



Robert Eller Associates, Inc.

CONSULTANTS TO THE PLASTICS AND RUBBER INDUSTRIES

ENVIRONMENTALLY FRIENDLY AUTO INTERIORS

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Prepared for:

Auto Interiors Show

Detroit, MI

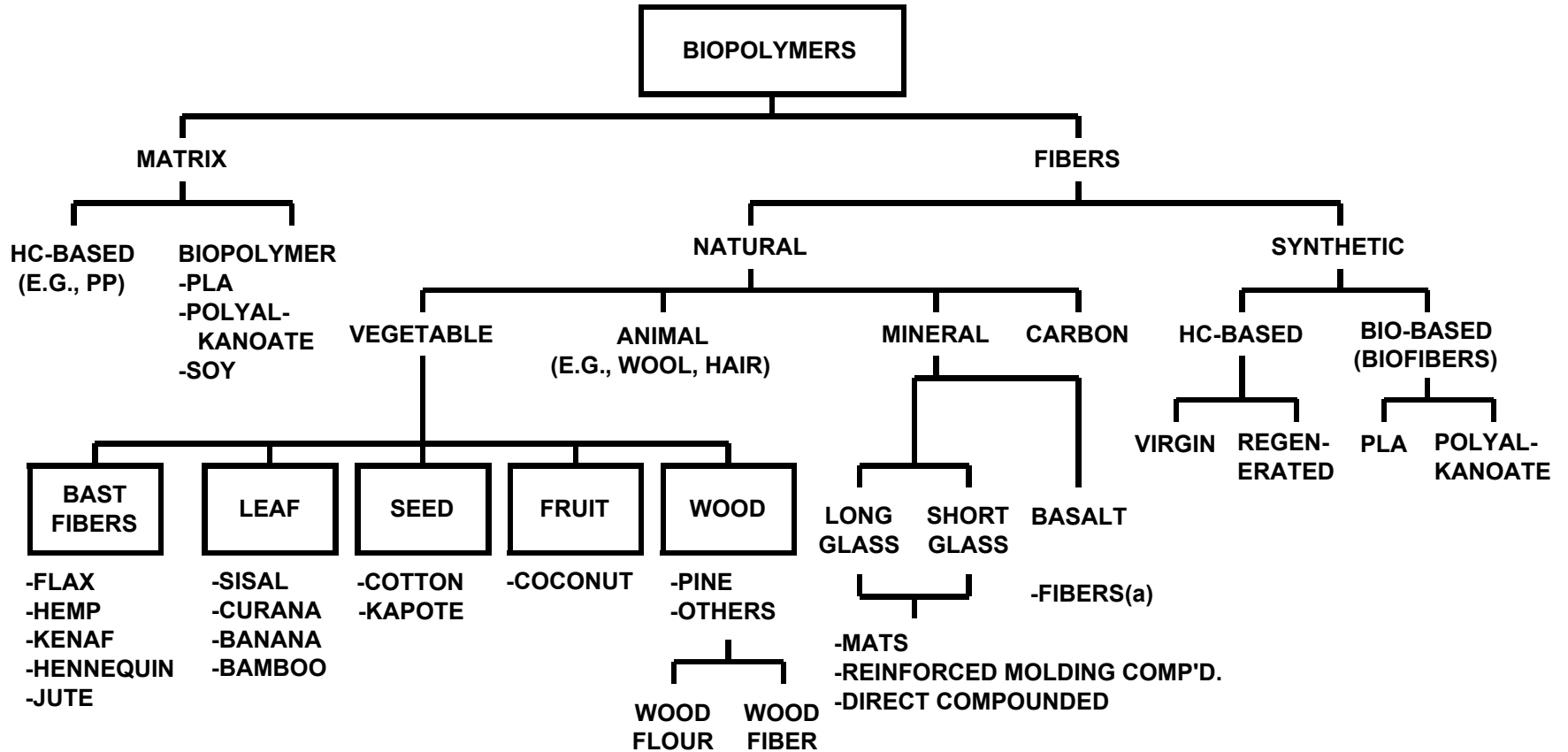
June 6, 2007

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BIOPOLYMER CANDIDATES

- **NATURAL FIBERS –**
 - **VEGETABLE (BAST, SEED, LEAF, FRUIT, WOOD)**
 - **ANIMAL (WOOL, HAIR)**
 - **MINERAL (LONG/SHORT GLASS MATS, BASALT)**
 - **CARBON FIBERS (HIGH END AUTO)**
- **POLYLACTIC ACID (PLA)**
- **SOY**

