



# BUSINESS MODEL, BUSINESSES & STRATEGY

February 2020

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# Borregaard is a global leader in biochemicals

*High value added through full raw materials utilisation  
Borregaard's biochemicals are sustainable and environmentally  
friendly substitutes for petrochemicals*

SPECIALITY  
CELLULOSE  
& CELLULOSE  
FIBRILS

▲ 45% FIBRES



LIGNIN  
& VANILLIN

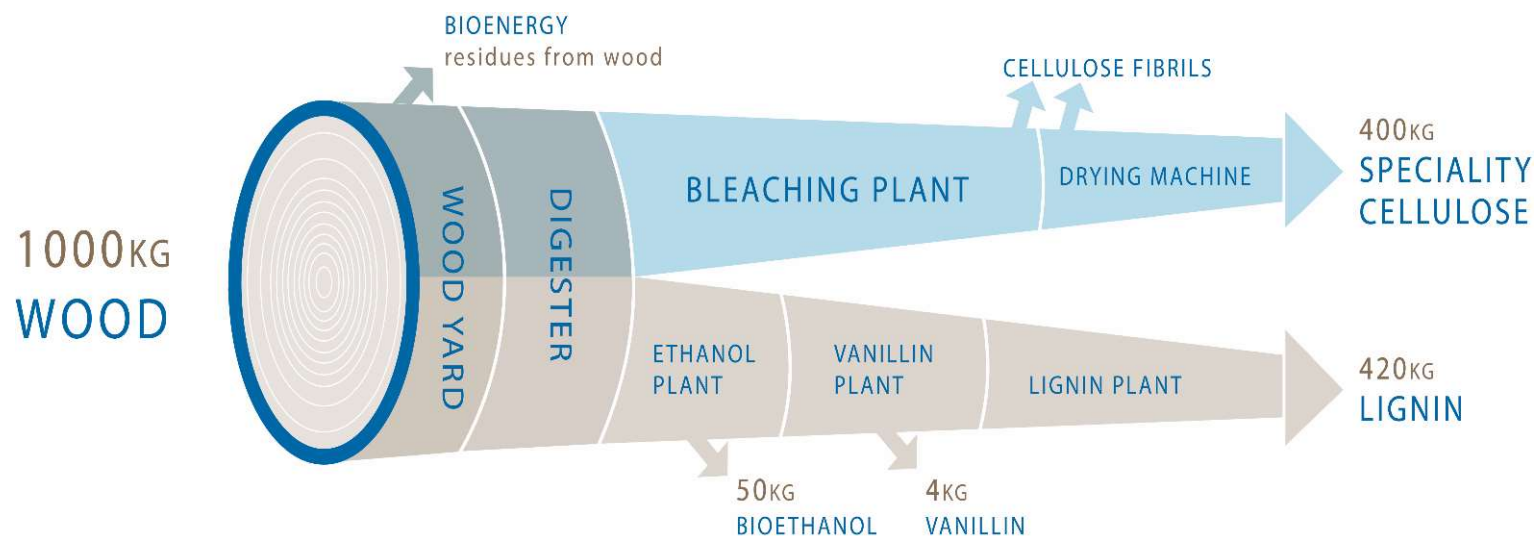
▲ 30% BINDING MATERIAL

BIOETHANOL

▲ 25% SUGAR

# Operates the world's most advanced biorefinery

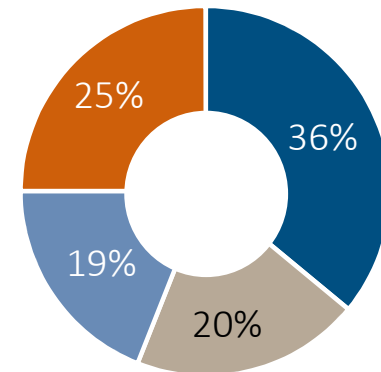
Integrated production system serving diverse markets



Integration models:

- Own integrated
- Partner integrated
- Independent

End markets 2019



**SPECIALITY CELLULOSE**  
 Construction materials  
 Filters  
 Inks and coatings  
 Casings  
 Food/Pharma/Personal care  
 Textiles

