



Capital Market Days 2020

ContiTech: Material Science Enabling The Way Beyond Rubber

Ticker: CON
ADR-Ticker: CTTAY
<http://www.continental-ir.com>

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Today's ContiTech Is Already Moving Beyond Rubber

150 YEARS

of material expertise at the heart of our development. And the story continues beyond rubber...



1871
100% Rubber



30% Rubber



ContiTech
SMART SOLUTIONS
BEYOND RUBBER



We are material experts and provider of complex systems

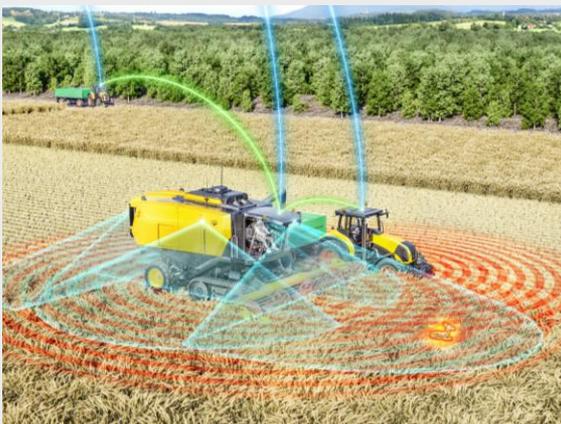
The World Is Changing: Industry Megatrends

Why We Are Developing Beyond Rubber



Infrastructure changes

- › Trainlines and transportation
- › Alternative energies



Automation

- › Automated harvesting
- › Automated production



Industry solutions

- › Predictive maintenance
- › Connectivity
- › Internet of Things in production



The World Is Changing: Automotive Megatrends

Why We Are Developing Beyond Rubber



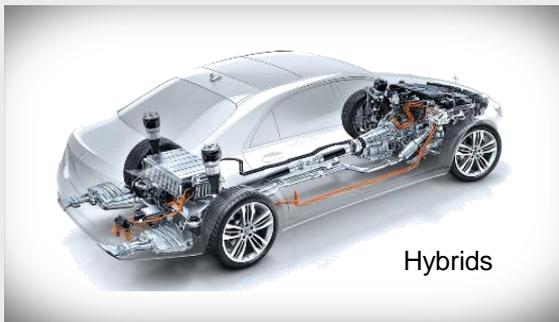
ICE¹ Technology

Gasoline engine

- > ~ 78 connections
- > ~ 14.3 m plastic lines
- > Up to 6 sensors

€135

Content per vehicle



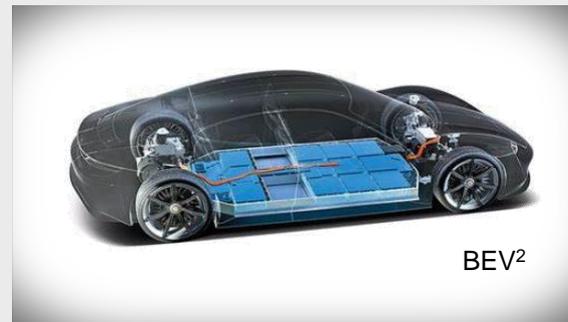
Hybrids

Hybrids

- > ~ 89 connections
- > ~ 20.7 m plastic lines
- > Up to 9 sensors

€190

Content per vehicle



BEV²

Electrified powertrain engines

- > ~ 95 connections
- > ~ 26.8 m plastic lines
- > Up to 12 sensors

€230

Content per vehicle

3 m long
system assembly



¹ ICE: Internal combustion engine

² BEV: Battery electric vehicles

ContiTech Innovation Fields

Material Science Beyond Rubber



Thermoplastics

Enabler to Solve Customer Challenges

Customer challenges

BEV ¹ range (battery temperature)	Remote area breakdowns
Digital integration in interior	Internet of Things in production
Automated tooling recognition	Demand for information
Metal structures in cars (weight)	

