acquisition to material production
62		11	Acetone	Production	kg	CMC, 1994, P196	From resource acquisition to material production

EcoLeaf Environmental Label　LCI Common Base Unit List (V2.1)

Note: This base unit document is a dedicated database that has been created to implement the JEMAI Program.
Unauthorized use for other purposes is prohibited.

* This list is for publishing the "base unit names" for use when preparing an EcoLeaf label, and is not to address inquiries regarding detailed information.

How to use the base unit a when preparing an EcoLeaf label:

◎ **The production amount (Output) of base materials, parts, etc., produced, or the processed amount (Input) is multiplied by the corresponding common base unit a, and then summed.**
Inventory value I (e.g., CO_2 output in kg) = Σ {common base unit a (e.g., X kg-CO_2/kg) × produced or processed amount W (kg)}

Note: In the distribution stage, the common base unit a for transportation by truck being a value for a loading factor of 100%, the processed amount W is to be calculated according to the formula below:
Processed amount W (transportation burden amount: kg･km) = transportation mass (kg) × transportation distance (km) × 100 ÷ mass loading factor (%w)

No	Field	No	Base Unit Name	Amount W	Unit	Main Source	Remarks
63	Material Production (Organic Gas)	1	CFC 11	Produc-tion	kg	Used data from: CMC "Costs of Chemicals in the 80's", Volume 2, P281, 1979	From resource acquisition to material production
64		2	CFC 12	Produc-tion	kg	Used data from: CMC "Costs of Chemicals in the 80's", Volume 2, P281, 1979	From resource acquisition to material production
65		3	HFC-134a	Produc-tion	kg	Environmental Management, Vol.31. No.6 (1995) P.82	From resource acquisition to material production
66		4	HFC-245fa	Produc-tion	kg	Survey on the Impact of Thermal Insulation Materials on Global Warming, NEDO-GET-9709 (1998)	From resource acquisition to material production
67	Material Production (Wood and Paper)	1	Corrugated cardboard	Produc-tion	kg	Paper Pulp Handbook, 1998 Edition, and others, Japan Paper Association, 1998, 4 issue and others	From resource acquisition to material production
68		2	Cardboard	Produc-tion	kg	Paper Pulp Handbook, 1998 Edition, and others	From resource acquisition to material production
69		3	Paper (Western style)	Produc-tion	kg	Paper Pulp Handbook, 1998 Edition, and others	From resource acquisition to material production
70		4	Wood chip (Japan domestic)	Produc-tion	kg	Evaluation Report on the Impact of the Increase in the Use of Plastic Products on the Global Environment, Plastic Waste Management Institute, March 1993, (1993) P151-2	From resource acquisition to material production
71		5	Wood chip (imported)	Produc-tion	kg	Evaluation Report on the Impact of the Increase in the Use of Plastic Products on the Global Environment, Plastic Waste Management Institute, March 1993, (1993) P151-2	From resource acquisition to material production
72		6	Raw wood (imported)	Produc-tion	kg	Evaluation Report on the Impact of the Increase in the Use of Plastic Products on the Global Environment, Plastic Waste Management Institute, March 1993, (1993) P151-2	From resource acquisition to material production
73		7	Raw wood (Japan domestic)	Produc-tion	kg	Evaluation Report on the Impact of the Increase in the Use of Plastic Products on the Global Environment, Plastic Waste Management Institute, March 1993, (1993) P151-2	From resource acquisition to material production
74	Parts Production (General)	1	Semiconductor Circuit Packaging	Produc-tion	kg	Koseki: Proceedings in Chemical Engineering, Vol. 24, No. 6, p934-939 (1996)	Up to the production of resin-packaged semiconductor chip (with terminals)