**LIGNIN**  
 Concrete additives  
 Animal feed  
 Agrochemicals  
 Batteries  
 Briquetting  
 Soil conditioner

**VANILLIN**  
 Food  
 Perfumes  
 Pharmaceuticals

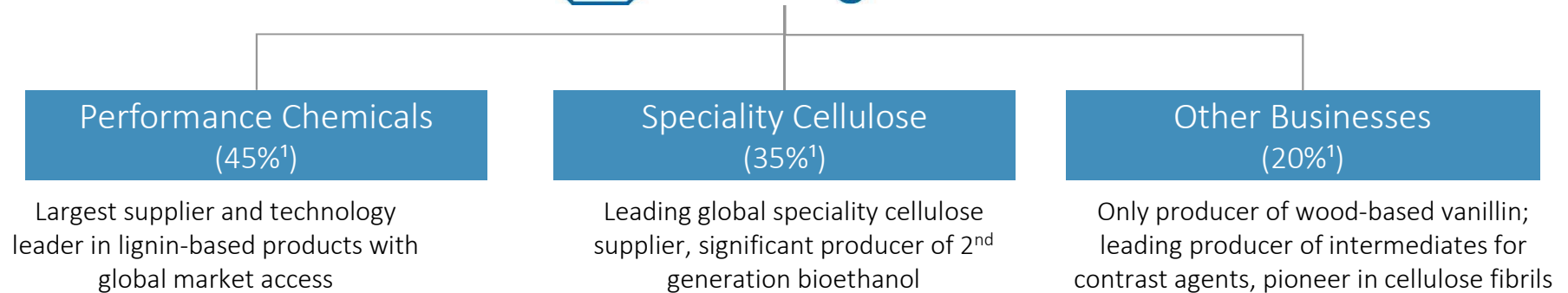
**BIOETHANOL**  
 Biofuel  
 Car care products  
 Household chemicals  
 Solvents  
 Food  
 Personal care  
 Pharma

**CELLULOSE FIBRILS**  
 Adhesives  
 Coatings  
 Agricultural chemicals  
 Personal care  
 Home care  
 Construction

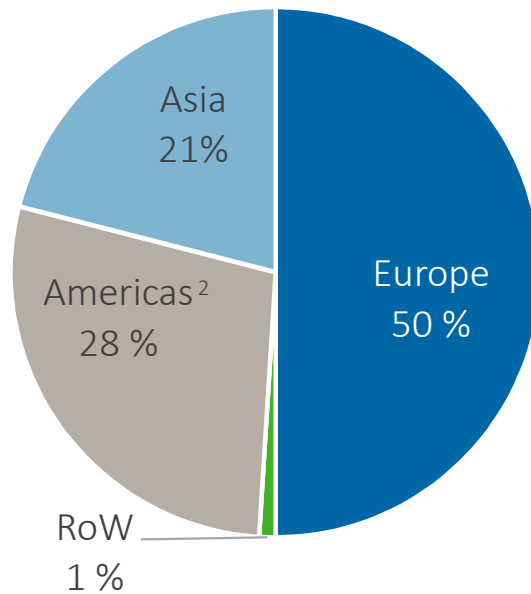
- Chemical/Others
- Food & Pharma
- Agriculture
- Construction



# Global niche player with a market driven organisation



## Sales distribution (2019)



## Market driven organisation

- ~110 FTEs strong sales/technical service organisation
- Dedicated sales force for each business unit
- ~90% of sales handled through own organisation

1) Segment revenue as a % of total revenue 2019

2) USA/Canada: 23%, rest of Americas 5%

# The specialisation strategy

- **Specialisation in global niches**
  - Markets with high barriers to entry
  - Leading market positions through application knowledge and proximity to markets
  - Diversified market strategy and global market positions secure maximum flexibility
- **Strong innovation efforts and continuous improvement**
  - Business driven innovation model that involves the entire organisation
  - Continuous productivity improvement through more efficient organisation, competence development and smart use of technology
- **Competence is the main competitive advantage**
  - Competence differentiates Borregaard from the competitors
  - Combination of competences in sales & marketing, R&D and production

