Form 1 (F-01s-02)

Product Environmental Aspects Declaration

Touch and close fastener (PSC No.BK-01)

No. BK-05-002

KURARAY FASTENING CO., LTD.

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<NEW ECOMAGIC>

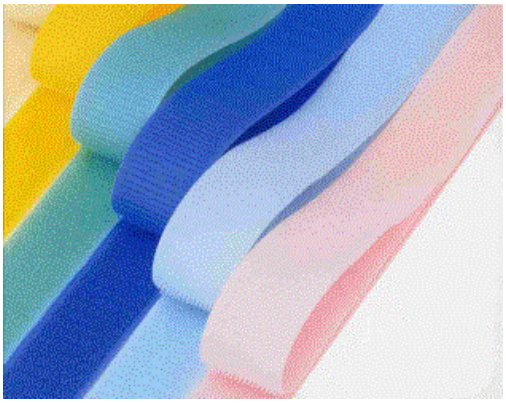
A8693Y / B2790Y

ITEM : PAIR OF HOOK TAPE AND LOOP TAPE
TYPE : HOOK AND LOOP
MATERIAL : POLYESTER

Life cycle Emissions/Consumption

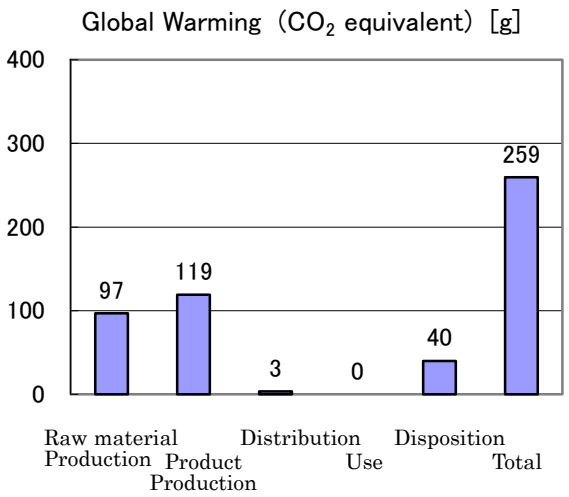
1)	Global Warming (CO_2 equivalent)	259 g
2)	Acidification (SO_2 equivalent)	0.399 g
3)	Energy Consumption	4.68 MJ

Base of Emission data ; W 25mm, L 1m, Pair of Hook tape and Loop tape



<NEW ECOMAGIC> A8693Y / B2790Y

- Polyester type
- No Back coating



Notes:
1. Original LCA data is available on *PEIDS: Product Environmental Information Declaration Sheet*, and *Product Data Sheet*.
2. Unified rules and requirements for EcoLeaf LCA, for intended product category, are available as a *PSC: Product Specification Criteria*. Visit *EcoLeaf* website under JEMAI homepage at http://www.jemai.or.jp/ecoleaf_e/ for details.

[Supplemental environmental information]

This product is manufactured in the factory certified with ISO 14001. (Except dye process)

Form 2-A

Product Environmental Information Data Sheet (PEIDS)

Document control no.	F-02As-02
Product vendor	KURARAY FASTENING CO,.LTD
EcoLeaf registration no.	BK-05-002

Unit Function DB version	v2.0s
Characterization Factor DB version	v2.0s

PSC name	Touch and close fastener			Product type	NEW ECOMAGIC A8693Y/B2790Y		
PSC code	BK-01	Product weight (kg)	0.0158	Package (kg)	0.0095	Weight total (kg)	0.0253

