plimode

Environmental
Data Sheet

okamura

201505

Eco-Conscious Products

Safe and environmentally friendly products

Okamura's environmental priorities in product design and assessment ensure the delivery of safe, eco-conscious products that give consumers peace of mind.

A harmony of design, ecology, and economy

Okamura reduces raw material inputs during manufacture by analyzing finite elements with CAE and adopting other leading-edge methods. We harmonize design, ecology, and economy.

Keeping clean air

The furniture is a critical part of any office space. This is another factor that motivates Okamura to protect the air quality of offices by positively using raw materials and paints free of volatile organic compounds (VOCs).

Designs for easier reuse and recycling after use

Okamura designs products that can be easily broken down into homogeneous materials to facilitate the reuse of parts recovered from post-use products and material recycling. The materials used in major components are clearly identified.

Developing eco-conscious products

Customer needs
Social requirements

Regulations
Industrial standards

Our responsibility

- Motto "Quality pays for itself"
- Long-term environmental vision GREEN WAVE 2020
- Action principles Reducing environmental impact by "manufacturing".

Product planning assessment

- Functions, performance, design
- Product safety
- Environmental consciousness
- Price
- Responses to regulations

Product assessment

- Material selection
- Efficiency in material use
- Energy efficiency
- Ease of disassembly
- Recyclability

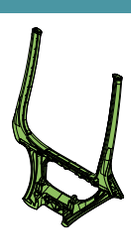
Eco-conscious production

- Conserving energy
- Mitigating harmful emissions
- Zero emissions

Requirements in product design

- Conserving resources and reducing volume
- Using recycled materials
- Reusing materials and product parts
- Ease of recycling
- Sound air quality
- Product safety
- Reduced packaging materials
- Information disclosure

Design for the environment

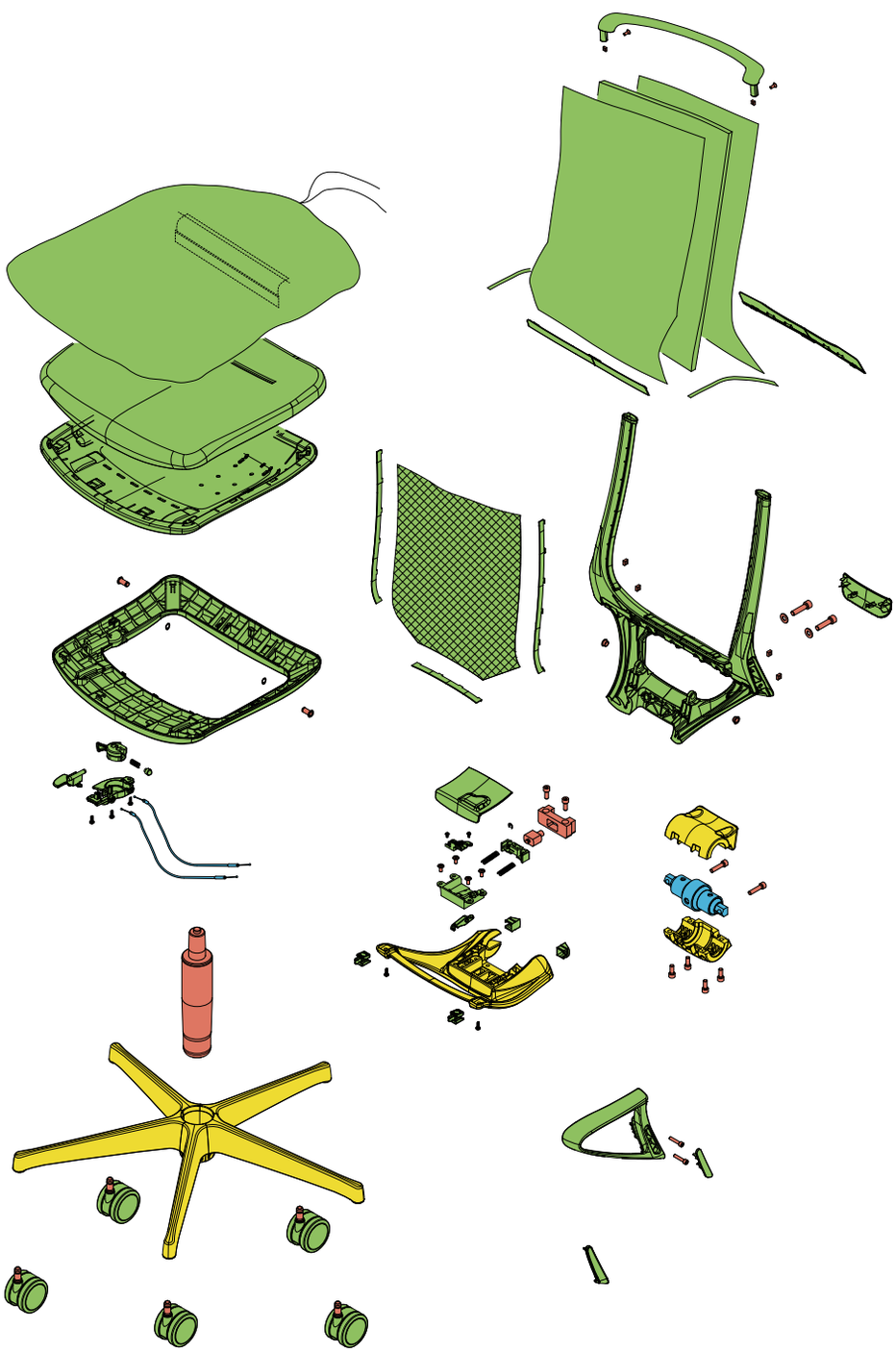


plimode's resin back frame, a design based on a simulated analysis of finite elements, bespeaks the outstanding efforts behind Okamura's eco-conscious designs. Okamura's product developers optimize the use of resources by minimizing the amounts of materials used without sacrificing the outstanding quality, strength, and safety of the products.