# Borregaard portfolio - strategic priorities

- Specialisation, diversification and growth within Performance Chemicals
  - Increase sales of high-value lignin products
  - Drive product portfolio diversification
  - Leverage expanded lignin capacity
- Develop the unique biorefinery assets in Sarpsborg
  - Leverage high-value raw material base in Performance Chemicals
  - Expand capacity for wood based vanillin
  - Continue specialisation of Speciality Cellulose, Bioethanol and Ingredients
  - Strong focus on innovation and productivity efforts
- Establish Cellulose Fibrils as a new business area
  - Based on core competence within wood chemistry and fine chemistry
  - Increased specialisation through high value added

# Completed and ongoing strategic projects



- Specialisation, diversification and growth within Performance Chemicals
  - Florida plant (1<sup>st</sup> phase) started up mid 2018
  - Upgrade and increased specialisation in Sarpsborg (2019)
  - Extension of joint venture agreement in South Africa to 2032



- Develop the unique biorefinery asset in Sarpsborg
  - High-end bioethanol expansion started up in Q1-18
  - Ice Bear capacity expansion completed end 2018
  - Lignin upgrade/specialisation in operation from July 2019
  - Wood based vanillin capacity expansion, completion 1H-21



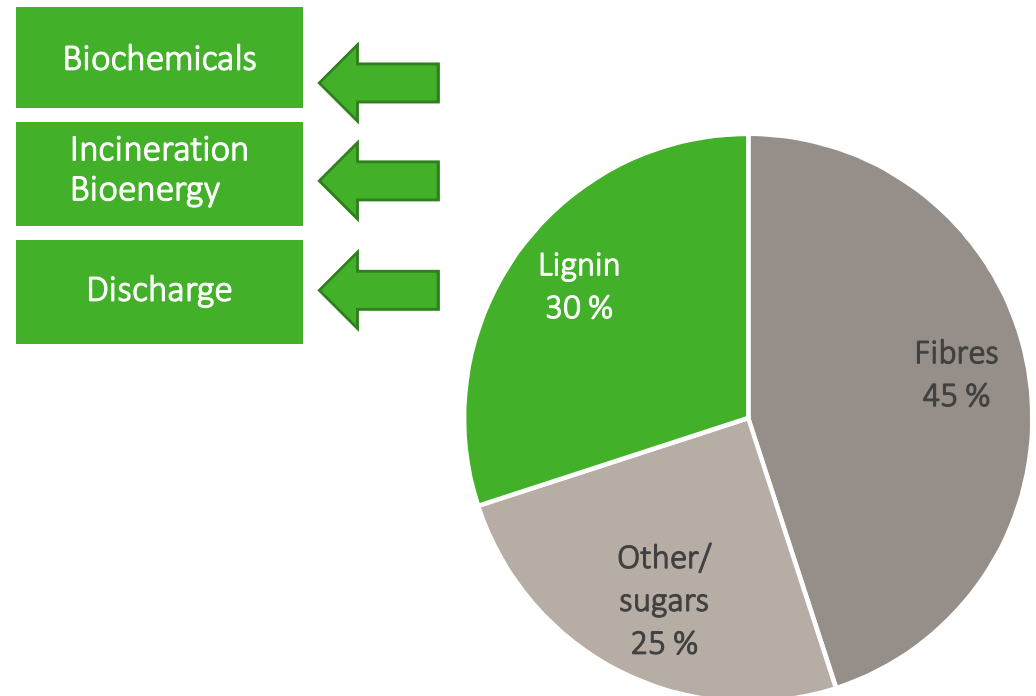
- Establish Cellulose Fibrils as a new business area
  - Commercial-scale production facility completed in Q4-16
  - Exilva market introduction ongoing

# Performance Chemicals

Product performance depends on the pulping process and the raw material

- **Sulphite pulping process**
  - Versatile lignin used in a variety of products/applications
  - Quality depends on the chemicals base
  - Water soluble
  - Limited number of sulphite mills
- **Softwood (pine/spruce) vs hardwood and straw**
  - Softwood lignin has superior modification potential
- **Kraft (sulfate) pulping process**
  - Lignin is normally incinerated to recover energy and chemicals
  - Not in water soluble form from the pulp mill
  - Pulp producers are exploring potential for industrial use of kraft lignin