Solutions

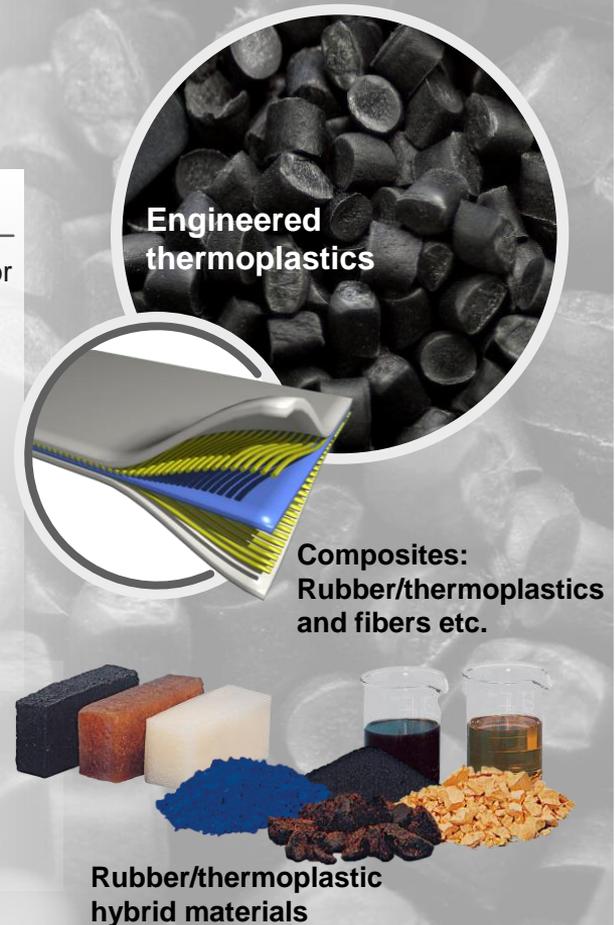
Active thermal battery management	Functionality interior sensor integration
Smart tooling (RFID ² etc.)	Predictive maintenance
Composites to replace metal for weight reduction	

Enabler

- › Engineered thermoplastics
- › Rubber/thermoplastics hybrid materials
- › Composites (fibers etc. in rubber/thermoplastics matrix)

¹ BEV: Battery electric vehicles

² RFID: Radio frequency identification



Thermoplastics

Enabler to Solve Customer Challenges

Battery management system ID.3 enabled by thermoplastics technology

VITESCO TECHNOLOGIES

Drive control unit for the electronic architecture of the modular electric drive matrix (MEB)

VEHICLE NETWORKING AND INFORMATION

In-Car Application Server (ICAS) for vehicle connectivity

10" Center Information Display

Sensor actuator module

Seat control unit

Door control unit

AUTONOMOUS MOBILITY AND SAFETY

Drum brake (rear axle)

Brake hoses (front axle)

Long-range radar

Damper control unit

Intelligent battery sensor

Wheel speed sensors

TIRES

Summer, winter and all-season tires

Up to 800% Increased content per vehicle¹

CONTITECH

Battery thermal management
Plastic lines to thermoregulate the battery

Air conditioning and heat pump
Refrigerant fluid lines for cooling and heating

¹ Content in electric vehicle versus in a same sized internal combustion engine vehicle

Sustainable Materials

Research for a Greener Tomorrow

Customer challenges

A sustainable future

Recycling Renewable materials Waste reduction

Enabler

- › Renewable materials compounding
- › Sustainable supply chain (focus on natural rubber)
- › Conflict mineral elimination

Solutions

Use of renewable materials	5 projects
Integration of recycled materials	4 projects
Waste reduction	5 projects