BIOPOLYMER CANDIDATES FOR AUTOMOTIVE APPLICATIONS

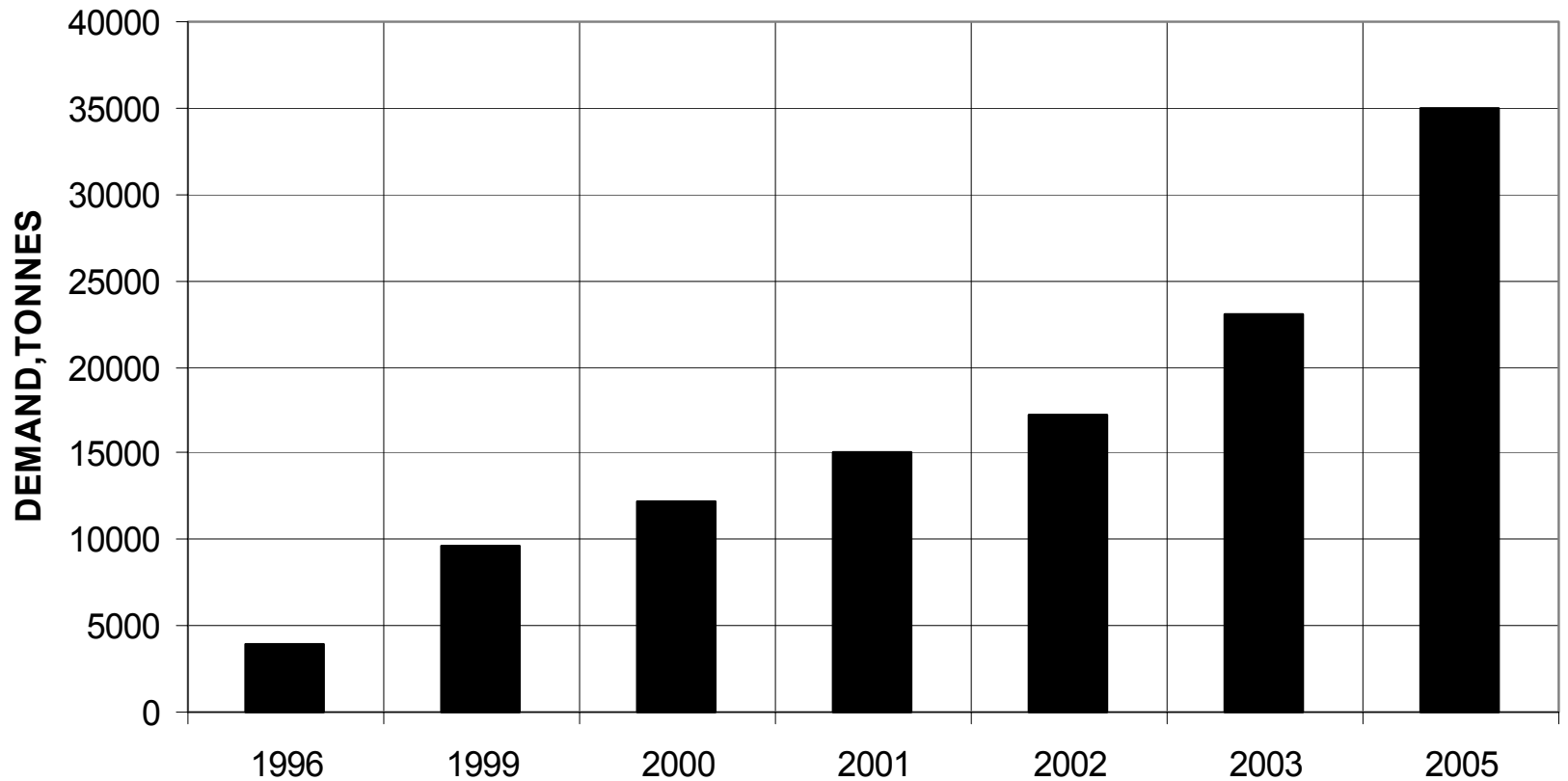


NOTE: (a) CANDIDATE FOR HEADLINERS (TOYOTA)

SOURCE: ROBERT ELLER ASSOCIATES, INC., 2007

