

Eco-services



1 Product-related services

(maintenance, upgrading, repair/reform)

2 Reuse and recycling services

(collection, etc.)

3 Outsourcing services

(waste disposal, control of hazardous items, chemical treatment, facility management)

4 Management-related services

(consulting, accreditation, analysis, evaluation, etc.)

5 Others

(e-commerce, eco-tourism, hotels, information transfer, etc.)

In the *Eco-products Directory 2009*, "eco-services" refer not only "technological improvements" but also "ways to use products" and "environmental management" as well as "mechanisms that enable environmental impact reduction through financial products." Typical eco-services include vehicle sharing, where, for example, 10 people share one vehicle instead of each driving his/her own. This results in fewer vehicles on the road, thus reducing the environmental impact of travel considerably. As another example of eco-service, regular maintenance and upgrading can be performed on conventional products so that they can be used longer. In this directory, "eco-services" also refer to "eco-funds where investments are made in business firms with excellent performance in caring for the environment."

The technological development of eco-products normally requires time and money. However, eco-services often only require good ideas to promote environmental impact reduction. Eco-services have not yet been widely recognized by consumers. A system should be developed to publicize the availability and advantages of eco-services so that they permeate society, encouraging further environmental impact reduction.

ES-1-001

Product-related

returnable container managing systems

NETLOOPASS — a system using IC-tags to manage returnable containers in logistics

Environmental performance

From the perspective of consideration for the environment, returnable containers are frequently used for logistics between enterprises. However, there are many new problems related to management such as a lack of containers when shipping a product or an excess of containers. These problems are caused by an inability to determine the number of containers in inventory or their whereabouts.

We have developed NETLOOPASS as an optimal solution to such problems.

Product performance

By attaching IC-tags to returnable containers such as folding containers and pallets, it is possible to prevent containers from being lost, retained or purchased in excess by managing when, where and in what quantity they are shipped or returned.

Customers can choose 13.56MHz (ISO15693 Standard) or UHF (EPC global Class 1 Generation 2 Standard) IC-tags depending upon their specific needs and it is possible to use IC-tags even if the container is made of metal.



TOPPAN PRINTING CO., LTD.

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 URL <http://www.toppan.co.jp/english/>
 URL <http://www.toppan.co.jp/english/csr/>



Available in: We have sold our products throughout the world.

ES-1-002

Product-related

treatment of metal surfaces

High-Performance Surface Treatment Technology "TRIBEC™ Series"

Environmental performance

Various surface treatment technologies are applied to molds for extending their lives. Recently growing environmental awareness has resulted to change the type of lubricants along with other drastic modifications and has shortened the operating lifetime of molds. In an effort to improve their operating life, Hitachi Metals developed "the TRIBEC™ Series". By identifying the necessary performance attributes of each application based on an extensive analysis on mold abrasion over many years, Hitachi Metals has achieved high-performance surface treatment of molds that is operating-environment specific. "The TRIBEC™ Series" provides protection for molds used even in harsh conditions where environmentally conscious lubricating methods are used. In addition, mold abrasion can be suppressed with polishing to remove damaged portions and enables reuse of "TRIBEC™".



Hitachi Metals, Ltd.

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 Tel +81-3-5765-4410
 E-mail hmcc@hitachi-metals.co.jp
 URL <http://www.hitachi-metals.co.jp/e/>
 URL http://www.hitachi-metals.co.jp/e/prod/prod19/p19_02.html
 URL http://www.hitachi-metals.co.jp/e/corp/corp14_01.html



Products with TRIBEC™ applied

Eco-materials

Eco-components

Eco-products

Eco-services // Product-related

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ES-1-003

Product-related
green gifts

Present Tree

Product performance

A Present Tree is a gift that involves the delivery of a certificate detailing a planted tree, along with a message card. Trees will be planted for the reproduction of tropical forests on Kalimantan Island.

You can have two planted trees.

One of the trees is planted for recovering tropical forest.

The other is a teak, and this afforestation enables the sustainable supply of woods, and creates the employment of locals.

After ten years, the teak will be cut down and sold. The income from the teak will be paid to the owner. The income will also able to be used for reforestation or environmental conservation activities.

As another privilege, a CO₂ offset certificate comes with the Present Tree. The planted tree will become forest and that will absorb carbon dioxide. It contributes to the prevention of global warming.

The owner certificate features the owner's name, and latitude and longitude of the position where the teak sapling is planted, which is measured by GPS (Global Positioning System).

VIVO Corporation Co.,Ltd

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Tel +81-42-465-7563 Fax +81-42-465-7241
E-mail info@vivo.jp
URL <http://www.env-r.com/tree>



Available in: Japan

Present Tree contents

ES-1-004

Product-related
elevator refurbishment services

Quick Elevator Refurbishment Thanks to Addition of New Control Panel

Environmental performance

- Mitigation of climate change: Reduction in power consumption due to the change from conventional AC feedback control to inverter control.
- Efficient use of resources: Possible to perform refurbishment work without removing the existing motor, hoist, car, and platform facilities. Elimination of unnecessary replacement for the efficient utilization of existing resources.

Product performance

- Short work period: Reduced time required for transport and replacement work because of the division of the control panel into compact units.
- Reduced frequency of trouble: Change from a relay system to a microcomputer controlled system brings enhanced reliability as there are fewer replacement parts.
- Remote surveillance: Remote surveillance for 24 hours x 365 days.



Elevator Control Board Refurbishment CV260RN

TOSHIBA ELEVATOR AND BUILDING SYSTEMS CORPORATION

5-27, Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, 141-0001, Japan
Tel +81-3-5423-3330 Fax +81-3-5423-3425
URL <http://www.toshiba.co.jp/index.htm>
URL <http://www2.toshiba-elevator.co.jp/elv/infoeng/index.jsp>

Eco-materials

Eco-components

Eco-products

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ES-2-001

Reuse and recycling
retreaded tires

Retread tires for trucks and buses

Environmental performance

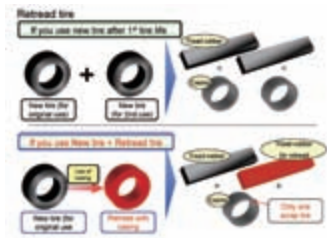
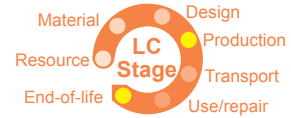
Through the retreading method, CO₂ emissions and energy consumption during tire manufacturing process can be significantly reduced as well as scrap tire reduction. Bridgestone also provides new tires properly designed as a retread casing in order to maximize the value of casing and reuse efficiency. Bridgestone will make continuous effort for further public enlightenment of the Eco concept responding to social justice and the needs of customers through retread activity.