First consumer product:
Garden hose from renewable rubber based on sugar cane

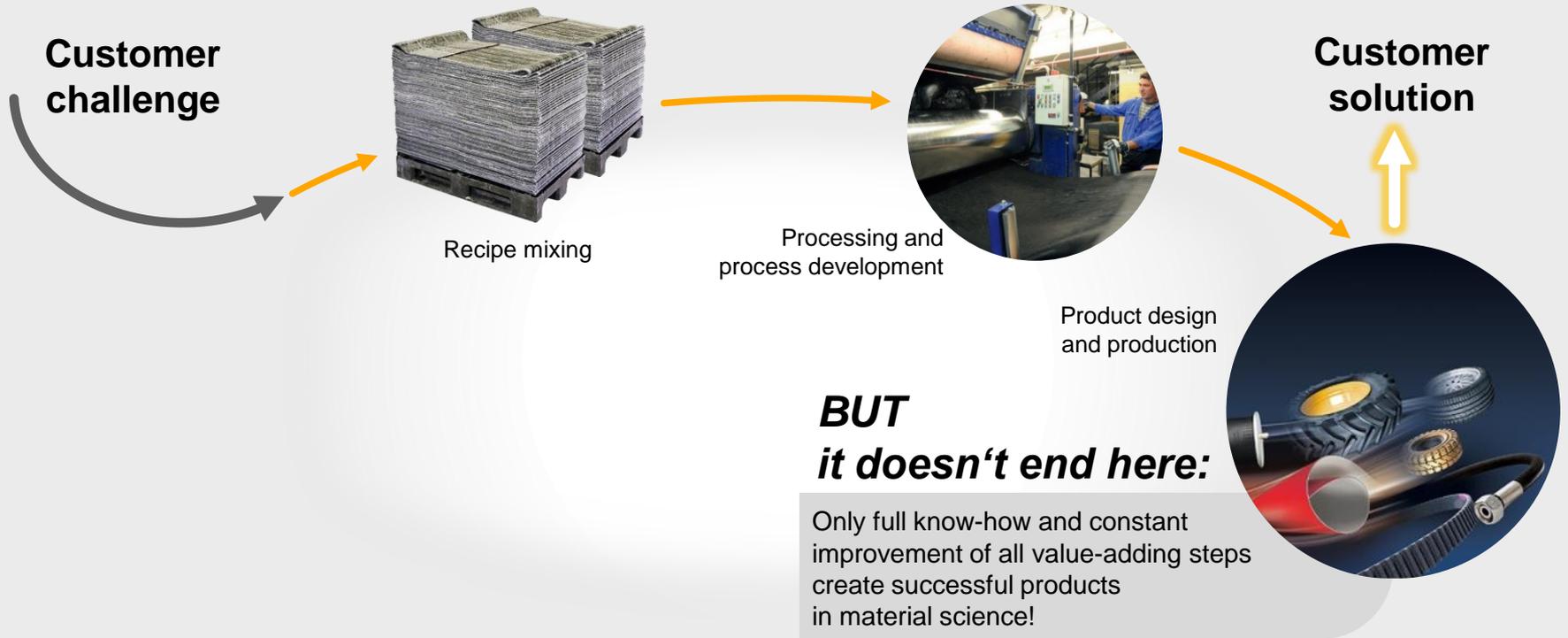
How To Be Successful

Material Science: Chemistry Meets Processing



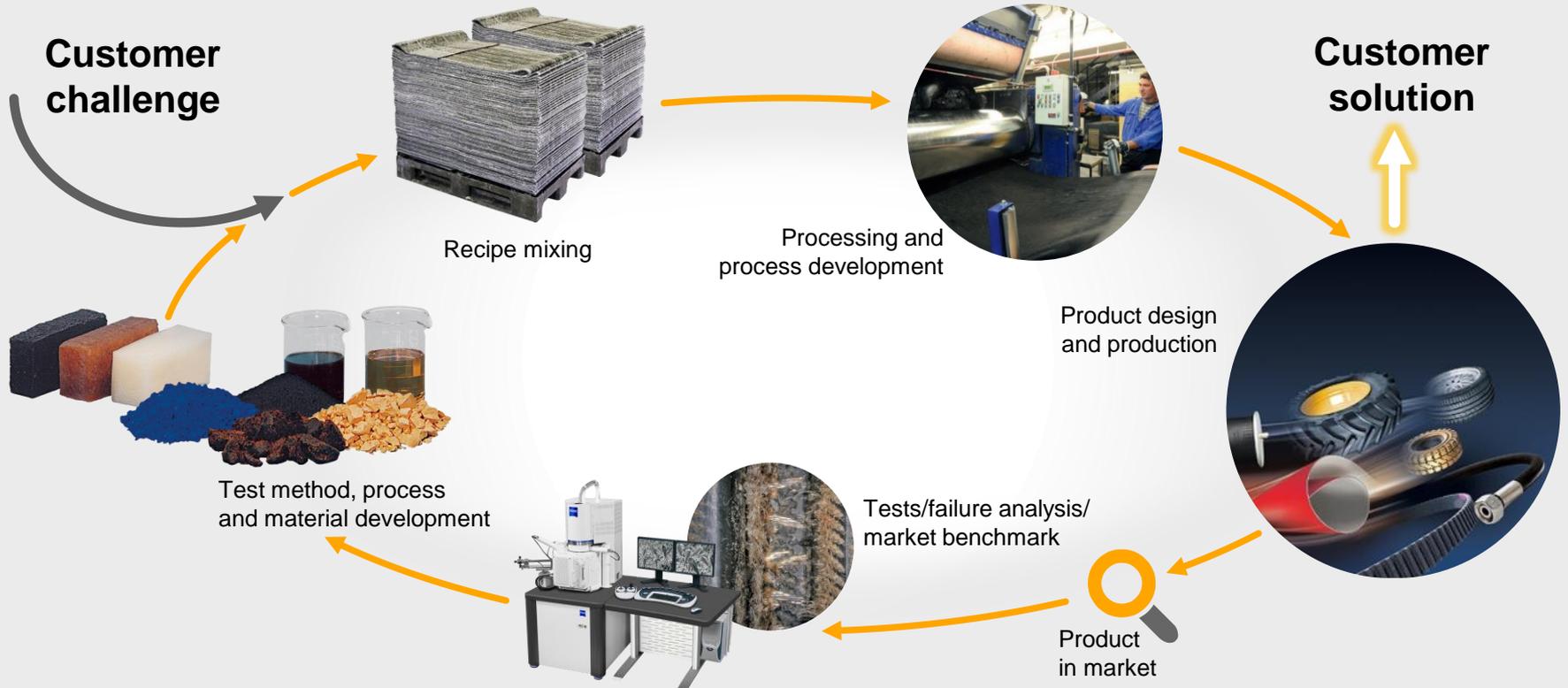
How To Be Successful

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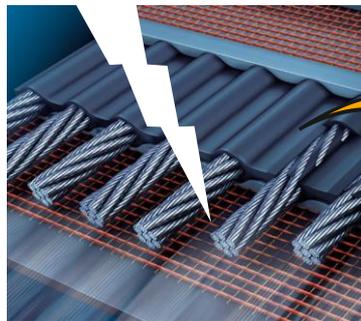


How To Be Successful

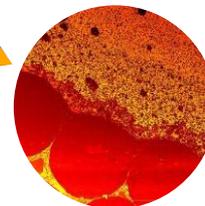
Competences Beyond Chemistry: Analytics

Our steps for fast product improvement

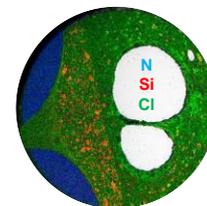
- 1) Collect customer feedback
- 2) In-house analytics and know-how
- 3) Generate understanding
- 4) Initiate product improvement



Composites:
Gradient materials



Composites:
Elementary composition



Full analytics in house

- > Electron microscopy
- > Material composition analysis
- > Gas and liquid chromatography
- > ...



Advanced
analytics



Quick reactions to
market feedback
and benchmarking

Why We Are Strong in Material Science

Summary



Strong base

Material Science is part of our DNA – for 149 years and counting!



Customer focus

Material science beyond rubber enables customer focused solutions



Agile inventor

Our closed loop development and unique analytics allow us to create new solutions

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The Future in Motion