

First I would like to thank you Chairwoman Stabenow, Ranking Member Cochran, and Members of the Committee for the invitation to speak today about Lear Corporation's bio-derived products. My name is Ashford Galbreath and I am Director of Advanced Materials and Comfort Engineering representing the Lear Corporation team from Chairwoman Stabenow's home state of Michigan that develops bio-based products and launched SoyFoam™ in 2007 on the '08 Ford Mustang.

Environmental stewardship and sustainability are key dimensions of Lear Corporation's mission statement. In 2004, Ford Motor Company approached Lear about partnering to develop Soy-based automotive foams. We formed a team including The United Soybean Board Checkoff, Renosol, Bayer and a soy polyol supplier and set a new standard of "green" foam performance with the first-to-market launch of SoyFoam™.

SoyFoam™ is soybean oil-derived automotive polyurethane for use in seating, head restraint, armrest, and console foam padding. For SoyFoam™ we substitute petroleum-based polyol with soybean oil-based polyol and adjust the formula to meet strict automotive specifications. We successfully replaced 5% petroleum polyol by weight in a low density seating cushion and back foam and replaced 16% petroleum oil content by weight in a high density head restraint & typical European seat cushion foam.

Today Lear sells SoyFoam™ seating on multiple Ford, General Motors, Hyundai and other customer vehicles molded in the United States and Mexico. We have approvals for ten percent level seating foam and research shows promise for at least double that amount.

Soy polyol provides significant environmental improvements as measured by a National Institute of Standards BEES (Building for Environmental and Economic Sustainability) Study. Giving all environmental impacts equal weighting, soy polyol showed a 75% improvement compared to petroleum polyol. Global Warming improvement from a net reduction of 5.5 Kg of CO₂ for each Kg used. 2 kg of CO₂ is captured from the atmosphere when grown plus you avoid 3.5 Kg of CO₂ release from petroleum.

We consider SoyFoam™ to be very significant to Lear Corporation in that it serves as a firm representation of our commitment to the environment, product cost control and meeting both our customer's and the consumer's needs. Most of our global OEM customers have environmentally proactive initiatives in response to demanding regulatory hurdles such as the European Commission's requirement to lower carbon use levels.

Success with SoyFoam™ helped establish Lear's environmental leadership position in automotive seating. Environmental innovation continued at Lear with launches of DECS™ and Evolution™ seating systems that combine weight reduction with bio-based and recycled innovations. Recently we added an EcoPadding™ a trim laminate made with 40% nano-crystalline cellulosic fibers and 24% recycled polyester that can replace polyurethane foam trim laminates. We are also close to incorporating other bio-based foam ingredients such as soy-oil.

At Lear there are multiple *business-related drivers* for bio-based product innovation. One is economic consideration of controlling product cost increases from rising oil price.

Petroleum related price increases are costly to Lear's customers and consumers. Although currently somewhat stable, historically oil price is much more volatile than the price of soybeans.

As use increases, new volume should improve supply economics in affiliated industries. North American use of soy polyol and other critical raw materials should continue at a good pace as the product proliferates and content per pad grows. Lear's internal foam molding business is growing globally and SoyFoam™ is expected to be a key component of that growth.

Bio-based products are one of our key areas of innovation focus. Lear faces a variety of "sustainability pressures" and response related initiatives are multi-dimensionally important to us; *Compliance* with local and national regulations, conflict minerals and voluntary protocols; *Market pressures* from customers needing to reduce supplier impacts, consumers with a growing environmental awareness; *Business benefits* from innovative products with increased market potential, and a sustainable workplace attracts new talent; and *Social concerns* desiring to protect employees welfare and to build community relations.

Thank you again Chairwoman Stabenow, Ranking Member Cochran, and Members of the Committee for your time today. I look forward to answering any questions you may have and thank you for your support of bio-based product development.

Benefits of SoyFoam™- Environmental Performance
 (BEES Building for Environmental and Economic Sustainability – National Institute of Standards)



Environmental performance of 2 soy polyols vs. petroleum polyol is shown at right.

Giving all environmental impacts equal weight, the observed environmental impact scores for the 2 soy polyols is 75% less than petroleum polyol.

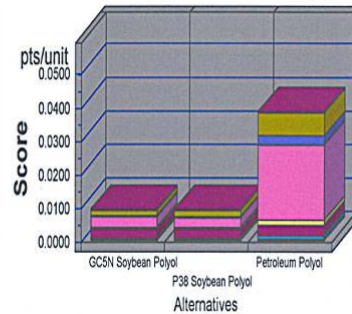
Significant differences in impact were:

- Global warming - CO₂
- Smog formation (4x favorable)
- Eutrophication - PO₄, NH₄ (7x favorable)
- Ecological toxicity (4x favorable)
- Fossil fuel depletion



Acidification
Crit. Air Pollutants
Ecological Toxicity
Eutrophication
Fossil Fuel Depletion
Global Warming
Habitat Alteration
Human Health
Indoor Air
Ozone Depletion
Smog
Water Intake

Environmental Performance



: Lower values are better

The difference in global warming potential is due to CO₂ being taken up (sequestered) during the soybean agriculture phase. Excerpts from the soy and petro polyol Life Cycle Inventory (LCI) show over 2 Kg of CO₂ taken out of the atmosphere per Kg of soy polyol produced vs. over 3.5 Kg of CO₂ added to the atmosphere per Kg of petro polyol produced.

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SoyFoam™

Environmentally friendly seating foam with hydroxyl-functionalized soybean oil substituted for a petroleum-based ingredient. SoyFoam™ Seating meets all automotive performance requirements.