Product performance

"Retread" means attaching new tread rubber on a worn-out tire to revive tire life. There are two ways of retreading. One is assembling already cured tread (Pre-Cured Tread or PCT) on a worn-out tire, which is called "COLD" type retread, because the curing temperature is relatively low (100-120 degrees C). The other is assembling non-cured tread, which is called "HOT" type retread, because the curing temperature is relatively high (140-150 degrees C) and this is similar to new tire production.

Bridgestone Corporation

10-1, Kyobashi 1-chome Chuo-ku, Tokyo, 104-8340, Japan
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URL <http://www.bridgestone.co.jp/english/index.html>



Retread tires image

ES-2-002

Reuse and recycling
recycling systems

Ecocement System

Environmental performance

Ecocement is the recycling system for incineration residues from MSW incinerators. Such residues are utilized as the major raw material of Ecocement with minimum addition of natural resources.

Characteristics of Ecocement

1. This system ensures that dioxins contained in residues are safely decomposed during high temperature in excess of 1,350°C.
2. This system includes equipment that extracts and refines heavy metals contained in the incineration residues for recycling.
3. This system contributes to decrease of landfill burden.

Product performance

Ecocement is similar in quality to ordinary Portland cement. It is utilized to redy-mixed concrete, concrete product and soil stabilizer.

TAIHEIYO CEMENT CORPORATION

St. Luke's Tower, 8-1, Akashi-cho, Chuo-ku, Tokyo, 104-8518, Japan
Tel +81-3-6226-9088 Fax +81-3-6226-9172
URL <http://www.taiheiyo-cement.co.jp>



Ecocement System

ES-2-003

Reuse and recycling recycling systems

Ash Washing System

Environmental performance

Ash Washing System is a recycling system for incineration residues, otherwise known as soot & dust and bottom ash from MSW incineration, as a cement raw material. This system can be introduced at existing cement plants simply by installing pretreatment facilities of the Ash Washing system.

Characteristics of the Ash Washing System

1. Dioxins contained in the incineration residues are safely decomposed during the high temperature burning process at cement rotary kiln in excess of 1,450°C.
2. The pre-treatment of bottom ash requires only removing metals and screening other large foreign objects. Soot & dust includes many chlorides and need to be treated to remove them using water. Soot & dust and bottom ash are utilized as a cement raw material after pre-treatment

TAIHEIYO CEMENT CORPORATION

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Ash Washing System

ES-2-004

Reuse and recycling recycling systems

AK System

Environmental performance

AK (Applied Kiln) System recycles household garbage into raw material and alternative fuel for ordinary Portland cement production. This can be introduced at existing ordinary Portland cement plants by modification and installation of specific equipment.

Characteristics of AK System

1. MSW is directly transported to the cement plant equipped with the AK System.
2. MSW is placed into a rotary digester and is aerated and fermented around 3 days. MSW converts into a homogeneous and stable product that can be utilized as fuel and raw material for cement production.
3. The generation of dioxins is suppressed during the high temperature burning process in excess of 1,450°C.

TAIHEIYO CEMENT CORPORATION

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AK System

Eco-materials

Eco-components

Eco-products

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ES-2-005

Reuse and recycling recycling systems

FRP Recycling Using Depolymerization Under Ordinary Pressure

Environmental performance

This technology is unique in that it does not require pretreatment (crushing, etc.) or the facilities and energy for the pressurization. This technology helps reduce processing costs and environmental load while ensuring health and safety. Moreover, the relatively long glass fibers recovered enable production of reusable FRPs with about 70% of the tensile strength of virgin FRPs.

Product performance

FRP raw materials such as thermosetting resins make FRP difficult to recycle because they cannot be decomposed after being molded. Hitachi Chemical's FRP recycling technology, which uses tripotassium phosphate as a catalyst and benzyl alcohol as a solvent, can decompose FRP at 200 degrees centigrade under ordinary pressure for about 10 hours. FRPs are readily separated into glass fibers, fillers, resins and other components, which are reprocessed into FRPs at a low cost.

Hitachi Chemical Co., Ltd.

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 URL <http://www.hitachi-chem.co.jp/english/index.html>
 URL <http://www.hitachi-chem.co.jp/english/products/index.html>
 URL <http://www.hitachi-chem.co.jp/english/csr/index.html>

Available in: Japan



FRP dissolving process

ES-2-006

Reuse and recycling recycling systems

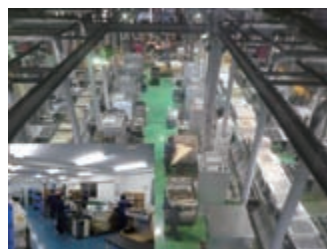
Recycling of Electronic Appliances Toward Recycling-oriented Society

Environmental performance

Tokyo Eco Recycle Co., Ltd. disassembles used electric appliances manually to separate valuable resources thoroughly. One step forward from an effort just to "recover resources" for environmental protection to "create resources" has achieved a new business model. Tokyo Eco, a front-runner in the world has been striving to establish a novel approach representing the recycling industry. Tokyo-Eco strives for "zero emission", which means waste going to landfill sites be reduced to zero. Our landfill ratio of 0.1% is at the top level in Japan. At the same time, information security is highly taken into account (e.g., being certified for "privacy marking") in order to promote recycling in the information society.

Tokyo Eco-Recycle, Ltd.

38 Wakasu, Koutou-ku, Tokyo, 136-0083, Japan
 Tel +81-3-3522-6690 Fax +81-3-3522-6688
 URL <http://www.tokyo-eco.co.jp>



Recycling of PCs, washing machines, and air-conditioners

Eco-materials

Eco-components

Eco-products

Eco-services // Reuse and recycling

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ES-2-007

Reuse and recycling recycling systems

Tungsten Recycling System for Carbide Cutting Tools

Environmental performance

Tungsten is a refractory metal in its property, and tungsten carbide has high hardness at high temperature and is used for the cemented carbide cutting tools which are indispensable to metalwork a variety of parts and components in automobiles, household electric appliances, and other industries.

