



REDUCING WAFER DAMAGE DURING SHIPPING

Problem

Wafer and device manufacturers worldwide ship finished full thickness or thinned wafers to back-end sites for further processing. Wafer damage due to chipping, scratching or stress cracking during shipping can seriously affect yield and ROI. Moreover, wafer damage can also result from contamination caused by the shipping container itself.

For example, die bond corrosion can result from excess outgassing of the container. As line widths and bond pad sizes continue to shrink, particle contamination from shippers becomes much less tolerable. Old style shippers simply can't provide proper protection.

While wafer loss from shipping may have once been viewed as just another part of the process, today, competitive pressures require a solution that precludes such loss. A new finished wafer shipping system designed to meet today's productivity needs is required.

Entegris Solution: Horizontal Wafer Shipper System

To provide an effective solution to wafer loss during shipping, Entegris has designed the Horizontal Wafer Shipper System for 150 mm and 200 mm applications. The Horizontal Wafer Shipper was specifically created to help achieve cost effective manufacturing operations and has now gained acceptance and preference with many users throughout the industry.

The system is capable of safely transporting wafers with a thickness down to 150 μm . Inner cushions and interleaves combined with secondary packaging provide the safest, most cost-effective method for wafer shipping available today.

Features include:

- Protects full thickness or thinned wafers from both physical and electrostatic discharge damage
- Compatible with standard equipment for automated packing and unpacking



- Simple, one-step opening and closing action (no twisting)
- Compact and stackable
- Top cover holds 3.5" floppy and a CD-ROM jewel case for lot information
- Quick and easy online selection and ordering at devicecare.com, with a cushion thickness calculator to insure maximum wafer protection
- Secondary packaging components
 - Static shielding bag
 - Outer foam cushions
 - Corrugated box

Horizontal Wafer Shipper Test Data

ISTA-2A Drop Test Data

	Full Thickness Wafers	300µm Thick Wafers	180µm Thick Wafers	150µm Thick Wafers
150 mm Shipper	No breakage	No breakage	No breakage	No breakage
200 mm Shipper	No breakage	No breakage	No breakage	No breakage

Competitive Cushion Material Comparison (ng/g)

	Entegris	Competitor A	Competitor B	Competitor C
Amines	NO	Yes	Yes	No
Outgassing Organics	370µg/g	1900µg/g	1500µg/g	1690µg/g
Chlorine	1500	3100	27,000	46,700
Flourine/Acetate	290	1200	<200	17,500
Bromide	dl	<100	380	dl

Competitive Interleaf Material Comparison (ng/cm²)

	Entegris	Competitor A	Competitor B
Potassium	<1	333.3	<4
Sodium	<1	<4	19.3
Chlorine	<1	<4	23.8
Flourine	<1	<4	<4
Bromide	<1	<4	<4

Competitive Canister Material Comparison (ng/cm²)

	Entegris	Competitor A
Potassium	<4	14.8
Chlorine	<4	5.3
Flourine	<4	<4
Sodium	<4	7.5

NOTE: System components contain no regulated chemical substances.

Complete System

The Entegris™ Horizontal Wafer Shipper System is composed of top and bottom covers, static dissipative interleaves and inner cushions on top and bottom of the wafer stack. The system is designed for maximum protection and minimum contamination caused by molecular level contaminants. It is recommended to use Entegris' secondary packaging systems to further reduce the chances for wafer damage during shipping. Secondary packaging consists of a static shielding bag, outer foam cushions and a corrugated box.

Contract Clean/Recycle

To be truly useful as a tool for productivity, any shipping system must address the need for disposal and disposition after the shipper has been used. Entegris offers programs designed to make your investment in its Horizontal Wafer Shippers even more cost-effective by providing services to clean your used shippers plus the logistics necessary to collect and redistribute them on a worldwide basis. Additionally, as part of this service, a program to recycle the product at the end of its useful life is also offered.

How To Get Started Now

To get started using the Entegris™ Horizontal Wafer Shipper system, contact your local Entegris [Regional Customer Service Center](#) today. If you would like to try before you buy, ask for a free sample kit. We'll send you a sample that you can drop test, ship and check for automation compatibility. Soon, you'll prefer the Entegris™ Horizontal Wafer Shipper System over any other wafer shipper on the market.



Entegris™ is a trademark of Entegris, Inc.

ENTEGRIS, INC.

Corporate Headquarters / 3500 Lyman Boulevard / Chaska, Minnesota 55318 USA
Customer Service Tel. 952-556-4181 / Customer Service Fax 952-556-8022
www.entegris.com

The materials integrity management company

©2001 Entegris, Inc. Printed in USA 2170-1086ENT-0502