75		2	Multilayer substrate	Produc-tion	kg	Koseki: Proceedings in Chemical Engineering, Vol. 24, No. 6, p934-939 (1996)	Up to the production of layered substrate (6 layers)
76		3	Assembled circuit board	Produc-tion	kg	Koseki: Proceedings in Chemical Engineering, Vol. 24, No. 6, p934-939 (1996)	Up to the production of substrate comprising semiconductor package mounted on layered substrate
77		4	Compressor	Produc-tion	kg	From materials by the Association for Electric Home Appliances	From LCA calculations taking into account the processing and assembly in the production of constituent materials
78		5	Medium-sized motor	Produc-tion	kg	From the by Japan Waste Management Association literature	From LCA calculations taking into account the processing and assembly in the production of constituent materials
79	Parts Production (Battery)	1	Alkaline-Manganese dry battery	Produc-tion	kg	Hiroshi Takatsuki and Shin-ichi Sakai: Hazardous Waste, Chuohoki (1993) P63 Source: Tokuji Murata: Reconsidering the Easy Use of Dry Batteries, Current Chemistry, October 1991 issue, P18-23	Only the production of constituent materials (zinc, MnO2, Fe) has been taken into account
80		2	Manganese dry battery	Produc-tion	kg	Hiroshi Takatsuki and Shin-ichi Sakai: Hazardous Waste, Chuohoki (1993) P63 Source: Tokuji Murata: Reconsidering the Easy Use of Dry Batteries, Current Chemistry, October 1991 issue, P18-23	Only the production of constituent materials (zinc, MnO3, Fe) has been taken into account
81		3	Lead-acid storage battery	Produc-tion	kg	P78, (1993), source: Japan Lead Zinc Development Association Ed.: Zinc Handbook (1975)	Only the production of constituent materials (lead, H2SO4, PP) has been taken into account
82	Parts Production (Others)	1	Cleansing agent	Produc-tion	kg	Japan Institute of Energy Journal, Vol. 75 (12), p1050 (1996)	Electric power and heavy oil energies taken into account with naphtha and NaOH as raw materials
83		2	Ink	Produc-tion	kg	Setting based on CO2: electric power/heavy oil = 8/2	From the energy ratio (electric power/heavy oil = 8/2) (raw material: crude oil)
84		3	Lubricant	Produc-tion	kg	Setting based on CO2: electric power/heavy oil = 8/2	From the energy ratio (electric power/heavy oil = 8/2) (raw material: crude oil)
85	Processing	1	Press Forming: Iron	Produc-tion	kg	Chemical Economy Research Institute: Basic Materials Energy Analysis Survey Report, 1993, 9, p135-136 (1993)	Power consumption for pressing 350ml steel can
86		2	Press Forming: Nonferrous metal	Produc-tion	kg	Chemical Economy Research Institute: Basic Materials Energy Analysis Survey Report, 1993, 9, p135-136 (1993)	Power consumption for pressing 350ml aluminum can
87		3	Injection molding	Produc-tion	kg	Chemical Economy Research Institute: Basic Materials Energy Analysis Survey Report, 1993, 9, p135-136 (1993)	Power consumption during production of LDPE bottle cap
88		4	Blow molding	Produc-tion	kg	Plastic Waste Management Institute: Considerations Similar to LCA regarding Plastic General Waste, 1995, 3 (1995) P23	Power consumption during PO and PVC molding
89		5	Glass molding	Produc-tion	kg	Chemical Economy Research Institute: Basic Materials Energy Analysis Survey Report, 1993, 9, p135-136 (1993)	Power consumption for 633ml glass bottle
90	Assembly	1	Parts assembly	Produc-tion	kg	From the 2000 Environmental Label Report and Ver. 2 published data	Representative power consumption value for assembly including partial processing

EcoLeaf Environmental Label LCI Common Base Unit List (V2.1)

Note: This base unit document is a dedicated database that has been created to implement the JEMAI Program.
Unauthorized use for other purposes is prohibited.

* This list is for publishing the "base unit names" for use when preparing an EcoLeaf label, and is not to address inquiries regarding detailed information.