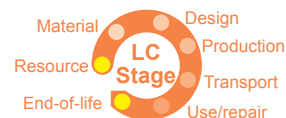
Tungsten is also known as one of the rare metals, and its resource in the world is very limited. Tungsten materials processed by the conventional recycling method are used in limited application areas because of its insufficient quality.

mitsubishi materials group has developed a new recycling method to recycle tungsten, while ensuring the high quality of recycled tungsten. At present, we are the only manufacturer that can recycle used cemented carbide by metallurgical refining process. We recycle tungsten from used cemented carbide tools and alloys collected in the manufacturing process.

JAPAN NEW METALS CO.,LTD

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URL <http://www.jnm.co.jp/eng/index.html>
URL <http://www.mmc.co.jp/corporate/en/csr/csr.html>

Available in: Japan



Carbide Cutting Tool

ES-2-008

Reuse and recycling recycling systems

World's first totally closed-loop recycling system for polyester

Environmental performance

The closed-loop recycling system of ECOCIRCLE™

- will produce no waste
- will suppress petroleum consumption
- will significantly reduce CO₂ emissions and energy consumption

Product performance

ECOCIRCLE™ is an advanced system that turns PET bottles and polyester products back into highly pure polyester raw material (99.99%). By separating additives and coloring agents, purity equivalent to raw material produced from petroleum can be achieved.

ECOCIRCLE™ is a Teijin Fiber trademark.



Teijin Fibers Limited

2-1, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo, 100-8585, Japan
Tel 0088-22-0175
E-mail tfj0604@teijin.co.jp
URL http://www.ecocircle.jp/index_e.html

Closed-loop recycling system

ES-2-009

Reuse and recycling recycling systems

Tea dregs recycling system

Environmental performance

With the increase of demand for green tea beverages, the amount of tea dregs discharged during the process of production is increasing year by year. Even though the tea dregs contain a lot of functional ingredients such as polyphenol, it is easy to rot because of its containment of water and high temperature.

As a way to dispose tea dregs discharged, it can be dried out and reused. However, a large amount of energy is consumed to make it dry because of its water containment. That is not good for the environment.

As a result, most of the usage of tea dregs is for compost so far.

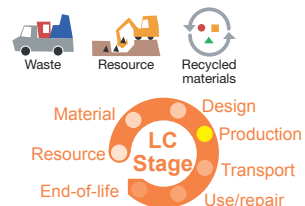
At ITO EN we have overcome those obstacles and succeeded in developing a technology to process the tea dregs with water in it.

Creating products made out of tea dregs such as board, gypsum-board, resin, and paper, making a good use of green tea function with the technology is "the tea dregs recycling system".

ITO EN, LTD.

21 MEKAMI, SAGARA-CHO, MAKINOHARA-SHI, SHIZUOKA-KEN,
421-0516, Japan
URL <http://www.itoen.co.jp/>
URL <http://www.itoen.co.jp/csr/recycle/index.html>
URL <http://www.itoen.co.jp/csr/report/index.html>

Available in: Japan



Sample (Resin with tea)

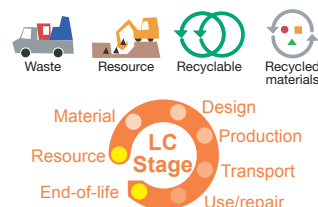
ES-2-010

Reuse and recycling recycling systems

Efforts to achieve a higher recycling rate under the concept of compliance

Environmental performance

We strive to recycle used resources, including metals (e.g., iron and aluminum), waste office automation equipment (e.g., PCs) and automobiles. We are also actively engaged in activities to raise awareness in regard to environmental conservation. These include factory tours upon request for the general public at some of our facilities to publicize the importance of recycling.



Ishikari factory Shredder Plant

SUZUKI SHOKAI Inc.

Nippon life Insurance Sapporo Bld 10F, 1-1 North3 West4, Chuo-ku, Sapporo-shi, Hokkaido, 060-0003, Japan
Tel +81-11-280-1281 Fax +81-11-280-8900
URL <http://www.suzuki-shokai.co.jp>

Available in: Japan, Asia

Eco-materials

Eco-components

Eco-products

Eco-services // Reuse and recycling

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ES-2-011

Reuse and recycling
recycling systems

Separate collection of various kinds of metals, plastics and glass contained in shredder dust

Environmental performance

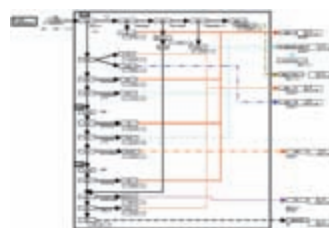
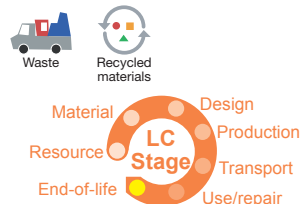
Separating shredder dust generated from waste household appliances and automobiles has conventionally been considered difficult. However, efforts are now made to reduce the amount of waste for final disposal by separately collecting such dust and making effective use of it—metals and glass for material recycling (i.e., to be recycled as raw materials) and plastics for thermal recycling (i.e., energy recovery).

Product performance

The raw material, shredder dust, is sieved and subjected to manual screening, crushing, wind gravity separation, magnetic separation, nonferrous metal separation and fluidized bed gravity separation. In each of these processes, recyclable materials, including those for fuels, are extracted. Although the proportions of these recyclable materials differ depending on the type of raw material, the weight-based percentage is roughly estimated as approximately 35 to 42% for iron, copper, aluminum, other metals and glass, and 25 to 35% for plastics to be used as fuels. The amount of final disposal is approximately 30% of the original amount.

R&E Co., Ltd

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 URL <http://www.rande.co.jp>



Flowchart of work processes at the shredder dust-recycling factory

Eco-materials

Eco-components

Eco-products

1 Eco-services // Reuse and recycling
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ES-3-001

Outsourcing

data deletion management

An environmentally friendly, reliable data erasure service

Environmental performance

- This is an environmentally friendly data erasure service with the following characteristics:
- (1) Data media are dried, dry-distilled and carbonized in a furnace using nitrogen.
 - (2) Data is then erased by heating with an electric heater.
 - (3) Combustion does not occur since oxygen is not used, thereby significantly reducing CO₂ emissions (compared with crushing and combustion after data erasure using strong magnetism).
 - (4) The original materials (e.g., metal) and fuel (carbide) are both recycled.
 - (5) External air pollution is prevented through the use of exhaust gas detoxification and deodorization devices.
 - (6) Carbon offsets are purchased to compensate for the CO₂ discharged during the operation of this service.
 - (7) Carbon offset and work completion certificates are issued.

