



Environmental Data Sheet

okamura

Eco-Conscious Products

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Safe and environmentally friendly Okamura's environmental priorities in prod assessment ensure the delivery of safe, eco-cc that give consumers peace of mind.	uct design and	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.		
that give consumers peace of minu.				
Keeping clean air		Designs for easier reuse and recycling after use Okamura designs products that can be easily broken down int homogeneous materials to facilitate the reuse of parts recovere from post-use products and material recycling. The materials use in major components are clearly identified.		
The furniture is a critical part of any office spac factor that motivates Okamura to protect the air by positively using raw materials and paints free compounds (VOCs).	quality of offices			
Developing eco-conscious products				
Customer needs Social requirements		Regulations Industrial standards		
		7		
	Our respo	onsibility		
Motto "Quality pays for itself"	Long-term environmental vision GREEN WAVE 2010		Action principles The 3Rs (Reduce, Reuse, and Recycle)	
		-		
Product planning assessment	Product as	ssessment	Eco-conscious production	
 Functions, performance, design Product safety Environmental consciousness Price Responses to regulations 	 Material selection Efficiency in material use Energy efficiency Ease of disassembly Recyclability 		• Conserving energy • Mitigating harmful emissions • Zero emissions	
		7		
	Requirements ir	n product design		
 Conserving resources and reducing volume Using recycled materials Reusing materials and product parts 		f recycling air quality t safety	 Reduced packaging materials Information disclosure 	
		7		
Design for the environmer	ıt		Product testing	
Zephyr Light's resin back fra on a simulated analysis bespeaks the outstandin Okamura's eco-conscious product developers optimize by minimizing the amount without sacrificing the o strength, and safety of the p	of finite elements, g efforts behind designs. Okamura's the use of resources s of materials used utstanding quality,	 Measuring the volumes of VOCs emitted Testing durability and load bearing strength Testing stability Testing for transport Measuring the volumes of specific harmful substances 		

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Materials & Recycling

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:



Recycled materials are used in aluminum and resin parts. These materials make up about 47% by product weight.

Recyclability:

nly in mind during the

With future recyclability firmly in mind during the design stage, we use homogeneous materials as much as possible. After use, our products can be collected and disassembled into homogeneous materials.

Resins

Polyamide and nylon 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.



Indicating materials Okamura indicates the materials used to facilitate recycling after use.



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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. Zephyr received GREENGUARD certification in March 2013.

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/m ³	
Total VOCs	<0.25mg/m ³	
Total aldehydes	<0.05ppm	

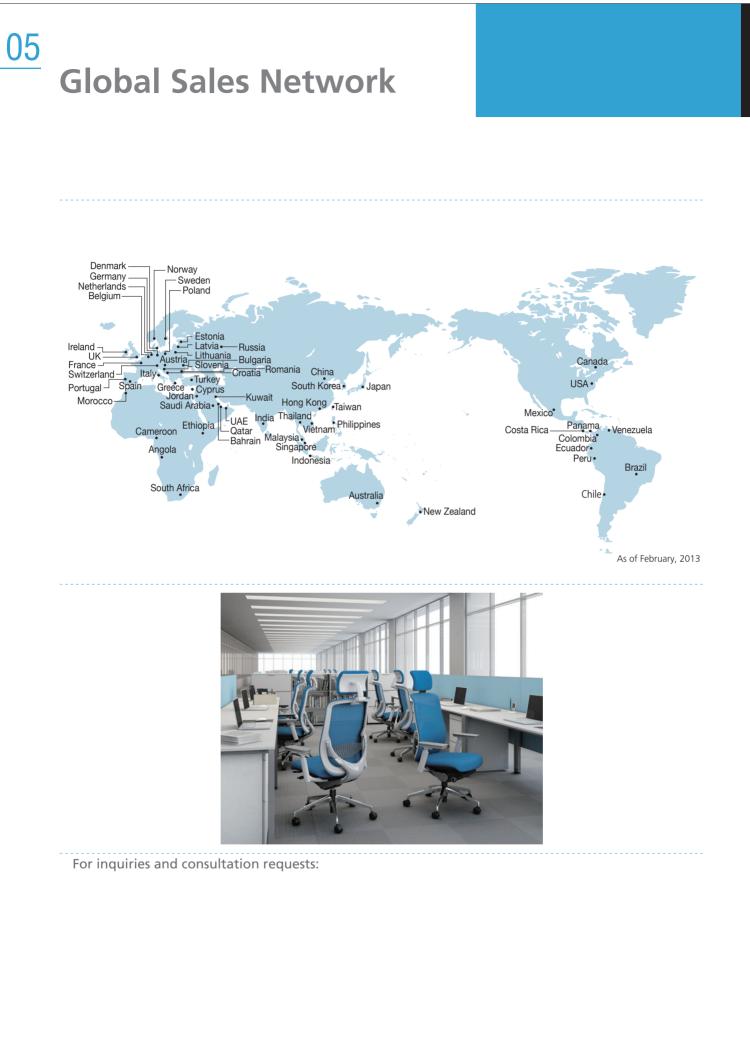


LEED Credit Summary

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Program	Category		Item	Contribution	Point of contribution
LEED 2009 for Commercial Interiors	Materials & Resources	MR 3.2	Materials Reuse –Furniture and Furnishings	This product (Zephyr Light) is designed to be refurbished and easy replacement. And it can be used any longer by having proper maintenance. Product can contribute to the this point by reusing.	1
		MR 4	Recycled Content	52.0% (1/2 Pre-Consumer: 8.9%, Post-Consumer: 47.5%)	1-2
		MR 5	Regional Materials	Assembled in Kuala Lumpur, Malaysia.	1-2
	Innovation & Design	ID 1	Innovation in Design	High percentage of recycled content.	1-5
LEED 2009 for New Construction and Major Renovations	MR 3	Material Reuse	This product (Zephyr Light) is designed to be refurbished and easy replacement. And it can be used any longer by having proper maintenance. Product can contribute to the this point by reusing.	1-2	
		MR 4	Recycled Content	52.0% (1/2 Pre-Consumer: 8.9%, Post-Consumer: 47.5%)	1-2
	Materials & Resources		Sustainable Purchasing –Ongoing Consumables	52.0% (1/2 Pre-Consumer: 8.9%, Post-Consumer: 47.5%)	1
	MR	MR 2	Sustainable Purchasing –Durable Goods		1-2

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Visit the Okamura website for the latest updates on Okamura products. http://www.okamura.jp/ **Zephyr** Light