

RoHS Implementation

A view from an Engineering Polymers supplier

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The views expressed in this presentation are those of the presenter and do not reflect the official views or position of the DuPont Company.



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Agenda

- DuPont Engineering Polymers Introduction
- RoHS Compliance
 - Objective
 - Experiences in demonstrating compliance
 - Ideas on improving delivery of proof of compliance
- Discussion

DuPont Performance Materials

Material innovations for a more secure, comfortable and sustainable world

➤ Component Businesses

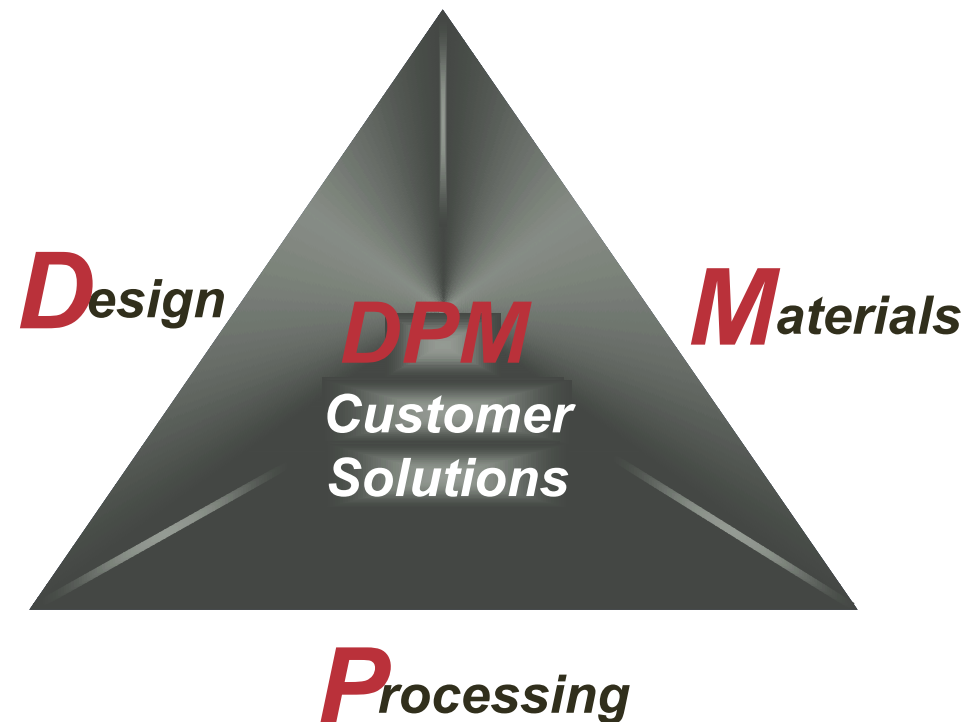
- ◆ Engineering Polymers
- ◆ Packaging & Industrial Polymers
- ◆ DuPont Teijin Films
- ◆ DuPont Performance Elastomers



DuPont Performance Materials

Creating Customer Solutions

Use DuPont expertise in applied materials science to provide value creating, high performance polymer materials, systems and solutions for demanding applications worldwide.



