



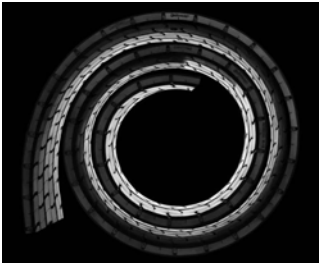

Performance Butadiene Rubbers – Taking performance to a new level

Joachim Grub

Head of Business Unit Performance Butadiene Rubbers

Duesseldorf, September 16, 2010

BU Performance Butadiene Rubbers offers top solutions which meet today's and tomorrow's requirements

Performance Polymers	Applications Performance Butadiene Rubbers	
		
Butyl Rubber		
Performance Butadiene Rubbers		
Technical Rubber Products		
Semi-Crystalline Products		



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Agenda

- **PBR – Business overview**
- Growth drivers
- Investments and technology upgrades
- Outlook



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PBR – Business overview

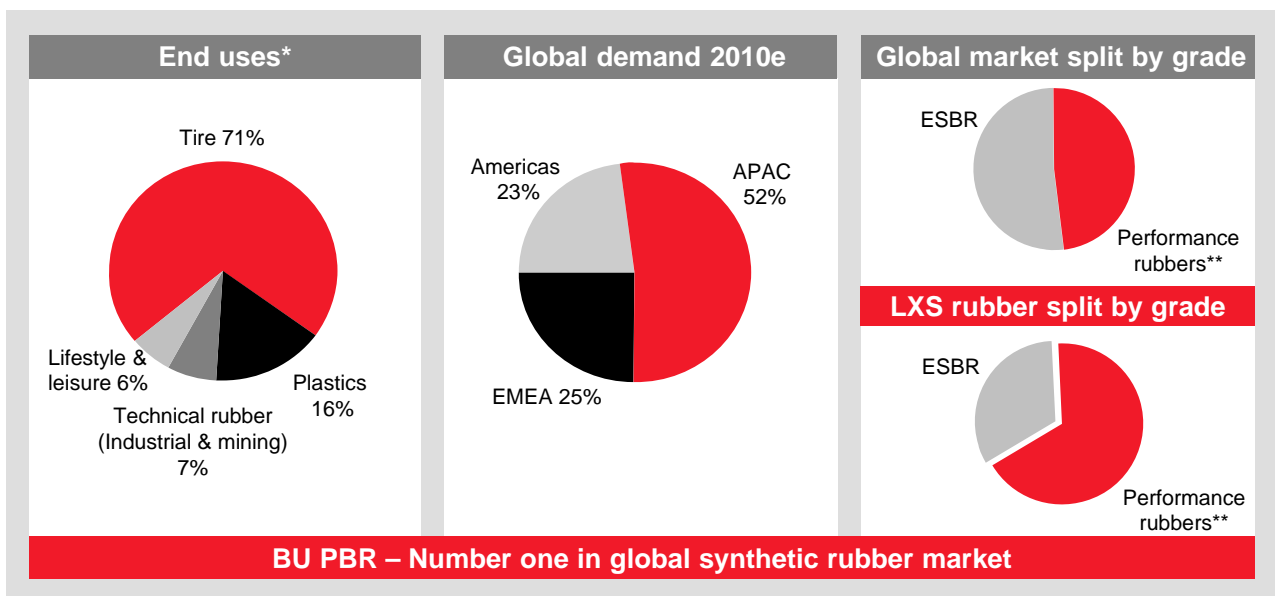
Facts	<ul style="list-style-type: none"> ▪ Production capacity: >800,000 t/a (all rubber grades) ▪ Sales: >€500 m ▪ Employees: ~1,000 ▪ Customers: >250 ▪ Production sites: Dormagen (GE); Triunfo, Cabo, Caxias, (BR); Port Jérôme (FR); Orange (US)
Products & brands	<ul style="list-style-type: none"> ▪ Product groups: Polybutadiene rubbers Styrene-butadiene rubbers ▪ Brand: 
Markets & competition	<ul style="list-style-type: none"> ▪ Share: LANXESS No. 1 in performance rubber ▪ Market size: ~€11 bn EUR in 2010e ▪ Competitors*: Goodyear, KKPC, Petrochemicals, NKNK, Polimeri, Sibur, Sinopec, Styron

* Merchant market

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PBR offers a full range of performance rubbers for a variety of industries