*Lignin – a sustainable and flexible raw material*





# Performance Chemicals

## Market position

- Largest supplier with a global presence
- Unique technical and application expertise

## Production

- Norway, USA, South Africa, Germany, Spain, Czech Republic, UK

## Applications

- Concrete admixtures
- Gypsum board
- Ceramics
- Animal feed
- Agro chemicals
- Soil conditioner
- Oil field chemicals
- Batteries

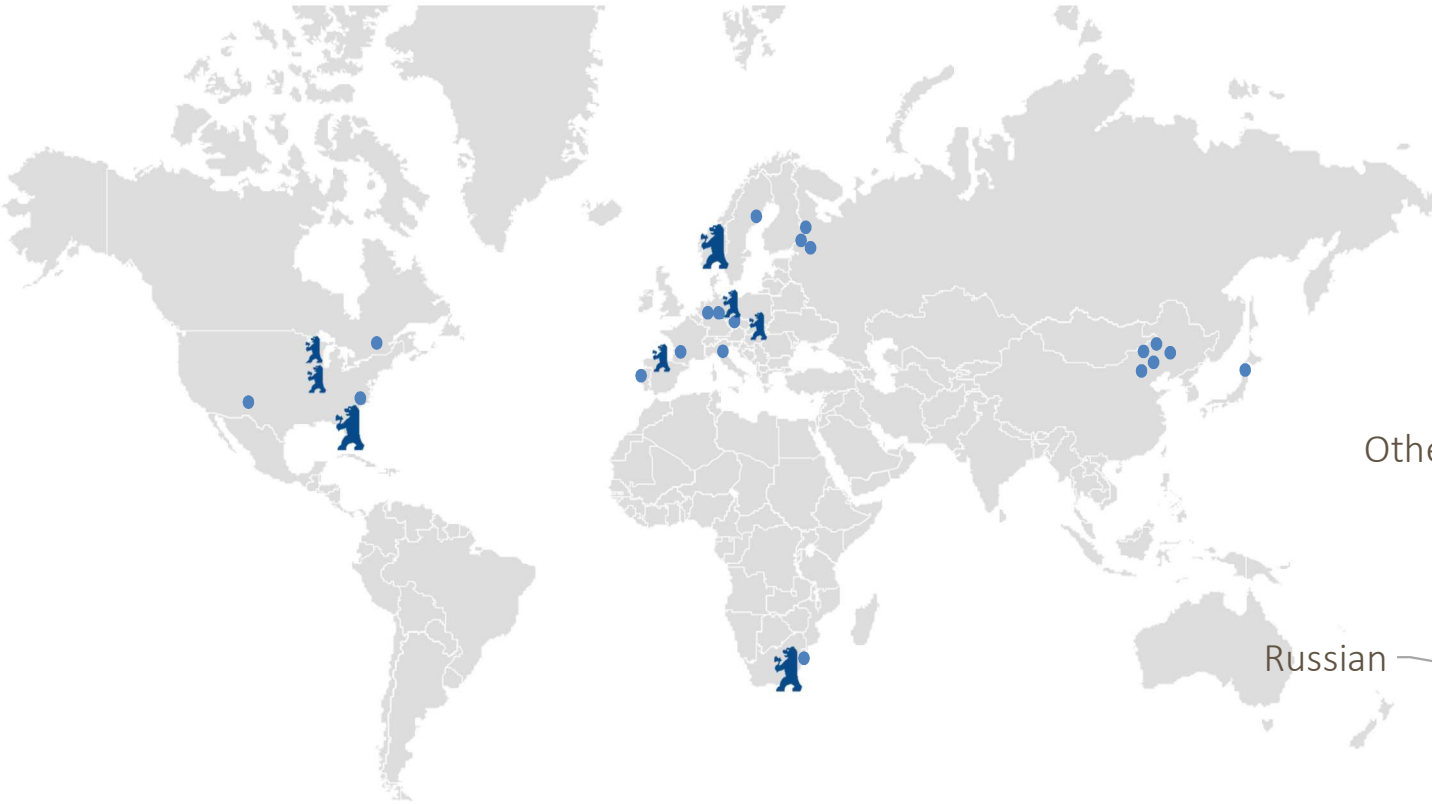


## Key attractions

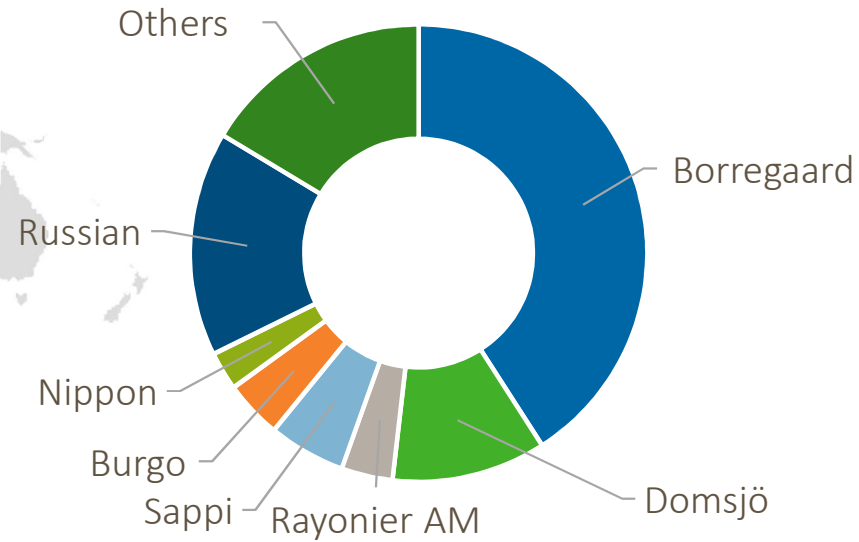
- A sustainable and broad product portfolio
- Large and diverse customer base
- High barriers to entry

Operating revenues 2,330 mNOK (2019)

# Lignin – the supply side



By sales volume 2017



Total market (2017) ~ 1.1 million mtds<sup>2)</sup>

# 650 products to around 3,000 customers (2019)

## Lignosulfonate properties

### Properties

### Applications

#### Binding agent

- Feed binder
- Granulation aid
- Ceramic tiles
- Dust binder

#### Dispersing agent/ Rheology control

- Concrete admixture
- Agrochemicals
- Dyestuffs
- Metals and minerals
- Carbon black and pigments
- Micronutrients

#### Crystal growth control

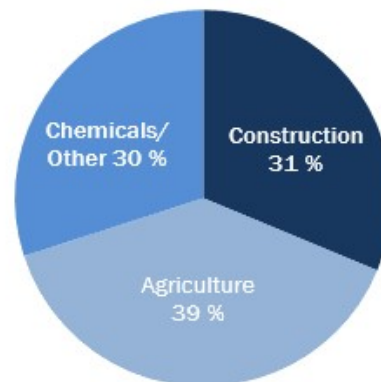
- Battery expander
- Retardation of cement hydration
- Oil-well cementing

#### Functional additive

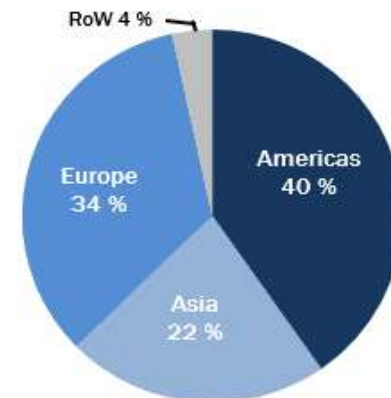
- Phenol replacement
- UV-protection
- Antioxidant
- SoftAcid
- Soil conditioner
- Complexing agent