Applied Material Science in Action



Zytel® Air Manifolds



Delrin® Gears



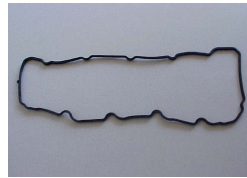
Surlyn® Packaging



Delrin® Decorative Solutions



Zytel® HTN Housing



Vamac® Cover Gaskets



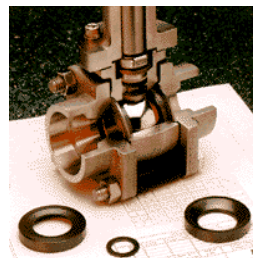
Surlyn® Golf Balls



Butacite® Windshield Interlayers



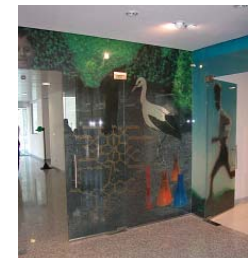
Hytel®/Sontara Surgical Gowns



Vespel® Valve Seats



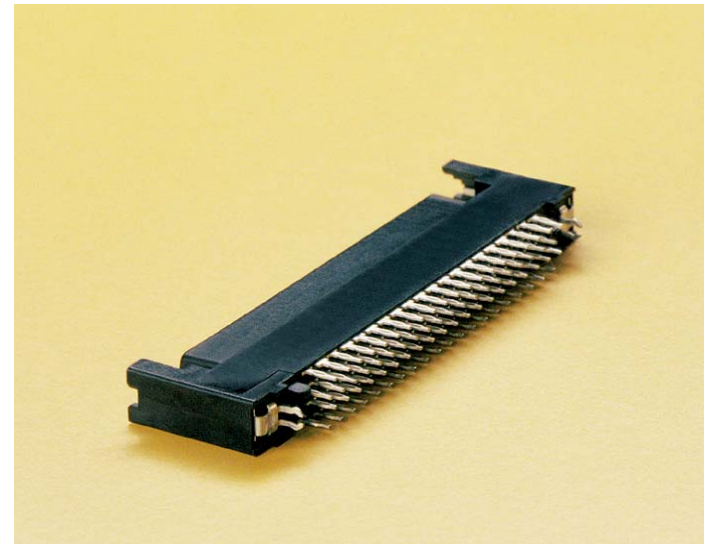
SentryGlas® Plus Interlayers



SentryGlas® Expressions Decorative Surfaces

DPM Solutions for Consumer Electronics

- DuPont™ High Performance Plastics offers seven families of connector materials.
- Provide cost effective solutions for more than 90% of all connector needs.
- DuPont EP offers over 3,000 grades of injection moldable resins globally to meet customer needs



Connector

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RoHS & Hazardous Substances

Objective: Full Compliance

- **DuPont EP product stewardship principles**
 - To ensure that appropriate safety, health and environmental principles are an integral part of the commercial life cycle of our products

- **DuPont EP is committed to full compliance with RoHS**
 - Use of PBDE's stopped 20 years ago
 - Use of heavy metal based additives ceased over 10 years ago
 - Currently providing customers with compliance statements globally

Experiences in Demonstrating RoHS Compliance: Testing Requests

- Request for quantitative content in EP resins of EVERY chemical in a list of declarable substances (can be > 100)
- Request for quantitative content on chemical substances highly unlikely to be contained in EP resins (e.g. pesticides)
- Non-standard requests
 - Request on selected resins for selected substances
 - Request with varying testing frequencies (in some cases monthly)
- Quantitative limits for regulated substances set by companies often much more restrictive than regulation
 - including 0 ppm limits,
 - below detectable levels

Examples of Customer set limits vs. RoHS

Section	Max amount of permission (ppm)				
	RoHS	Company A	Company B	Company C	Company D
Pb	1,000	100	1,000	100	100
Hg	1,000	100	-	100	100
Cd	100	70	5	5	10
Cr ⁶⁺	1,000	100	100	100	100
PBB/P BDE	1,000	-	-	100	100

Experiences in Demonstrating Compliance Test Methods

- **Inadequate test methods requested or used**
 - Not suited for substance or substrate being tested
 - Incapable of meeting accuracy requirement
 - Test method “in development”
- **Incorrect customer interpretation of test results**
 - Requires additional testing & resources to correct
 - Needlessly raises customer concern

Experiences in Demonstrating Compliance

Proof of compliance

➤ Proof of compliance requested in many different formats

- Requiring direct input in customer's system (varying formats & forms ranging from paper to electronic)
- Inclusion in sales contracts
- Inclusion of additional requirements unrelated to RoHS regulated substances.

Ideas to facilitate full compliance

- **Standardized Specification**
 - Including limits & test methods
- **Standardized Test methods**
 - Address expectations on variability and interpretation of results
- **Standardized Proof of Compliance**
 - Compatible with extensive & highly diverse product line

DuPont Performance Materials

*Material
Innovations for a
more Secure,
Comfortable and
Sustainable
World*

THE WORLD AROUND ME

Enabling a safer, sustainable world !

- * recycling & waste reduction
- * energy-efficient shelter
- * safer food
- * solar energy
- * lighter fuel-efficient cars
- * secure environments (home, cars, etc.)
- * transportation safety and efficiency
- * more durable roadways and buildings

MY WORKPLACE

Making the workplace efficient and secure !

- * computers
- * designer interiors
- * furnishings
- * safety glass

MY HOME

Making homes more beautiful,
comfortable and secure !

- * appliances
- * cookware
- * designer interiors
- * electronics
- * hurricane-proof glass

ME

Delivering convenience,
safety and peace of mind !

- * easy to use packaging
- * toothbrushes
- * air bags
- * sporting goods
- * cosmetics
- * golf balls



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