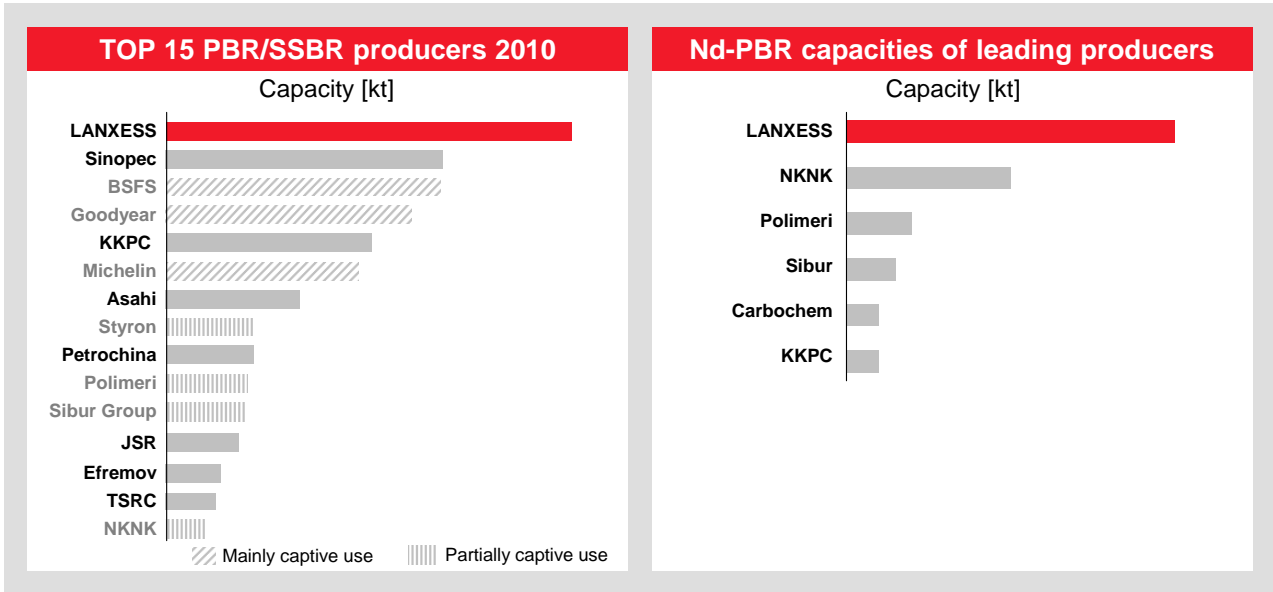


Source: LXS estimates based on CMAI 2010; * Based on BU sales; ** Such as Nd-PBR and SSBR

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BU PBR with solid footing in the performance rubber market

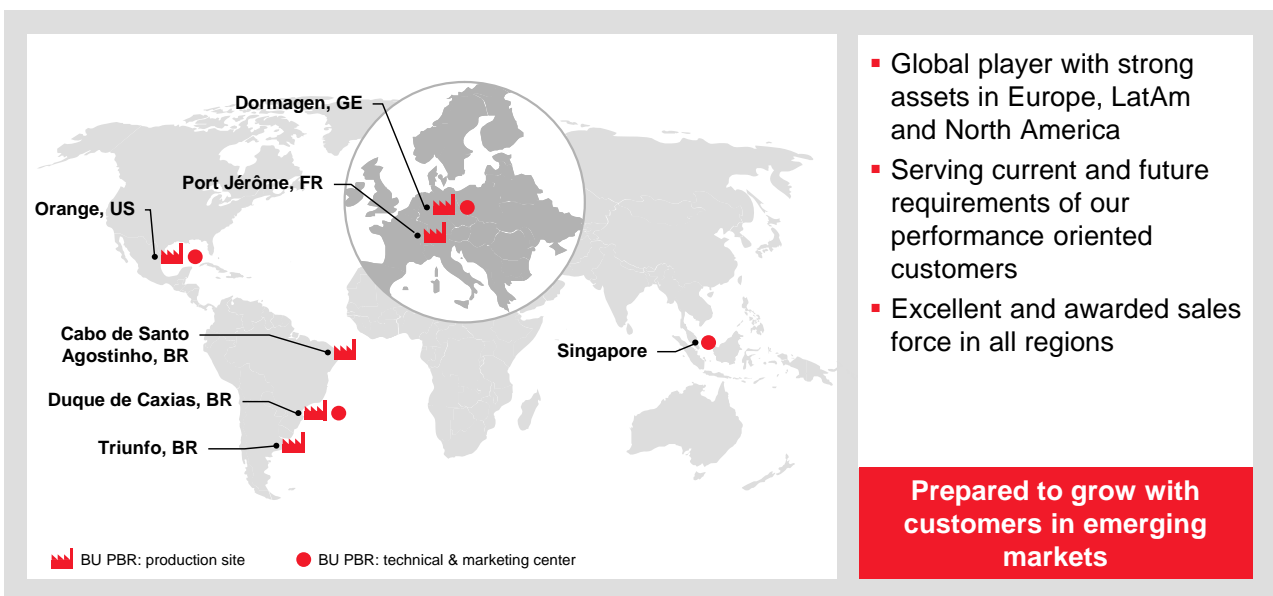


Sources: CMAI 2010 and LANXESS market intelligence

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Strong global footprint with world-class manufacturing base