## Revenues by end market and region<sup>1)</sup>

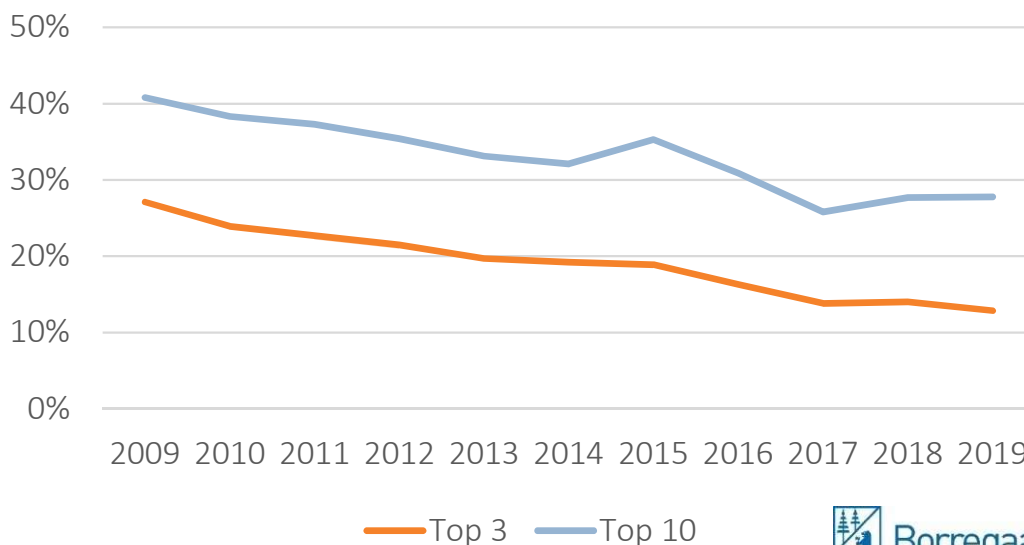
Revenue by end-market (2019)



Sales distribution (2019)