How to use the base unit a when preparing an EcoLeaf label:

◎ **The production amount (Output) of base materials, parts, etc., produced, or the processed amount (Input) is multiplied by the corresponding common base unit a, and then summed.**
Inventory value I (e.g., CO_2 output in kg) = Σ {common base unit a (e.g., X kg-CO_2/kg) × produced or processed amount W (kg)}

Note: In the distribution stage, the common base unit a for transportation by truck being a value for a loading factor of 100%, the processed amount W is to be calculated according to the formula below:
Processed amount W (transportation burden amount: kg·km) = transportation mass (kg) × transportation distance (km) × 100 ÷ mass loading factor (%w)

No	Field	No	Base Unit Name	Amount W	Unit	Main Source	Remarks
91	Transportation	1	2-ton Truck	Transpor-tation	kg.km	Plastic Waste Management Institute (1993) P31-33	Loading factor correction required due to the data being for 100% loading factor
92		2	4-ton Truck	Transpor-tation	kg.km	Plastic Waste Management Institute (1993) P31-33	Loading factor correction required due to the data being for 100% loading factor
93		3	10-ton Truck	Transpor-tation	kg.km	Plastic Waste Management Institute (1993) P31-33	Loading factor correction required due to the data being for 100% loading factor
94		4	15-ton Truck	Transpor-tation	kg.km	Plastic Waste Management Institute (1993) P31-33	Loading factor correction required due to the data being for 100% loading factor
95		5	20-ton Truck	Transpor-tation	kg.km	Plastic Waste Management Institute (1993) P31-33	Loading factor correction required due to the data being for 100% loading factor
96		6	Freight by rail	Transpor-tation	kg.km	98 Energy Economics Statistics Overview, Energy Conservation Center, Japan, January 30th, 1998, p107	No loading factor correction required due to the data already including loading factor
97		7	Freight by ship	Transpor-tation	kg.km	98 Energy Economics Statistics Overview, Energy Conservation Center, Japan, January 30th, 1998, p107	No loading factor correction required due to the data already including loading factor
98		8	Freight by air	Transpor-tation	kg.km	98 Energy Economics Statistics Overview, Energy Conservation Center, Japan, January 30th, 1998, p107	No loading factor correction required due to the data already including loading factor
99	Electric Power and Fuel	1	Electric Power	Produc-tion	kWh	Matsuno (1998) for electrical power in Japan; OECD energy statistics for Foreign countries	Average data for Japan (thermal, hydraulic, nuclear, etc.)
100		2	Heavy oil as fuel	Produc-tion	kg	BUWAL-132 DSO2=85%	Includes discharges during fuel production and combustion
101		3	Diesel oil as fuel	Produc-tion	kg	BUWAL-132 S=0.4 % DSO2=85%	Includes discharges during fuel production and combustion
102		4	Kerosene as fuel kg	Produc-tion	kg	CO2: Environment Agency (1992); Nx, SOx: 1992 Science and Technology Agency	Includes discharges during fuel production and combustion
103		5	Gasoline as fuel kg	Produc-tion	kg	CO2: Environment Agency (1992); NOx, SOx: 1992 Science and Technology Agency	Includes discharges during fuel production and combustion
104		6	Furnace coal	Produc-tion	kg	BUWAL-132 S=0.67 % DSO2=85%	Includes discharges during fuel production and combustion
105		7	Furnace coke	Produc-tion	kg	Energy Utilization Rationalization (1995), P117	Includes discharges during fuel production and combustion
106		8	Furnace oil coke	Produc-tion	kg	Calculated from Chemical Process Collection (1969) P350 and emission factor	Includes discharges during fuel production and combustion
107		9	Furnace Town Gas m3	Produc-tion	m3	Institute of Energy Economics, Japan (1999)+BUWAL	Includes discharges during fuel production and combustion
108		10	Furnace LPG	Produc-tion	kg	BUWAL-132 SOX is ignored	Includes discharges during fuel production and combustion
109		11	Furnace LNG	Produc-tion	kg	BUWAL-132 SOX is ignored	Includes discharges during fuel production and combustion
110		12	Heavy oil	Produc-tion	kg	NEDO-GET-9410-1, P.24	Fuel production only
111		13	Diesel oil	Produc-tion	kg	NEDO-GET-9410-1, P.24	Fuel production only
112		14	Kerosene	Produc-tion	kg	NEDO-GET-9410-1, P.24	Fuel production only
113		15	Gasoline	Produc-tion	kg	NEDO-GET-9410-1, P.24	Fuel production only
114		16	Coal	Produc-tion	kg	Research Institute for Resource Recycling and Environmental Pollution Control (Kato, 2000)	Fuel production only
115		17	Coke	Produc-tion	kg	Energy Use Rationalization (1995)	Fuel production only
116		18	Oil coke	Produc-tion	kg	Chemical Process Collection (1969) p.350	Fuel production only
117		19	Town Gas m^3	Produc-tion	m^3	Institute of Energy Economics, Japan (1999)	Fuel production only
118		20	LPG	Produc-tion	kg	NEDO-GET-9410-1, P.24	Fuel production only
119		21	LNG	Produc-tion	kg	Chemical Economy Research Institute (1993)	Fuel production only