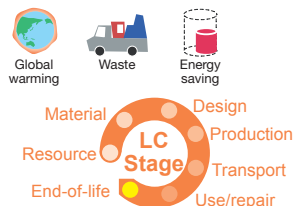
Product performance

Completely erases data on magnetic tapes, optical discs, floppy disks and hard disks at a location designated by the client, enabling protection of information, the environment and customers.

Imation Corp. Japan

Forest Hills West Wing 18-16, Minami-Aoyama 4-Chome, Minato-ku, Tokyo, 107-0062, Japan

Available in: Tokyo metropolitan area in JAPAN *Please inquire of us about the service areas other than the above area.



Truck put on the equipment & Carbonized cartridge

ES-3-002

Outsourcing

pipe flushing services

Water-saving flushing system for newly built hot and cold water pipes

Environmental performance

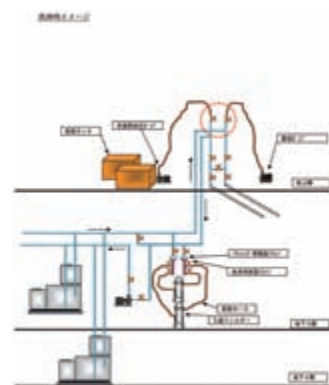
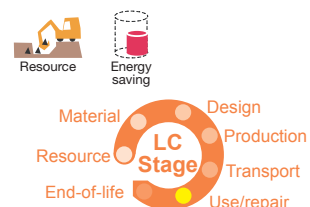
The flushing method for hot and cold water pipes conserves resources by significantly reducing the volume of wash water used as well as the number of working hours involved.

Product performance

The amount of wash water used in the flushing for newly made hot and cold water pipes is significantly reduced using a transmission barrier filter. At the same time, the number of working hours involved in filling pipes with water are also reduced by using a vacuum pump. Ex.) Fewer frequencies of water changes needed: conventionally, 50 to 100 t of wash water are required to flush a pipe with a capacity of 10 t, but the new method takes only about 20 t to complete washing. The technique is expected to be used in cogeneration systems for district cooling and heating and for pipes to cool large-sized machinery.

NIHON MIZU-SHORI KOUGYOU CO.,LTD.

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 E-mail mizushori@nifty.com
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ES-3-003

Outsourcing

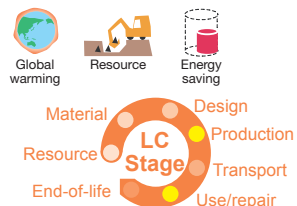
energy management services

Energy Management Service

Environmental performance

UGL Premas is a leading total asset management company in Asia. Headquartered in Singapore, with staff strength of 2000, we provide facilities management and engineering services for various types of facilities across Asia and Middle East regions.

Our Energy Centre, the first accredited ESCO, specialises in energy management solutions and procurement services. It has helped building owners identify savings of more than S\$10 million annually in total.



United Premas Limited

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 Tel +65-6876-0088 Fax +65-6538-8146
 E-mail info@ugl-premas.com
 URL www.ugl-premas.com



ES-3-004

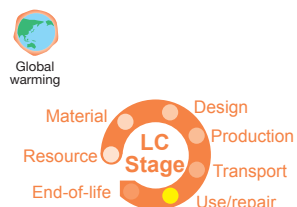
Outsourcing

landfill gas collection volume evaluation

Landfill Gas Collection Volume Evaluation Method

Product performance

For successful landfill gas (LFG) collection and/or power generation projects or CDM projects, accurate evaluation of LFG emission and collection volume is crucial. Through a number of actual project experiences in Southeast Asia, Kajima developed a step-wise evaluation methodology comprising a preliminary study (Surface Methane Flux/Concentration Study), diagnosis study (Passive Gas-Well Test) and detailed study (Pumping Gas-Well Test). The preliminary study that measures methane concentration and methane flux on the landfill surface provides economical and quick assessment for further studies, the diagnosis study that measures the volume and composition of the LFG being emitted through a few small observation wells and conducts chemical analysis on waste samples provides approximate estimation of project costs, and the detailed study that pumps LFG from a few actual production wells and studies the relation between pumping power and methane concentration provides accurate LFG collection volume data and operational data.



Kajima Corporation

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 URL http://www.kajima.co.jp/tech/g_warming/index.html



Pumping Gas-Well Test

ES-4-001

Management-related
package software

Agricultural Information Management System: GeoMation Farm

Environmental performance

- 1) By analyzing the relation between fertilizer and quality/quantity of a crop, farmers can judge the suitable amount of fertilizer. This leads to low environmental load.
- 2) By plotting scattering of the outbreak of disease or harmful insects on the farmland map, farmers can prevent and exterminate these pests with low agricultural chemicals.

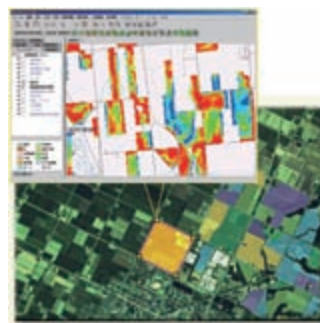
Product performance

Remote sensing technology can judge the percentage of dryness of ears of wheat. By using this information, farmers can harvest only dry wheat and this leads to energy-saving drying. According to the evaluation result by SI-LCA index, CO₂ emissions for drying wheat can be reduced 33% by using "GeoMation Farm".

Hitachi Software Engineering Co., Ltd.

4-12-7 Higashishinagawa, Shinagawa-ku, Tokyo, 140-0002, Japan
 Tel +81-3-5780-2111
 URL <http://www.hitachi-sk.co.jp/english/index.html>
 URL <http://hitachisoft.jp/geomation/farm>
 URL <http://hitachisoft.jp/csr/index.html>

Available in: Worldwide



Agricultural Information Mgmt: GeoMation Farm

ES-4-002

Management-related
package software

Bioinformatics Software for DNA/RNA/Amino Acid Sequence Analysis

Environmental performance

DNASIS Pro reduces man-hours by 88% by adding the function which coordinates with the reagent order site, and contributes to energy saving. The amount of CO₂ reduction for one year is 182.7kg.

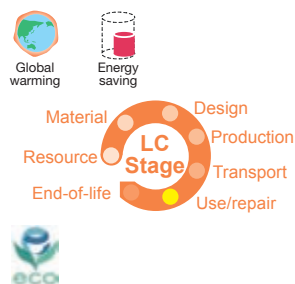
Product performance

Life science research is making great advances in broad applications such as drug discovery, food safety and environmental conservation. "DNASIS Pro" bioinformatics software contributes to life science research by helping scientists be more productive. "DNASIS Pro" enables researchers edit, annotate and analyze DNA, RNA and amino acid sequences. It includes a comprehensive set of analytical tools that can be expanded with optional homology search, multiple alignment, and base calling and sequence assembly modules. Its unique, customizable features are designed to save researchers time and accelerate their life science research.