## Top 10 and top 3 customers in % of revenues



1) Includes Lignotech South Africa sales

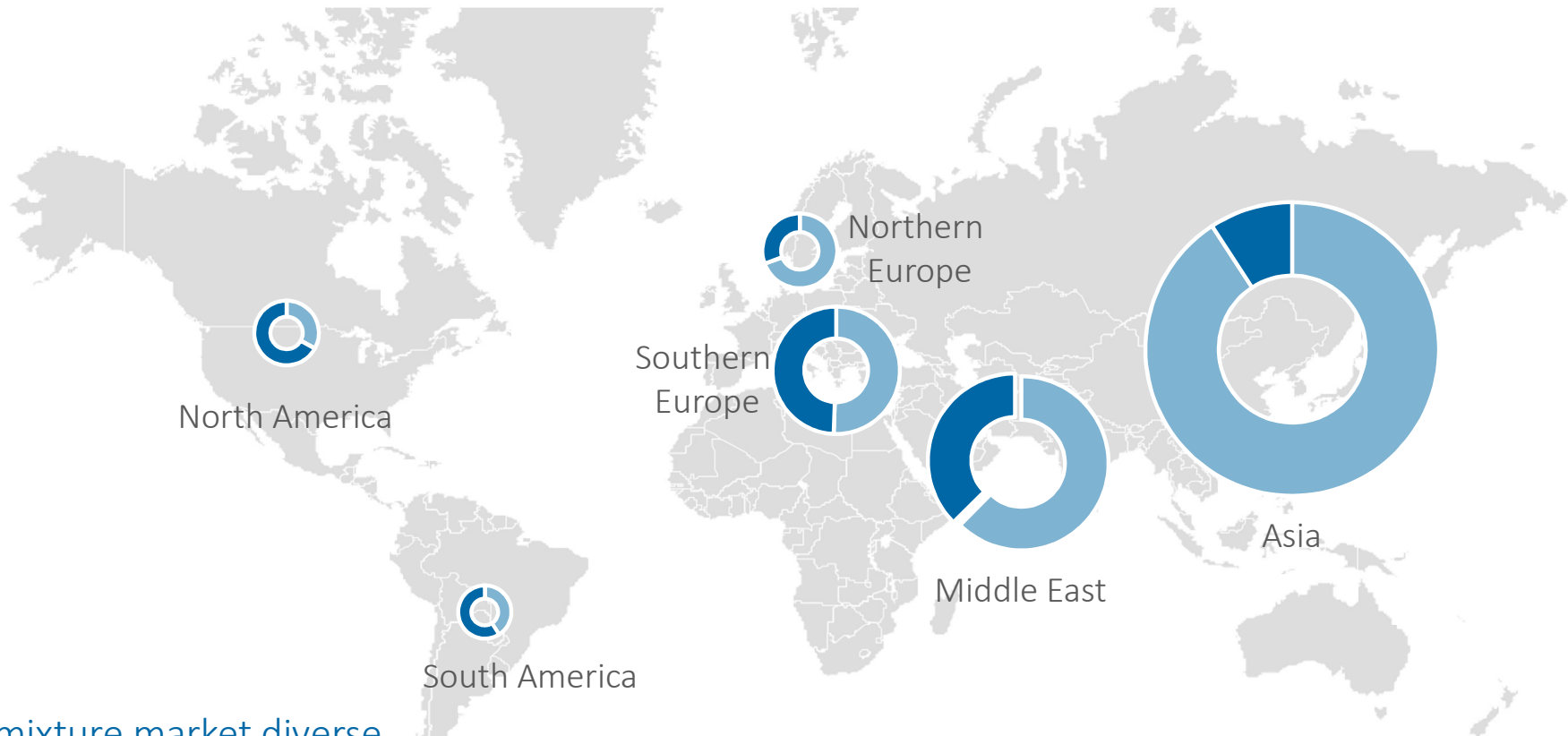
# End markets growth forecast

	Construction	Industrial		Specialities	
					
	Construction	Feed	Industry	Agro /Agchem	Automotive
EMEA	1 to 2%	0 to 2%	0 to 2%	2 to 4%	1 to 2%
Americas	1 to 3%	2 to 4%	2 to 4%	3 to 4%	0 to 1%
Asia/Pacific	1 to 3%	-2 to -5% <sup>1)</sup>	3 to 5%	2 to 3%	3 to 6%