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Performance Butadiene Rubbers demand is driven by two megatrends

Growth driving megatrends

Mobility

- Tire labeling, overall performance improvement for tires
- Increasing transportation, growth in retreading for truck tires
- Energy efficient tires, e-mobility

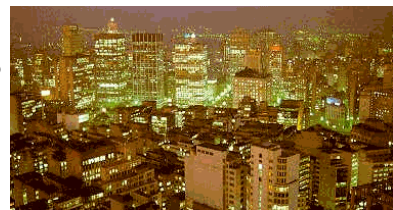
Urbanization

- Population growth
- Increase in consumption of performance goods

Market development (2011-2015)



- Performance applications*: ~10%
- Overall long-term CAGR: 3-4%
- Asia-Pacific: ~5%
- EMEA: ~2%
- Americas: ~2%



* Markets for SSBR and Nd-PBR

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Minimum performance of tires regulated in the EU and soon to come in further countries

European legislation effective from 2012

Fuel efficiency classes, passenger tires

A	RRC <6.5
B	>6.6 RRC <7.7
C	>7.8 RRC <9.0
D	>9.1 RRC <10.4*
E	RRC <10.5
X F	>10.6 RRC <12.0
X G	RRC >12.1

RRC** in kg/t

F and **G** will be banned as of 2016

Regulations in preparation in US and Japan

Tire labelings in several countries other than EU

GOVERNMENT TIRE RATINGS

ACME TIRE COMPANY
WILEY RR-S
SIZE: P225/65R15

U.S.

Japan

Status U.S.:

- Tire labeling technically finalized by NHTSA with design under review
- Once the rule is fully finalized, it will be implemented within 24 months

Source: EU parliament; * LANXESS estimates; ** Rolling resistance coefficient

Manufacturers need high-end rubber to achieve an overall performance improvement for tires

Rolling resistance accounts for 20%-30% of fuel consumption

Selected tire¹ classifications by grip and rolling resistance

	①	②	③	④	⑤	⑥
Grip	E	B	B	B	A	B
RR*	E	E	E	E	E	E

Rolling resistance still underperforming

LANXESS solutions to reduce rolling resistance

Rolling resistance coefficient

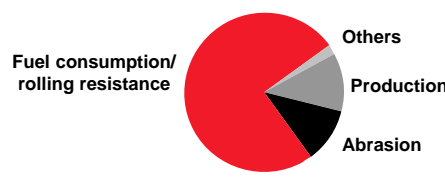
Standard rubber vs LXS HP rubber (minus 12%-14%)

Effect of SSBR in treads

Rolling resistance reduction, SSBR, ESBR, Grip, Durability

Source: GTÜ and ACE; * Rolling resistance; ¹six of the leading global tire producers

Change in consumer behavior for tire consumption triggered by an overall win-win situation



Environment	Safety
<p>Environmental impact over a tire's life cycle</p>  <ul style="list-style-type: none"> ▪ Significant reduction of CO₂ emissions possible ▪ Possible annual savings world wide: <ul style="list-style-type: none"> ~20 bn liter fuel ~50 m tons CO₂ emissions 	<ul style="list-style-type: none"> ▪ Nd-PBR in side walls: <ul style="list-style-type: none"> - Excellent resistance to flex cracking - Exceptional resistance to fatigue
	Efficiency
	<ul style="list-style-type: none"> ▪ Reduction of rolling resistance by 10% leads to a fuel reduction by 2-3% <ul style="list-style-type: none"> - Fuel: -0.2l/100km* - CO₂ emissions: -4g/km*

Sources: EU; U.S. Department of Energy; Transportation Research Board; * Example for Michelin Energy Saver

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LANXESS Nd-PBR also provides opportunities in the growing retreading market

Fleet operators focus on cost reductions per mileage	
<p>Fleet operator benefits from high-performance retreading:</p> <ul style="list-style-type: none"> ▪ Purchasing costs: <ul style="list-style-type: none"> - Retread only ~25% of new tire but almost full PBR content ▪ Attractive operating costs for retreads with SSBP/PBR: <ul style="list-style-type: none"> - Improved rolling resistance by ~30%, hence reduced fuel consumption - Higher abrasion resistance, hence more mileage driven 	
<p>Retread demand growth in Asia</p> 	

Sources: www.retread.org; www.tyrepress.com; LANXESS market intelligence

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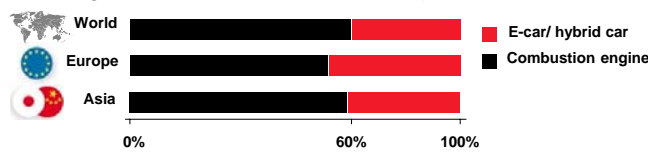
Low rolling resistance is a crucial factor for e-cars to extend driven mileage range