Hitachi Software Engineering Co., Ltd.

4-12-7, Higashishinagawa, Shinagawa-ku, Tokyo, 140-0002, Japan
 Tel +81-3-5780-2111
 URL <http://hitachisoft.jp/products/lifescience/>
 URL <http://hitachisoft.jp/products/lifescience/lineup/dnasis/DNASISPro/>
 URL <http://www.miraibio.com/dnasis-max/dnasis-max-overview.html>

Available in: Japan



DNASIS Pro

Eco-materials

Eco-components

Eco-products

Eco-services // Management-related

ES-4-003

Management-related
environmental management

Information Collecting and Analyzing Tool Supporting Environmental Management

Environmental performance

- The system is a WEB-base scheme that is yielded from actual business needs and has an enough record about being used.
- In one platform (server), installed are three sub-systems for collecting and analyzing the information, for controlling waste with the administration of agents, and for monitoring chemical substances. "ECO Rates" is a total package in which each sub-system is connected each other.
- We offer "version up" service every year to conform to the latest law and acts.
- "Add on" operation and customization of the function can be arranged so as to meet the customer's business uses. In addition, we support the customers on the whole from the introduction of system to the practical use policy and operative rules.

Product performance

"ECO Rates" supports, as a real managing system, the information management that is the base of the environment management.

Mitsubishi Electric Corporation

2-7-3, Marunouchi, Chiyoda-ku, Tokyo, 100-8310, Japan
 Tel +81-3-3218-9024 Fax +81-3-3218-2465
 E-mail eqd.eco@pj.MitsubishiElectric.co.jp
 URL <http://global.mitsubishielectric.com/index.html>
 URL <http://global.mitsubishielectric.com/company/csr/environment/products/index.html>
 URL <http://global.mitsubishielectric.com/company/csr/index.html>

Available in: Japan



ECO Rates Integrated Environmental Information system

ES-4-004

Management-related
environmental education content

Environment Education Contents Series "Environmental Communication Club"

Environmental performance

"Environmental Communications Club" is an environmental educational package for understanding global environmental problems and the negative environmental impact, and for considering the environment. Contents include animation and games. Users can enjoy and learn about environmental issues. These contents are used for study by school children's class trips to the garbage incinerator and the recycling plaza of the municipality.



TOSHIBA PLANT SYSTEMS & SERVICES CORPORATION

Muza Kawasaki Central Tower, 1310, Omiya-cho, Saiwai-ku, Kawasaki-Shi, 212-8551, Japan
 Tel +81-44-548-7711 Fax +81-44-548-7884
 E-mail eco.master@toshiba-tpsc.co.jp
 URL <http://www.toshiba-tpsc.co.jp/english/company/act.htm>
 URL <http://www.toshiba.co.jp/env/en/report/index.htm>



Various Contents

ES-4-005

Management-related

LCA software

LCA software "JEMAI-LCA Pro"

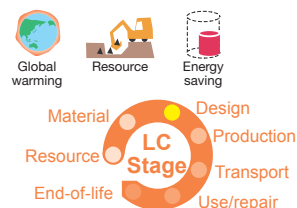
Environmental performance

JEMAI-LCA Pro is LCA software developed by the National Institute of Advanced Industrial Science and Technology (AIST) and Japan Environmental Management Association for Industry (JEMAI). The JEMAI-LCA series has been available since 2000, and over 1000 copies have been sold, occupying the largest share in Japan's LCA software market. Now, an English version is available. The software is equipped with the following functions: -A modifiable inventory database containing a wide range of processes with resource consumption and emissions. -New data adding through a process sheet or visual input output sheet. -Process tree management. -Estimation of environmental impact in overseas countries using electricity data and an import model of 200 countries/regions. -Inventory analysis and impact assessment including Japanese and European methods. -Report writing support based on the format outlined in the ISO 14040s specifications.

Japan Environmental Management Association for Industry (JEMAI)

2-1 Kajicho 2-chome, Chiyoda-ku, Tokyo, 101-0044, Japan
 Tel +81-3-5209-7708 Fax +81-3-5209-7716
 E-mail jemai-lca@jemai.or.jp
 URL <http://www.jemai.or.jp/>
 URL http://www.jemai.or.jp/CACHE/lca_details_lcaobj198.cfm

Available in: Worldwide



JEMAI-LCA Pro

ES-4-006

Management-related

LCA software

Life Cycle Assessment Software "Easy-LCA"

Environmental performance

Easy-LCA is a supporting tool to conduct life cycle assessment (LCA) effectively. It evaluates quantitatively the influence of the product on the environment at the stage of design, and combines scientifically the results with the analysis and improvement of the product.

Main features

- The latest database based on the economical statistics table of fiscal year 2000 (published in 2004) has been included.
- Assessment of the discharge of environmental loading is possible according to the distinction of units and parts.
- Comparison of an old product and the new one is possible
- Impact evaluation
- Inventory evaluation of 30 kinds of products including CO₂ / NO_x / SO_x is possible.

TOSHIBA PLANT SYSTEMS & SERVICES CORPORATION

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 Tel +81-44-548-7711 Fax +81-44-548-7884
 E-mail eco.master@toshiba-tpsc.co.jp
 URL <http://www.toshiba-tpsc.co.jp/english/company/act.htm>
 URL <http://www.toshiba.co.jp/env/en/report/index.htm>



Easy-LCA screens

ES-4-007

Management-related
library systems

A library system "Livre"

Environmental performance

We can reduce CO₂ of 66.6% by using "Livre".

Product performance

Livre is library system, which Hitachi Systems & Services, Ltd. offers. The characteristics of "Livre" are as follows.

- Enables easy operation for the loan and the return of the library book.
- Enables quick search for books.
- Provides variety of statistics associated with the library operation.



Hitachi Systems & Services, Ltd.

Nagoya Lucent Tower, 6-1 Ushijima-cho Nishi-ku, Nagoya, 451-6028, Japan
 Tel +81-52-569-2128 Fax +81-52-569-2132
 E-mail livre-sales@hitachi-system.co.jp
 URL <http://www.hitachi-system.co.jp/lvr/>



Main Menu of "Livre"

ES-4-008

Management-related
document solutions

Document Solution "LIBINITY"

Environmental performance

LIBINITY is a unified brand of the document solution of Hitachi Systems & Services, Ltd.