*Indicative annual rates to 2022  
based on 2.5% annual GDP growth rate*

<sup>1)</sup> Outbreak of African Swine Fever in China causes reduction of swine numbers by 30 - 40%. Feed market development is uncertain since recovery pattern is difficult to predict.

# Concrete admixture formulation preferences

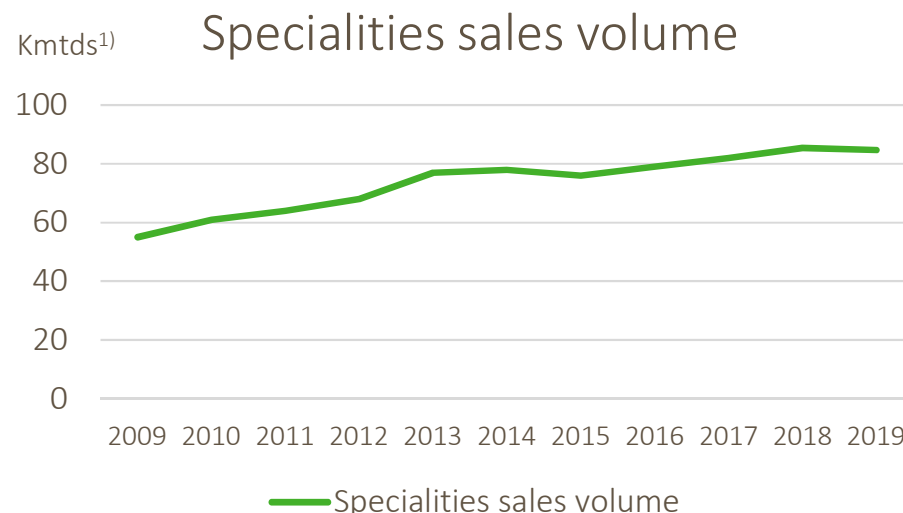
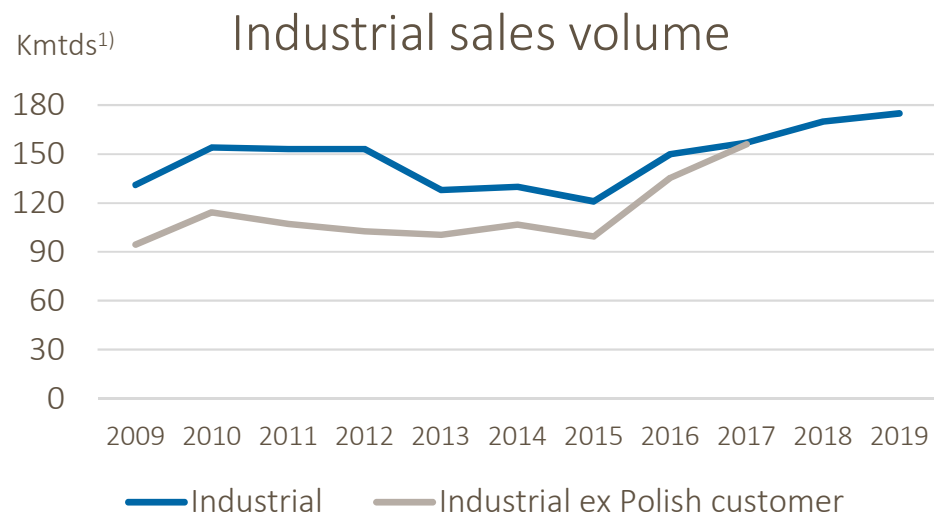