E-mobility is a source of future mobility

- Governments promoting e-mobility with several initiatives, i.e. in Germany, France, U.S and China
- Challenge: limited energy storage in batteries as crucial factor to enlarge driven mileage range
- Approach: reduction of rolling resistance in e-cars to become the main goal



Registration of new cars, 2020e split*



Sources: acatech; Heise; * McKinsey, scenario: oil price: ~110 USD/barrel, 1m e-cars in Germany until 2020

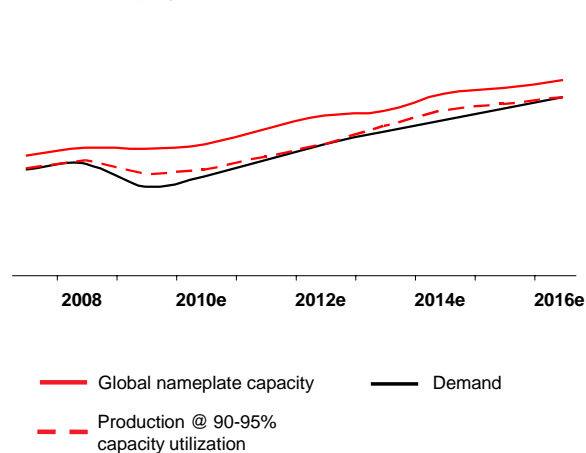
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Supply / demand expected to tighten mid-term

HP rubbers expected to grow by ~10% p.a.

Supply / demand for PBR [volumes]



- Tire labeling makes innovation in rubber grades visible to customer
- Emerging markets shift towards performance applications
- Market for all polybutadiene rubbers in tight supply
- Smart debottlenecking of ~50kt of Nd-PBR fastest process to serve demand from Asia

Nd-technology to become global standard

Source: LANXESS estimates based on CMAI, SRI, LMC

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Strategic investments underpin excellent competitive position of BU PBR's production sites (1/2)

Production site	Strong set-up drives organic growth
<p data-bbox="256 1485 483 1509">Dormagen – Germany</p> 	<ul style="list-style-type: none">▪ Debottlenecking of ~15kt Nd-PBR▪ Streamlined, highly reliable single line Nd-PBR operation▪ Plant serves primarily the tire market▪ Lowest energy consumer within BU PBR▪ 100% of butadiene demand supplied by pipeline
<p data-bbox="256 1731 483 1756">Port Jérôme – France</p> 	<ul style="list-style-type: none">▪ High degree of flexibility to produce high-performance PBR▪ Low environmental footprint with state of the art technology▪ Most modern and automated PBR manufacturer within LANXESS▪ Capability to produce specialized PBR's▪ High share of butadiene supplied by pipeline

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Strategic investments underpin excellent competitive position of BU PBR's production sites (2/2)

Production site	Strong set-up drives organic growth
<p>Cabo – Brazil</p> 	<ul style="list-style-type: none"> ▪ Expanding Nd-PBR production capacity by ~20kt ▪ Using latest LANXESS technology ▪ Capability to produce functionalized SSBR products ▪ Located in high-growth region ▪ Overall balanced butadiene supply
<p>Orange – USA</p> 	<ul style="list-style-type: none"> ▪ Debottlenecking of ~15kt Nd-PBR production capacity ▪ Largest merchant market manufacturer of PBR products ▪ Capability to produce all standard PBR grades offered by LANXESS ▪ Excellent infrastructure along the Gulf Coast ▪ Fully supplied by two butadiene pipelines

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LANXESS rubber know-how is a benchmark in the industry

- LANXESS with more than 100 years of expertise is the inventor of synthetic rubber:
 - Many patent applications for enhanced rubber properties in the pipeline
 - Full innovation pipeline is capitalized quickly by strict time-to-market strategy
 - Fostering innovations hand in hand with industry leading customers and research institutes

“Tire Industry Supplier of the Year” awarded by tire technology expo underpins LANXESS innovation excellence



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Rubber market in transition towards higher performance – BU PBR prepared to grow disproportionately

Market increasingly relies on performance rubbers to solve tomorrow's requirements



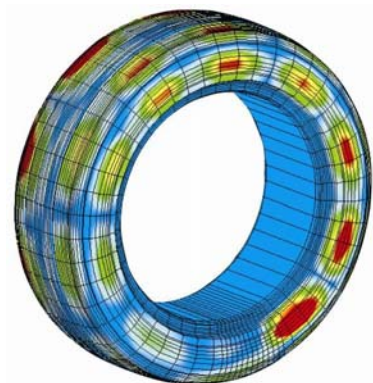
LANXESS SSBP and Nd-PBR go hand in hand to achieve maximum performance



Market for all polybutadiene rubbers in tight supply



Strengthening LANXESS leading position in merchant rubber market



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