It reduces the consumption of paper, which leads to the reduction of the CO₂ emission associated with the transportation of the paper by 42.3%. This reduction is achieved by replacing distribution of conventional paper with information sharing on the WWW.

Product performance

LIBINITY ECM is characterized by "SCALABILITY" changing a system scale by step-by-step expansion depending on the number of the documents / the users. It can enable all customers' document systems to realize "COMPLIANCE", "SECURITY", "RELIABILITY" easily. "LIBINITY Millemasse" is a high-performance filing system to keep a large quantity of documents and images for unification. It easily realizes high document management at a low cost.



Screen image of "LIBINITY Millemasse"

Hitachi Systems & Services, Ltd.

JR Shinagawa East Building, 2-18-1 Konan, Minato-ku, Tokyo, 108-8250, Japan
 Tel +81-3-3763-3264 Fax +81-3-3763-3291
 E-mail libinity@hitachi-system.co.jp
 URL <http://www.hitachi-system.co.jp/libinity/>

Eco-materials

Eco-components

Eco-products

1 Eco-services // Management-related
 2
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ES-4-009

Management-related
energy saving solutions

Office HVAC for Comfort and Energy Saving

Environmental performance

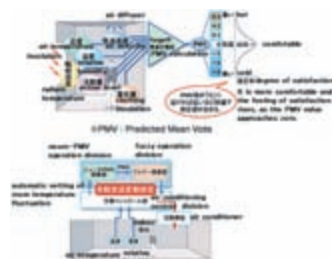
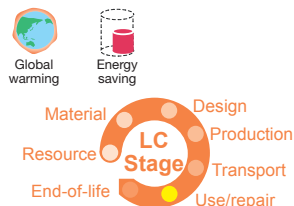
- Mitigation of climate change: 10-20% reduction of energy consumption by the reduced consumption of cool water, hot water and fan power and the prevention of excessive cooling and heating.
- Efficient use of resources: Control is executed by software. Minimization of hardware means resource saving in the manufacturing phase.

Product performance

- Comfortable environment: Air-conditioning control based on Predicted Mean Vote (PMV) to maintain a comfortable indoor environment.

TOSHIBA CORPORATION Social Infrastructure Systems Company

1-1, Shibaura 1-Chome, Minato-Ku, Tokyo, 105-8001, Japan
 Tel +81-3-3457-4368 Fax +81-3-5444-9280
 URL <http://www.toshiba.co.jp/index.htm>
 URL <http://www.toshiba.co.jp/env/en/report/index.htm>



Neuro-PMV Control

ES-4-010

Management-related

consulting services for geothermal and hydraulic power generation

Consulting service for geothermal and hydraulic power generation

Environmental performance

Mitsubishi Materials has long been actively involved in geothermal and hydraulic energy development and utilization acquired through our own underground resources business.

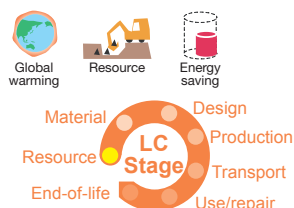
We have six hydroelectric power plants (approx. 17MW total) and two geothermal power plants (59.5MW total) in Japan. Geothermal power generation utilizes steam energy extracted from underground by drilling wells as deep as 2,000 meters.

It requires specialized techniques and technology to utilize effectively this kind of high temperature-underground resources in all stages of site survey, drilling, and maintenance of output power.

We have acquired the necessary techniques and technology through our direct involvement in developing and operating our two geothermal power plants. With this experience, we are actively participating in geothermal area surveys and technological development projects at home and abroad.

Mitsubishi Materials Corporation (Geothermal & Electric Power Center)

1-297, Kitabukuro-cho, Omiya-ku, Saitama-shi, Saitama, 330-8508, Japan
 Tel +81-48-641-5624 Fax +81-48-641-5632
 URL <http://www.mmc.co.jp/corporate/en/index.html>
 URL <http://www.mmc.co.jp/corporate/en/corporate/business/energy.html>
 URL <http://www.mmc.co.jp/corporate/en/csr/csr.html>



Ohnuma Geothermal Power Plant (9.5MW)

Available in: Global

Eco-materials

Eco-components

Eco-products

Eco-services // Management-related

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ES-4-011

Management-related
energy services

ESCO (Energy Service Company)

Environmental performance

In projects undertaken between 2000 and 2007, we have achieved an aggregated reduction of approximately 220,000 tons per year of CO₂ emissions.

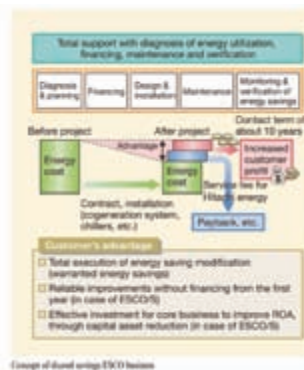
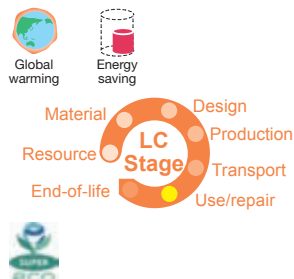
Product performance

The ESCO business forms a new business scheme that offers comprehensive services for energy saving to customers, and covers the cost required for repairing relevant equipment with a budget saved by energy saving. The service includes energy saving diagnosis, energy saving proposal, equipment installation, finance, and maintenance. The project aims to substantially reduce energy consumption and CO₂ emissions. Taking advantage of the Group's collective strengths, Hitachi has already achieved remarkable successes in a wide variety of sites, including factories, hospitals, office buildings, and research facilities.

Hitachi, Ltd., Urban Planning and Development Systems

14-1, Sotokanda 4-chome, Chiyoda-ku, Tokyo, 101-8010, Japan
Tel +81-3-3620-1040 Fax +81-3-5697-2624
E-mail info.toshi.bk@hitachi.com
URL <http://www.hitachi.co.jp/products/urban/energy/index.html>

Available in: Japan, Philippines, Thailand, Singapore



Example of total energy ESCO business

ESCO (Energy Service Company)

ES-4-012

Management-related
wastewater management

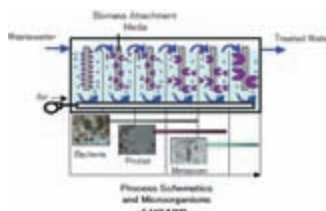
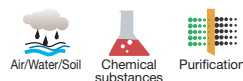
Wastewater Treatment Technology—MSABP™, HiPOx™ and ELCAT™

Environmental performance

We deliver a total solution for water recycle/reuse through our environment-friendly technologies.