Product testing

- Measuring the volumes of VOCs emitted
- Testing durability and load bearing strength
- Testing stability
- Testing for transport
- Measuring the volumes of specific harmful substances

02 Materials & Recycling



Resins

Aluminum

Steel

Other

Total control of every material used

Okamura collects thorough information on the materials, surface finishing methods, and other aspects of the parts used in its products, from the main components of its office equipment to individual screws. Detailed data on materials are provided upon request.

Recycled materials: 36%

Recycled materials are used in aluminum and steel and resin parts. These materials make up about 36% by product weight.

Recyclability: 93%

With easy disassembly and recycling always in mind, plimode is designed so materials can be thoroughly separated into the same groups.

Resins

Polyamide resins is used to ensure recycling in the future. Resins recovered after use are reprocessed and reused by resin manufactures. Okamura is an active user of recycled resins for its products.

Aluminum

Recovered aluminum is processed into a recycled form by alloy manufacturers and later into aluminum. Energy consumption can be reduced by 97% by generating recycled metal from recovered aluminum rather than creating aluminum from its source material bauxite.

Steel

Steelmakers use recovered steel to produce new steel. Steelmaking with recovered steel consumes 75% less energy than steelmaking from iron ore.

Reducing Chemicals

GREENGUARD certificated

GREENGUARD is an indoor environment air quality standards used to certify products with low chemical emissions for the protection of interior environments. Certification is granted only to products that pass the pollutant emissions testing conducted in process-controlled dynamic environmental chambers following test protocols developed by Air Quality Sciences, Inc. The test protocols comply with ASTM, U.S. EPA, LEED, and BIFMA standards and requirements. plimode received GREENGUARD certification in May 2015.

Reducing VOCs to safeguard health

Okamura minimizes the use of formaldehyde, toluene, xylene, and other VOCs, which can result in sick building syndrome and allergic dermatitis. Environmental load can be reduced while achieving outstanding comfort and strength.

GREENGUARD Emission Criteria

Emission Types	Measure
Individual VOCs	<0.1TLV
Formaldehyde	<0.025ppm (<0.03mg/m3)
4-phenylcyclohexene	<0.0033mg/m3
Total VOCs	<0.25mg/m3
Total aldehydes	<0.05ppm

Minimizing environmental load

Amid calls to limit the use of the earth's resources, the reuse and recycling of post-use products are now a global agenda. To ensure safe and sure progress in recycling, manufacturers must limit the use of substances with environmental loads. The latest round of enhancements in the regulatory framework started with the European Parliament's Restriction of Hazardous Substances (RoHS) directive. Though office furniture is not currently included among the targets of this regime, Okamura is working to reduce substances with environmental impacts in response to customer demand and in anticipation of future legislation.

Reductions in VOCs

Toluene
Xylene
Formaldehyde
Aldehydes
4-phenylcyclohexene

Cleared GREENGUARD standards

Reductions in VOCs

Lead
Mercury
Cadmium
Chromium VI
PBB (Polybrominated biphenyl)
PBDE
(Polybrominated diphenyl ether)

Cleared standard values*1 based on the RoHS directive*2

*1 These standard values contain exemptions set in the RoHS directive.
*2 Directive put into effect in European Union member states in July 2006 to restrict the use of hazardous substances in electronic and electrical equipment.

LEED Credit Summary

Program	Category	Item		Contribution	Point of contribution
LEED 2009 for Commercial Interiors	Materials & Resources	MR 3.2	Materials Reuse –Furniture and Furnishings	This product (plimode) is designed to be refurbished and easy replacement. And it can be used any longer by having proper maintenance. Product can contribute to this point by reusing.	1
		MR 4	Recycled Content	36.0% (1/2 Pre-Consumer: 0%, Post-Consumer: 36.0%)	1-2
		MR 5	Regional Materials	Assembled in Yokosuka city, Kanagawa, Japan. Please contact us in case of the delivery outside of Japan.	1-2
	Indoor Environmental Quality	IEQ 4.5	Low emitting materials, System Furniture and Seating	Greenguard certified	1
	Innovation & Design	ID 1	Innovation in Design	High percentage of recycled content.	1-5
LEED 2009 for New Construction and Major Renovations	Materials & Resources	MR 3	Material Reuse	This product (plimode) is designed to be refurbished and easy replacement. And it can be used any longer by having proper maintenance. Product can contribute to this point by reusing.	1-2
		MR 4	Recycled Content	36.0% (1/2 Pre-Consumer: 0%, Post-Consumer: 36.0%)	1-2
	Innovation & Design	ID 1	Innovation in design	Greenguard certified	1-5
LEED 2009 for Existing Buildings, Operations and Maintenance	Materials & Resources	MR 1	Sustainable Purchasing –Ongoing Consumables	36.0% (1/2 Pre-Consumer: 0%, Post-Consumer: 36.0%)	1
		MR 2	Sustainable Purchasing –Durable Goods		1-2

Global Sales Network

As of May, 2015

Visit the Okamura website for the latest updates on Okamura products.

http://www.okamura.jp/

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