re/mydox/Nissan/Nissan-auto biopolymer 04.vsd
lg/myfiles/visio/Nissan-auto biopolymer 04.vsd

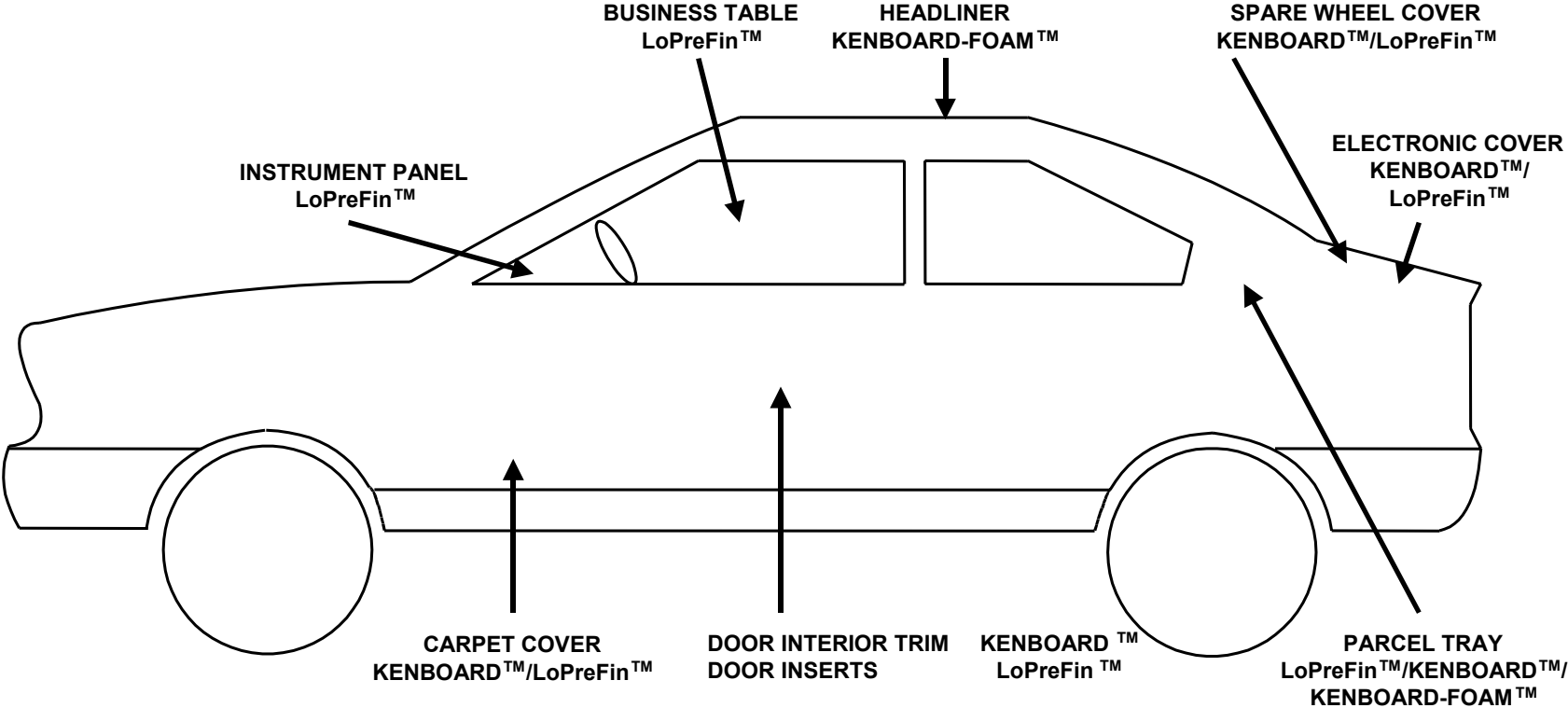
NATURAL FIBER DEMAND IN GERMANY AND AUSTRIAN VEHICLE PRODUCTION(TONNES/YR)