Product performance

- 1) MSABP: Multi-stage bioprocess utilizing micro-organism food chain
 - * No waste sludge, small foot print and low operating cost (less energy and CO₂)
 - * System performance is consistent under large load fluctuations
 - * Likely applicable to food/petroleum/chemical/pharmaceutical industries
- 2) HiPOx™: Innovative Advanced Oxidation Process (AOP) using hydrogen peroxide and multiple ozone injection
 - * Decomposes 1,4-Dioxane, PPCPs and EDCs, etc.
- 3) ELCAT™: Electro-catalytic wastewater treatment process
 - * High treatment capability for toxic, non-biodegradable materials
- 4) Carbon Fiber (CF) for wastewater treatment
 - * CF naturally attracts living organisms and cleans up waste water



Teijin Limited

2-1, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo, 100-8585, Japan
Tel +81-3-3506-4593
E-mail to.nishikawa@teijin.co.jp
URL <http://www.teijin.co.jp/english/index.html>

ES-5-001

Others

LCA system integration

System Integration Life Cycle Assessment "SI-LCA"

Environmental performance

Quantitative evaluation methodology on the environmental load of system & service products has become increasingly important. Hitachi has developed "SI-LCA" (System Integration - Life Cycle Assessment) which is an environmental impact assessment methodology and a software program for the purpose of evaluating the effects on CO₂ emission of SI products and service over the entire life cycle.

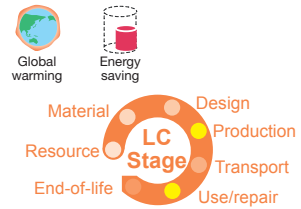
Product performance

SI-LCA (System Integration - Life Cycle Assessment) has three features:
 (1) SI-LCA evaluates 10 lifecycle stages: procurement, design, shipment, transportation, installation, field operation, usage, maintenance, collection and recycling.
 (2) SI-LCA evaluates the environmental impact of hardware, software and services.
 (3) SI-LCA evaluates quantitatively both positive effect such as a reduction in the movement of people/mass and negative effects such as energy consumption during operation.

Hitachi, Ltd.

Hitachi Omori 2nd Bldg., 27-18, Minami Oi 6-chome, Shinagawa-ku, Tokyo, 140-8572, Japan
 Tel +81-3-5471-2745 Fax +81-3-5471-2746

Available in: Japan



SI-LCA target stages

ES-5-002

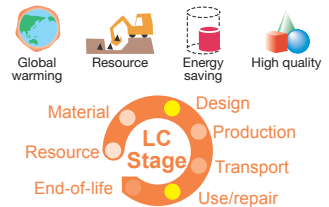
Others

railway cars

E2-Series of Railcars Conserved Energy

Environmental performance

As for energy consumption, by making improvements such as reduction in the weight of railcar bodies, the Shinkansen's energy consumption was reduced by about 30% compared to 20 years ago. Regenerative brakes utilize energy generated during the braking, and return this electricity to the overhead wires.



East Japan Railway Company

2-2, Yoyogi 2-chome, Shibuya-ku, Tokyo, 151-8578, Japan
 Tel +81-3-5334-1122
 E-mail eco@jreast.co.jp
 URL <http://www.jreast.co.jp/eco/>



Available in: Tohoku, Jouetsu, Nagano Shinkansen

E2-series for Asama and Hayate Shinkansen trains

Eco-materials

Eco-components

Eco-products

Eco-services // Others

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ES-5-003

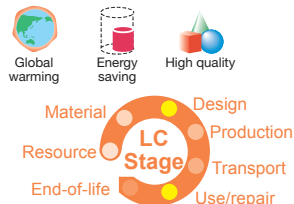
Others

rail transportation services

The series N700 with enhanced energy efficiency

Environmental performance

The Tokaido and Sanyo Shinkansen, playing an important role in the main intercity transportation in Japan, can be regarded as a transportation mode with more energy-efficient performance (e.g. lower CO₂ emissions per unit carriage of passengers) compared with other transportation modes such as airplanes. The Series N700, newly developed and commercially launched in the summer 2007 with the three concepts of "The fastest cutting edge rolling stock", "Superior comfort", and "Superior environmental performance", realized further energy efficiency, for example, by reducing air resistance as a result of the thorough pursuit of smooth body surface by developing a new nose shape and cover-all hood, and by introducing the body inclining system. JR Central and JR West plan to introduce 96 trainsets over the five years ending FY2011.



Central Japan Railway Company / West Japan Railway Company

Central Japan Railway Company
 JR Central Towers, 1-1-4, Meieki, Nakamura-ku, Nagoya, Aichi, 450-6101, Japan
 URL <http://jr-central.co.jp>
 West Japan Railway Company
 4-24, Shibata 2-chome, Kita-ku, Osaka, 530-8341, Japan
 URL <http://www.westjr.co.jp>



Series N700

Available in: Tokaido and Sanyo Shinkansen

Eco-materials

Eco-components

Eco-products

1 Eco-services // Others
 2
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ES-5-004

Others

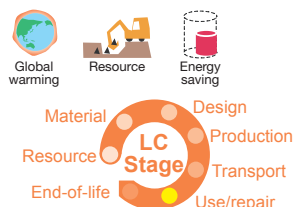
rail transportation services

Operation of the world's first diesel hybrid railcar

Environmental performance

In July 2007, the world's first diesel hybrid railcars, the Kiha E200 Type, entered service on the Koumi Line. Diesel hybrid railcars operate efficiently by using electricity generated by a diesel engine to charge a battery which reduces emissions and by regenerative brakes, which charge the battery when braking. Efficiency in tests was approximately 20% better than a standard diesel railcar*. The diesel hybrid railcar is quiet when idling at a station (approx. 30dB). Hazardous substances in the exhaust, such as NOx and graphite, are reduced approximately 60%.

*Results are based on test runs on level ground. On the Koumi Line, which has steep grades, efficiency improved by approximately 10%.