In/Out items \ Life Cycle Stage					Unit	Production		Distribution	Use	Disposition	Total
						Raw material	Product				
Energy Consumption					MJ	2.24E+00	2.34E+00	4.93E-02	0	5.00E-02	4.68E+00
					Mcal	5.34E-01	5.60E-01	1.18E-02	0	1.19E-02	1.12E+00
Inventory anaiyses	Impact by Resource Consumption	Exhaustible resources	Energy resources	Coal	kg	7.49E-03	7.83E-03	1.15E-07	0	2.83E-04	1.56E-02
				Crude oil (for fuel)	kg	2.81E-02	2.48E-02	1.08E-03	0	5.67E-04	5.45E-02
				LNG	kg	3.49E-03	4.85E-03	1.67E-05	0	1.47E-04	8.50E-03
				Uranium content of an ore	kg	1.69E-07	5.30E-07	7.80E-12	0	1.92E-08	7.19E-07
			Mineral resources	Crude oil (for material)	kg	1.05E-02	5.20E-03	0	0	0	1.57E-02
				Iron content of an ore	kg	0	0	0	0	0	0
				Cu content of an ore	kg	0	0	0	0	0	0
				Al content of an ore	kg	0	0	0	0	0	0
				Ni content of an ore	kg	0	0	0	0	0	0
				Cr content of an ore	kg	0	0	0	0	0	0
				Mn content of an ore	kg	0	0	0	0	0	0
				Pb content of an ore	kg	0	0	0	0	0	0
				Sn content of an ore	kg	0	0	0	0	0	0
				Zn content of an ore	kg	0	0	0	0	0	0
				Au content of an ore	kg	0	0	0	0	0	0
				Ag content of an ore	kg	0	0	0	0	0	0
				Silica Sand	kg	0	0	0	0	0	0
				Halite	kg	6.47E-08	7.32E-06	0	0	2.53E-05	3.27E-05
				Limestone	kg	4.20E-06	4.74E-04	0	0	1.64E-03	2.12E-03
				Natural soda ash	kg	0	0	0	0	0	0
		Renewable resources		Wood	kg	2.04E-02	2.95E-03	0	0	0	2.33E-02
				Water	kg	1.38E+01	1.42E+01	8.67E-05	0	2.40E-01	2.82E+01
	Impact by Emission/Discharge to the environment	to Atmosphere		CO2	kg	9.48E-02	1.16E-01	3.47E-03	0	3.99E-02	2.54E-01
				SOx	kg	3.86E-05	7.13E-05	4.27E-06	0	2.09E-05	1.35E-04
				NOx	kg	1.24E-04	1.49E-04	5.33E-05	0	5.06E-05	3.77E-04
				N2O	kg	7.99E-06	9.54E-06	6.27E-08	0	9.16E-08	1.77E-05
				CH4	kg	4.54E-07	1.42E-06	2.09E-11	0	5.14E-08	1.92E-06
				CO	kg	6.28E-06	1.46E-05	2.13E-05	0	5.14E-06	4.73E-05
				NMVOC	kg	8.87E-07	2.77E-06	4.10E-11	0	1.01E-07	3.76E-06
				CxHy	kg	3.54E-06	4.54E-06	1.08E-06	0	4.30E-08	9.20E-06
				Dust	kg	8.64E-06	1.32E-05	4.27E-06	0	7.82E-08	2.62E-05
		to Water system	to Water domain	BOD	kg	-	7.39E-04	-	-	-	
				COD	kg	-	-	-	-	-	
				N total	kg	-	-	-	-	-	
				P total	kg	-	-	-	-	-	
				SS	kg	-	3.69E-05	-	-	-	
				Wast water	kg	3.02E+00	5.08E+00	-	-	-	
		to Soil system		Unspecified Solid Waste	kg	3.69E-04	2.29E-04	0	0	8.27E-07	5.98E-04
				Slag	kg	0	0	0	0	0	0
				Sludge	kg	0	0	0	0	0	0
				Low level radio-active waste	kg	1.18E-07	3.70E-07	5.47E-12	0	1.34E-08	5.01E-07
				Landfill: Industrial waste	kg	4.96E-04	-	-	-	-	
Impact assessment	by Resource	Exhaustible resources		Energy resources (crude oil equivalent)	kg	3.85E-02	4.00E-02	1.10E-03	0	1.08E-03	8.06E-02
				Mineral resources (Iron ore equivalent)	kg	5.75E-03	2.86E-03	0	0	0	8.61E-03
	by Emission / Discharge to environment	to Atmosphere		Global Warming (CO2 equivalent)	kg	9.69E-02	1.19E-01	3.49E-03	0	4.00E-02	2.59E-01
				Acidification (SO2 equivalent)	kg	1.26E-04	1.75E-04	4.16E-05	0	5.63E-05	3.99E-04
				Ozone Depletion (CFC-11 equivalent)	kg	0	0	0	0	0	0
				Photochemical Oxidant	kg	5.30E-06	8.38E-06	2.18E-06	0	9.10E-08	1.60E-05
		to Water system		Eutrophication (Phosphate equivalent)	kg	0	0	0	0	0	0

[Notes for readers: EcoLeaf common rules]

I. Stage related
A. "Production" stage is intended for two sub-stages listed below.
(1) "Raw material" production: consists of mining, transportation and raw material production.
(2) "Product" production: consists of the parts processing, assembly and installation.
B. "Distribution" stage is intended for transportation of produced product. Transportation of consumables and maintenance goods (e.g. replacement parts) for use of the product are included into "Use" stage.
C. "Use" stage is intended for use of the product (active mode, standby mode, etc.) and production, transportation to disposal/recycle of consumables/maintenance goods (e.g. replacement parts).
D. "Disposition/Recycle" stage is intended for environmental impacts by product disposition/recycle, and deduction by recycling (e.g. impact reduction of raw material production).

II. Inventory analyses
A. Data of mineral ore on "Exhaustible resources" are presented in weight of pure ingredients (e.g. iron, aluminum) in the ore.
B. Data on energy resources are presented based on origin in calorific value. e.g. Data on uranium ore presents weight of uranium concentrate, which is available for use as an atomic fuel.
C. Data of discharge to water system are in actual figure (not calculated using unit function in inventory analyses).