Quelle: nova-Institut

Estimates for Europe only automotive applications: 2005: 50.000 t
in 2010 up to 100.000 t per year

NATURAL FIBER APPLICATIONS

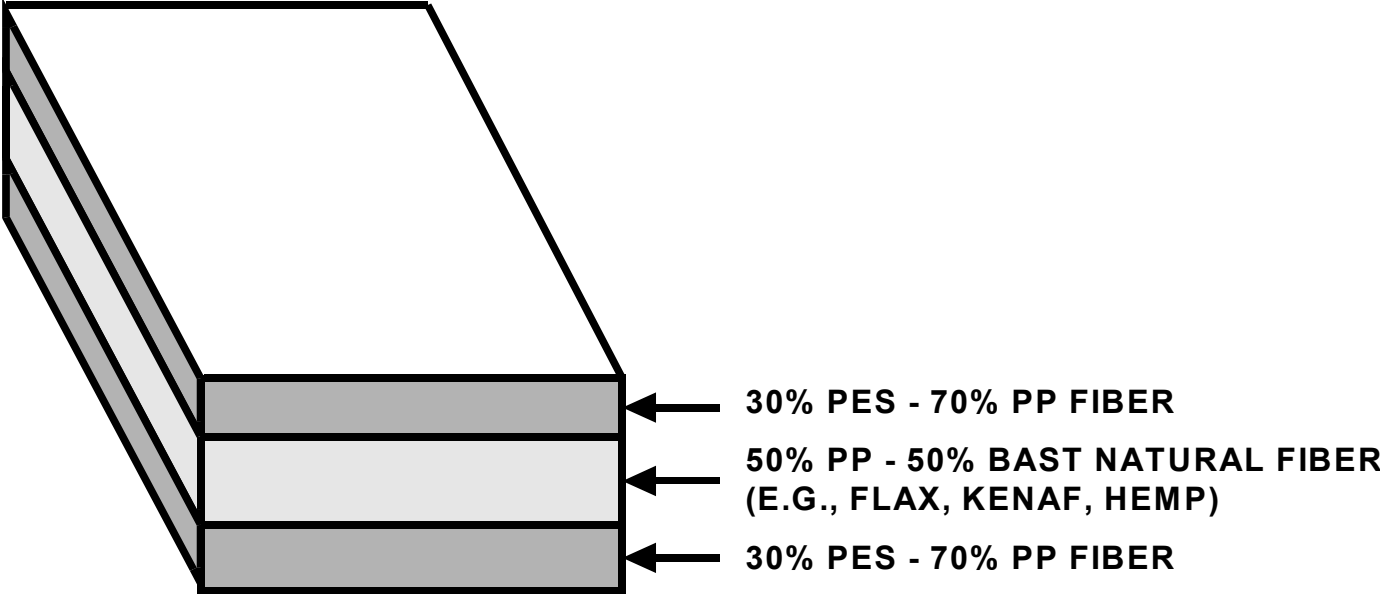


SOURCE: R+S TECHNIK GmbH

re/mydox/Nissan/nis-Nat Fib Apps 04.vsd
lg/myfiles/Visio/nis-Nat Fib Apps 04.vsd



LoPreFin™ CONSTRUCTION



SOURCE: R+S TECHNIK GmbH

re/mydox/biopolymer/nis-LoPreFin Constr

04.vsd

ln/mvfiles/Vic/nis-LoPreFin Constr 04.vsd

PAPER HONEYCOMB SPARE TIRE COVER



VEHICLE: AUDI A3

SUPPLIER: IDEAL

PHOTO: ROBERT ELLER ASSOCIATES, INC., 2007

Front shelf (driver cabin)

Opel Corsa Combo



Substrate: Loprefin Air 1.434 g/m²
PP/foam
PP/KHF 60/40 1000 g/m²
PP/PET 70/30 300 g/m²



Front shelf (driver cabin)

Opel Corsa Combo



Substrate: Loprefin Air 1.434 g/m²
PP/foam
PP/KHF 60/40 1000 g/m²
PP/PET 70/30 300 g/m²

Front shelf (driver cabin)

Opel Corsa Combo



Substrate: Loprefin Air 1.434 g/m²
PP/foam
PP/KHF 60/40 1000 g/m²
PP/PET 70/30 300 g/m²

Load floor Mercedes C-Klasse, front



Substrate: Special Sandwich: Glascolite and Nafcolite with EPP-foam

Load floor Mercedes C-Klasse, rear



Substrate: Special Sandwich: Glascolite and Nafcolite with EPP-foam

NEW:
Sandwich with distance spacer
for parcel shelves, load floors, possibly headliners



Substrate: Nafcoform / Nafcolite PP/KHF 50/50
all mass/areas possible
also in Glass fiber available