The world's first diesel hybrid railcar Kiha E200 Type

East Japan Railway Company

2-2, Yoyogi 2-chome, Shibuya-ku, Tokyo, 151-8578, Japan
 Tel +81-3-5334-1122
 URL <http://www.jreast.co.jp/eco/>

Available in: Koumi Line

ES-5-005

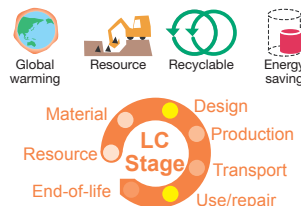
Others

rail transportation services

Environmentally Friendly E231 Series

Environmental performance

The E231 series reduces operational energy consumption by 50% compared to that of the 103 series, and in terms of weight, 90% of the E231 series railcar can be recycled. Servicing the Yamanote, Takasaki, Utsunomiya, and other metropolitan lines, the E231 series currently realizes the most environmentally friendly design.



East Japan Railway Company

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 E-mail eco@jreast.co.jp
 URL <http://www.jreast.co.jp/eco/>



Available in: Metropolitan areas

E231 series run on the Utsunomiya Line

ES-5-006

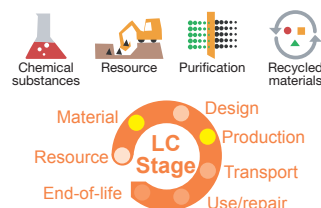
Others

new year's cards

Eco Green New Year's Cards (name-printing service available)

Environmental performance

We develop environmentally friendly products. In 1988 in Hokkaido, we introduced an on-demand printer that uses only the amount of paper absolutely necessary to print New Year's cards. In 2004, we launched Cardbox — an e-commerce website for greeting cards and New Year's cards. Through these efforts, we have extricated ourselves from the conventional flow of business, which is characterized by significant print loss, and succeeded in labor savings. In 2008, we initiated a carbon offset business through afforestation and launched Green Eco New Year's Cards as part of the business. We also offer a name-printing service (for promotional products) on the Cardbox website and at retail stores nationwide. Using part of the proceeds from these sales, we plant trees in Nenga-no Mori (the New Year's Card Forest) in Hokkaido's Bihoro town, thereby offsetting approximately two kilograms of CO₂ for every 10 cards. In 2008, we sold 95,000 cards with a projected offset of about 19,000 kg of CO₂ in the autumn of 2009.



Pripress Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan



Available in: Japan

Green Eco New Year's Cards

Eco-materials

Eco-components

Eco-products

Eco-services // Others

1
2
3
4
5

ES-5-007

Others

new year's cards

Eco Green New Year's Cards (postcards)

Environmental performance

When we initiated a carbon offset business in 2008, we launched carbon offset-type Green Eco New Year's Cards in bags— a conventional way of selling cards — along with an opportunity for consumers to participate in afforestation initiatives. Specifically, we sold sets of three ecologically designed New Year's cards with lottery numbers and QR codes. The QR codes enable card recipients to see that approximately 400 grams of CO₂ is absorbed per card through afforestation. In 2008, 2,500 sets were sold at supermarkets, bookstores, fancy goods stores, etc. nationwide with a projected offset of about 5,000 kg of CO₂ by the autumn of 2009.



Green Eco New Year's Cards

Pripres Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan

Available in: Japan

ES-5-008

Others

printing services

Waterless printing

Environmental performance

Pripres Center Corporation promotes environmentally friendly eco printing methods, and recommends waterless printing as part of these efforts. Unlike the conventional method of offset printing, no dampening solution is used in this process. This enables printing without waste water and the adverse environmental effects associated with it.



Pripres Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan

Available in: Japan

Butterfly mark

ES-5-009

Others

printing services

Soy ink

Environmental performance

Pripress Center Corporation promotes the provision of environmentally friendly products and services, and recommends printing with soy ink as part of these efforts.

Soy ink is produced by replacing some of the petroleum solvents contained in conventional ink with a natural material extracted from soybeans. As it contains very low levels of volatile organic compounds (VOCs), it helps to prevent air pollution and improve work environments.



Pripress Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan



Available in: Japan

Soy sticker

ES-5-010

Others

printing services

Non-VOC ink

Environmental performance

Pripress Center Corporation promotes environmentally friendly products and services, and recommends printing with non-VOC ink as part of these efforts.

Non-VOC ink exerts a lower burden on the environment, as all petroleum solvents contained in conventional ink are replaced with vegetable-derived alternatives.



Pripress Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan



Available in: Japan

Publications printed using non-VOC ink

Eco-materials

Eco-components

Eco-products

Eco-services // Others

1

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ES-5-011

Others

printing services

Use of environmentally friendly printing paper

Environmental performance

Pripress Center Corporation promotes environmentally friendly products and services, and recommends printing on paper certified by the Forest Stewardship Council (FSC) or paper produced from thinned wood as part of these efforts.

It is also important in terms of effective resource management to use paper containing materials from forests certified by the FSC as being properly managed for environmental conservation and paper produced from thinned wood, which is generated as a result of thinning out stumpage that grows densely in the course of forest development.



Pripress Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan



Publications printed using paper produced from thinned wood

Available in: Japan

ES-5-012

Others

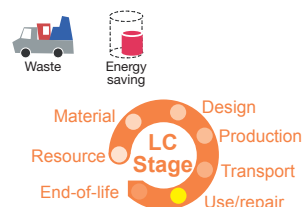
printing services

On-demand printing

Environmental performance

Pripress Center Corporation promotes environmentally friendly products and services, and on-demand printing is one aspect of these efforts.

Unlike conventional offset printing, on-demand printing uses no printing plates, and the process is carried out directly onto the paper. Elimination of the need to make plates means lower energy consumption and higher material conservation. In addition, it is also possible to perform various types of printing in small lots (a process that is inefficient in offset printing), making the technique economically effective too.



Pripress Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan



Examples of products printed using on-demand printing

Available in: Japan

ES-5-013

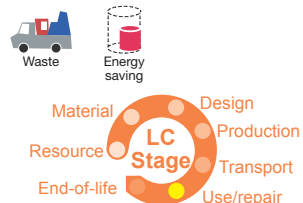
Others

website constructing services

KANTANET

Environmental performance

Pripress Center Corporation promotes environmentally friendly products and services, and the KANTANET business blog is part of these efforts. Printed materials are a familiar and easy-to-read medium, and represent an effective and indispensable tool for disseminating information. However, page space is limited, and the resources consumed increase as the amount of information rises. The company recommends that websites also be used in the interests of resource conservation for situations in which printed materials are not absolutely necessary.



Pripress Center Corporation

2-3, North2 West14, Chuo-ku, Sapporo, Hokkaido, 060-0002, Japan



Available in: Japan

KANTANET

Eco-materials

Eco-components

Eco-products

Eco-services // Others

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