EcoLeaf Environmental Label　LCI Common Base Unit List (V2.1)

Note: This base unit document is a dedicated database that has been created to implement the JEMAI Program.
Unauthorized use for other purposes is prohibited.

＊ This list is for publishing the "base unit names" for use when preparing an EcoLeaf label, and is not to address inquiries regarding detailed information.

How to use the base unit a when preparing an EcoLeaf label:

◎ **The production amount (Output) of base materials, parts, etc., produced, or the processed amount (Input) is multiplied by the corresponding common base unit a, and then summed.**
Inventory value I (e.g., CO_2 output in kg) = Σ {common base unit a (e.g., X kg-CO_2/kg) × produced or processed amount W (kg)}

Note: In the distribution stage, the common base unit a for transportation by truck being a value for a loading factor of 100%, the processed amount W is to be calculated according to the formula below:
Processed amount W (transportation burden amount: kg･km) = transportation mass (kg) × transportation distance (km) × 100 ÷ mass loading factor (%w)

No	Field	No	Base Unit Name	Amount W	Unit	Main Source	Remarks
120	Utility (Gas)	1	Oxygen (O2) m3	Produc-tion	m3	Naonori Matsumoto: Low-temperature Engineering, Vol. 11, No.1, P35-42 (1984)	Power consumption during production by low-temperature separation method
121		2	Nitrogen (N2)	Produc-tion	kg	From an air analyzer manufacturer hearing (February 2001)	Power consumption taken into account
122		3	Hydrogen (H2) m3	Produc-tion	m3	Hearing Survey (1995)	Electrical power and diesel consumption with naphtha raw material (byproduct: steam)
123		4	Chlorine (Cl2)	Produc-tion	kg	The Chemical Society of Japan "Chemistry Handbook: Applied Chemistry Edition (2)", P.207, 1986	Electrical power and steam consumption with industrial salt raw material (byproduct: H2)
124		5	Ammonia (NH3)	Produc-tion	kg	Hearing Survey	Electrical power and diesel consumption with naphtha raw material
125	Utility (Water)	1	Industrial water	Produc-tion	kg	Tokyo City Data	Electrical power and water consumption; soil discharge
126		2	Clean water (kg)	Produc-tion	kg	Ministry of Health and Welfare: Japan Water Works Association, Time-based Analysis of Water Supply Statistics, Water Works Association Journal, Vol. 67, No. 8, p46-84 (1998)	Electrical power and water consumption; soil discharge
127		3	Ultrapure water	Produc-tion	kg	Semiconductor Substrate Technology Research Association: Science of Ultra-pure Water, 1990	Electrical power, clean water, industrial water and steam consumption
128		4	Steam	Produc-tion	kg	Japan Boiler Association: Boiler Almanac, 1999 Edition	Electrical power, kerosene and clean water (10% supply) consumption
129	Disposal and Recycling (Crushing and Sorting)	1	Shredding	Process-ing	kg	Environmental Management, Vol.31, No.7 (1995) P.95	From shredder electrical power consumption
130		2	Iron Sorting	Process-ing	kg	From the 1993 Engineering Advancement Association of Japan Trust Report	From magnetic sorter electric power consumption