Nipple Spacer used between two metalsheets, Metro Madrid



Substrate: Nafcoform / Nafcolite PP/KHF 50/50
all mass/areas possible
also in Glass fiber available



Door Trim Insert

Ford Mondeo



Substrate: Loprefin 3-layers 1.600 g/m²
PP/PET 70/30 300 g/m²
PP/K 50/50 1000 g/m²
PP/PET 70/30 300 g/m²



Headliner frame driver cabin

Iveco Truck



2300mm

Substrate: Nafcoform PP/KHF 50/50 2000 g/m²



Sun roof cover, Webasto



Substrate: Loprefin Air
special construction



Parcel Shelf

VW Phaeton



Substrate: Glascoform PP/Glass 55/45 2000 g/m²



Load floor
Porsche Cayenne / VW Touareg
upper side



Substrate: Nafcoform PP/KHF 50/50 1400 g/m² or 1600 g/m²
EPP-foam
Nafcoform PP/KHF 50/50 1400 g/m² or 1600 g/m²

Load floor
Porsche Cayenne / VW Touareg
lower side



Substrate: Nafcoform PP/KHF 50/50 1400 g/m² or 1600 g/m²
EPP-foam
Nafcoform PP/KHF 50/50 1400 g/m² or 1600 g/m²

**Oil-pan covering
VW Passat
(Pumpe Düse)**



Substrate: Sandwich	1200	g/m ²
PET	100	100 g/m ²
PP/KHF 70/30	800	g/m ²
PP/PET 30/70	300	g/m ²

Spear wheel cabinet, Maybach



Substrate: Loprefin 2200 g/m²
PP/PET 70/30 300 g/m²
PP/KHF 70/30 1600 g/m²
PP/PET 70/30 300 g/m²



Cover air-conditioning unit, Daimler Chrysler Actros, front



Substrate: Nafcoform PET/Musa 20/80

Cover air-conditioning unit, Daimler Chrysler Actros, rear



Substrate: Nafcoform PET/Musa 20/80



Trunkliner, BMW 7