III Impact analyses
Result of the "Impact analyses" is found in converting results of inventory analyses into total amount of a reference material (e.g. CO2 in case of "Global Warming").
A. Impact "by resource consumption" represents magnitude of impacts to resource depletion.
B. Impact "by emission/discharge to environment" represents magnitude of impacts to Atmosphere, Water and Soil system.

IV Data entry format
A. Exponential notation, after the decimal point to two, should be used.
B. Indicate "0" instead exponential notation, if the result of calculation or estimation is considered as "zero" or negligible in comparison to related results.
C. Indicate "NA" if calculation nor estimation can not be done, in order to differentiate to indicate "zero".
D. Row total of the data is automatically calculated, excluding a row includes "NA" item. Row total of such is presented as a blank (no data).
(BGD for material production are for production from mineral ore. Those data do not include reclaiming processes like recovery from scrap.)

[Notes for readers: Target product specific]

Raw material production life cycle atage imcludes spining process. Inventries of spinning process are calculated based on PSC No.BK-01.

Form 3

Product data sheet

(Input data and parameters for LCA)

Document control no.	F-03s-02
Product vendor	KURARAY FASTENING CO,.LTD
EcoLEaf registration no.	BK-05-002

PSC name	Touch and close fastener	Product type	NEW ECOMAGIC A8693Y/B2790Y				
LCA/LCIA in units of:	W 25mm L 1m、Pair of Hook tape and Loop tape	Product weight (kg)	0.0158	Package (kg)	0.0095	Weight total (kg)	0.0253

1. Product information (per unit): parts etc. by material and by process/assembly method

	Breakdown of primary materials				Math breakdown of parts, which need to apply Processing / Assembly Base Units (Parts B, C)			
	Material name	Weight (kg)	Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)
Product	Polyester fiber	1.57E-02						
	Dye	1.00E-04						
	Wood, Paper	9.50E-03						
	Subtotal	2.53E-02	Subtotal	0				
	Total			2.53E-02	Subtotal	0	Subtotal	0

Note NEW ECOMAGIC A8693Y/B2790Y. Pair of Fook tape and Loop tape.

2. Production site information (per unit): Consumption and discharge/emission for production/processing/assembly within the site.

SOx and NOx should be indicated in SO2, NO2 equivalent.

Consumption	Classification	Material	Material	Material	Material	Material	Material	Energy	Energy
	Distribution	PET (kg)	Expandable hard polyurethane (Hard) (kg)	Ink (kg)	Corrugated cardboard (kg)	Cardboard (kg)	Industrial water (kg)	Electricity (kwh)	Heavy oil as fuel (kg)
	Quantity	5.97E-03	0.00E+00	1.28E-03	1.21E-03	1.68E-04	8.10E+00	1.47E-01	9.07E-03
	Note	(6.47E-05)					(3.02E+00)	(1.64E-02)	
	Classification	Energy	Energy	Energy	Energy	Condition			
	Distribution	Heavy oil (kg)	Coal (kg)	Oil coke (kg)	LPG (kg)	Diesel truck: 4 ton (kg.km)			
	Quantity	4.19E-03	4.96E-03	8.42E-04	3.02E-04	1.33E+00			
	Note	(4.19E-03)	(4.96E-03)	(8.42E-04)	(3.02E-04)				
Emission/Disc	Classification	Atmosphere	Atmosphere	Atmosphere	Water system	Water system	Water system	Soil system	Soil system
	Distribution	CO2	SOx	NOx	Wast water	BOD	SS	Incineration: Industrial waste (kg)	Landfill: Industrial waste (kg)
	Quantity	2.90E-02	7.90E-06	1.60E-05	8.10E+00	7.39E-04	3.69E-05	7.39E-03	4.96E-04
	Note	(2.90E-02)	(7.90E-06)	(1.60E-05)	(3.02E+00)				(4.96E-04)

Note

3. Distribution stage information (per unit): means, distance, loading ratio, consumptions and emissions/discharges.

Distribution	Means of transportation	Diesel truck: 4 ton (kg.km)	Diesel truck: 4 ton (kg.km)	Diesel truck: 4 ton (kg.km)	Diesel truck: 4 ton (kg.km)				
	Conditions	Weight (kg)	Distance (km)	Loading ratio (%W)	Load (kg･km)				
	Quantity	2.53E-02	5.00E+02	3.80E+01	3.33E+01				
	Note								

Note The distance is 500km, in case of domestic logistics by PSC BK-01.

4. Use stage (per unit): use condition (mode, term) including active mode, standby mode and maintenance.

4.1 Product and accessories subject to this analysis

Product	Classification								
	Distribution								
	Quantity								
	Note								

Note Not considered in accordance with the PSC.

4.2 Disposition/Recycle information on consumables and replacement parts

Consuma	Classification								
	Distribution								
	Quantity								
	Note								

Note Not considered in accordance with the PSC.

5. Disposition/Recycle stage information (per product): process method and scenarios

Scenario	Classification	Process							
	Distribution	Incineration: Industrial waste (kg)							
	Quantity	2.53E-02							
	Note								

Note

6. Others