Consumer Benefits

- Environmentally Friendly
- Naturally Comfortable
- Economical: Reduced sensitivity to petroleum cost fluctuation
- Award winning technology

Program Advantages

- Renewable Resource Derived: 5 – 15% of product weight are 100% renewable and available globally
- Reduces Carbon Use: Net reduction of 5.5 KG of CO₂ for each Kg used
- Improved Material Cost Control: Base natural raw material, Soy oil, is more cost stable than petroleum
- 60% lower conversion energy is required to make the polyol
- Four times less smog formation compared to petroleum



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DECST[™] Dynamic Environmental Comfort System[™] Advanced Seat Comfort Using Layered/Eco-Friendly Materials

Layered design balancing consumer comfort, safety, environmental and economic needs with the best naturally engineered seating environment

Consumer Benefits

- Maximum Comfort: Designed using Lear's exclusive *ComforTec[™]* process
- Economical: Reduces cost reliance on oil price fluctuation helping lower fuel cost
- Earth Friendly: Peace of mind reducing your environmental impact. Some of it is renewable and recyclable!
- Featuring SoyFoam[™] Renewable Comfort



Program Advantages

- Mass Reduction: 5% to 85% lower weight compared to current comfort system designs
- Environmentally Friendly: Greener EPP life cycle vs. polyurethane foam
- End-of-Life Vehicle (ELV) compliant: Separable layers/recyclable content
- Uses SoyFoam[™] 5 – 15% part mass renewable resource content
- Exclusive: Lear Corporation intellectual property profile



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Lear Products Designed to Decrease Waste

7 First-to-Market Technologies

EVOLUTION Seat

- ProTec[®] Improved safety
- Expanded Polypropylene Frame Lightweight
- NESTL[™] soft wood lamination Environmentally friendly
- "Mini" recliner 35% less weight
- Bio-foam Environmentally friendly
- ECO structure Lightweight
- Dynamic Environmental Comfort Systems[™] Lightweight

Provides up to a 30% weight reduction, environmental benefits and cost savings



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Lear EcoPadding™

Renewable, Recyclable Trim Laminate, Plus Pad and Insert

Traditional polyurethane trim laminate, plus pad, and foam insert replacement with 24% recycled polyester and 40% renewable resource-derived nano-crystalline cellulose fibers.

Consumer Benefits

- **Environmentally Friendly:** Peace of mind from reducing your environmental impact
- **Economical:** Cost optimized technology with reduced sensitivity to petroleum cost fluctuation
- **Crafted Durability:** Seating systems retain their crafted appearance throughout their life

Program Advantages

- **Environmentally Friendly:** Reduced volatile organic compound emissions (VOC) than some alternatives
- **Renewable Resource Derived:** Made with **40% bio-derived** nano-crystalline cellulose fibers
- **Recycled:** Made from **24% recycled** polyester
- **Exclusive Emerging Technology:** Lear patents pending



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SoyFoam™/Eco-Foam™ Global Development Timeline

Year	Soy Content by weight			Status
	TDI	TM	MDI	
2007	5%	-	-	- First to market '08 Ford Mustang
2008	5%	-	14%	- 14% MDI for small parts (H/R, A/R) Ford, Chrysler, GM approved
2010	5%	-	14%	- 5% Hyundai seating and Ford Explorer/Fusion/Lincoln/Taurus
2011	5%	-	15%	- 15% MDI Head Restraints – Ford (Fusion/Lincoln) , GM
2013	10%	-	15%	- 10% TDI material approved NA Tier 1
2014	20%	5%	40%	- SoyFoam™ & Eco-Foam™ global target

Global Environmental Commitment



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Lear Global Foam Plants



North America
 IMA Detroit, Michigan
 Farwell, Michigan
 Hebron, Ohio
 Selma, Alabama
 Ramos, Mexico
 Silao, Mexico
 Fuentes, Mexico
 Hermosillo, Mexico
 Puebla, Mexico

Europe
 Tychy, Poland
 Sunderland, England
 Kaluga, Russia

South America
 Gravatai, Brazil
 Cacapava, Brazil

Asia
 Wuhu, China
 Chongqing, China
 Shenyang, China
 Changchun, China
 Beijing, China
 Nanchang, China
 Klang & Behrang, Malaysia

Pune, India
 Nashik, India
 Chennai, India

25 Facilities in 9 Countries



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Global Diversified Customer Base



Lear Content on Over 300 Vehicle Models Worldwide



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Product – Lear SoyFoam™

SoyFoam™ is an award-winning environmental solution developed in conjunction with Lear's Sustainability Initiative, that reduces carbon use a net 5.5 kg of CO₂ per each kilogram used with 60% lower conversion energy to produce.

Environmentally-friendly seating foam with hydroxyl-functionalized soybean oil substituted for a petroleum-based ingredient and first to market in 2008. Lear continues working with our customers to proliferate SoyFoam™ globally and reduce levels of petroleum-based polyols.

PROLIFERATE



What Does Sustainability Mean at Lear?



Environmental Sustainability

Sustainability is widely defined as **“meeting the needs of the present without compromising the ability of future generations to meet their own needs.”** At Lear, this means acknowledging that our decisions about what we consume, produce and waste has environmental and social impacts on today's society as well as on future generations. Lear Corporation's sustainability journey centers around finding better and smarter ways of doing things, with the objective of being stewards of the earth while ensuring the health and vitality of our communities.



Meeting the needs of the present without compromising the ability of future generations to meet theirs.



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