131		3	Non-ferrous Metal Sorting	Process-ing	kg	From the 1993 Engineering Advancement Association of Japan Trust Report	From eddy current + pneumatic separator electric power consumption
132		4	Sorting: Plastics	Process-ing	kg	1993 Engineering Advancement Association of Japan Trust Report	From specific gravity separator electric power consumption
133	Disposal and Recycling (Incineration and Landfill)	1	General Waste Incineration and Landfilling as Ash	Process-ing	kg	Prepared through collaboration with four autonomous bodies (1999), including ash (15.5%)	Electric power, water and Ca(OH)2 consumption; atmospheric, water body and soil discharge
134		2	Incineration: Industrial waste	Process-ing	kg	Obtained from three industrial waste businesses (1999)	Electric power, heavy oil, water, Ca(OH)2, NaOH and HCl consumption; atmospheric discharge
135		3	Incineration: Biomass (paper)	Process-ing	kg	Prepared through collaboration with four autonomous bodies (1999) and corrected	Zero CO2 discharge from paper incineration origin
136		4	Landfill: General waste	Process-ing	kg	Prepared through collaboration with four autonomous bodies (1999)	Electric power, diesel oil and NaOH consumption; BOD, COD and SS discharge
137		5	Landfill: Industrial waste	Process-ing	kg	Obtained from three industrial waste businesses (1999)	Electric power, diesel oil and NaOH consumption; BOD, COD, SS, TN and TP discharge
138	Disposal and Recycling (Regeneration)	1	Recycle: to cold-rolled steel	Process-ing	kg	JEMAI (1995) p.118 Non-traditional Technology Report (1995), p.103	Electric oven melting + rolling = plate forming
139		2	Recycle: to copper plate	Process-ing	kg	Non-traditional Technology Report (1995), p.89	Electric oven melting + rolling = plate forming
140		3	Recycle: to Aluminum plate	Process-ing	kg	For secondary and virgin metal ratios: Resources Statistics Annual Report, 1992, P.98 For rolling: Non-traditional Technology Report, 1995, P.5	Electric oven melting + rolling = plate forming
141		4	Recycle: to Thermoplastic pellet	Process-ing	kg	Calculated with 60% thermal efficiency melting temperature (average value for PS, ABS, PC, PE, PP, etc.)	Melting + injection molding = pelletizing
142		5	Recycle: to corrugated cardboard	Process-ing	kg	Paper Pulp Handbook, 1998 Edition, and others	Corrugated cardboard production from used paper
143		6	Recycle: to Cardboard	Process-ing	kg	Paper Pulp Handbook, 1998 Edition, and others	Cardboard production from used paper
144		7	Recycle: to Paper	Process-ing	kg	Paper Pulp Handbook, 1998 Edition, and others	Paper production from used paper
145		8	Recycle: to Glass	Process-ing	kg	From Chemical Economy Research Institute: Basic Materials Energy Analysis Survey Report, 1993.9 issue, P129-130, Table 1-3-15	Glass melting + forming
146	Disposal and Recycling (Other)	1	Sewage processing	Process-ing	kg	Japan Resource Association Ed.: Life Cycle Energy in Big City Life, Anforume, January 13th, 1999, p.147-149	Electric power, heavy oil, NG, water, NaOH and Cl2 consumption
147		2	Decomposition: CFC 11	Process-ing	kg	Environmental Management, Vol.31, No.7 (1995) P.95	
148		3	Decomposition: CFC 12	Process-ing	kg	Environmental Management, Vol.31, No.7 (1995) P.95	