- Admixture market diverse, lignin competes with captive synthetic products
- Regional and local formulation preferences
- Climate influences formulation





# Industrial and Specialities



## Industrial (previously Miscellaneous)

- Significant global volume growth since 2015 across a wide range of applications
- Demonstrates capabilities in innovation, market development and sales
- Robust and growing customer and application base

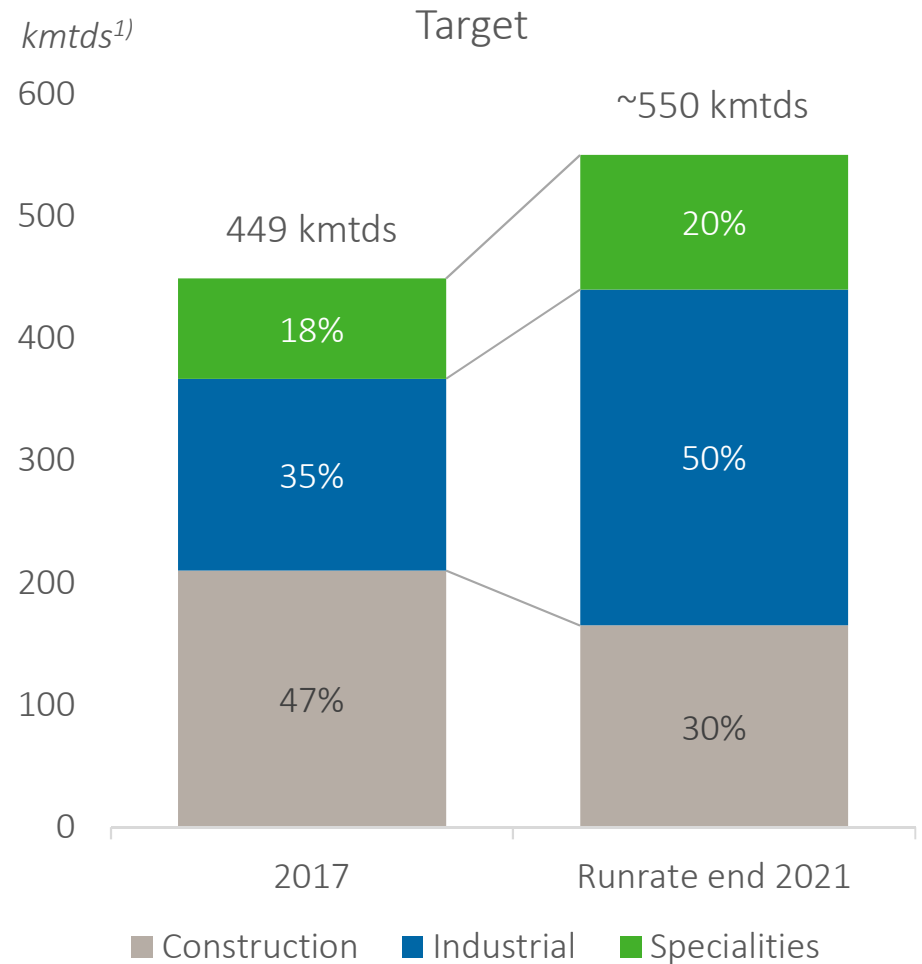
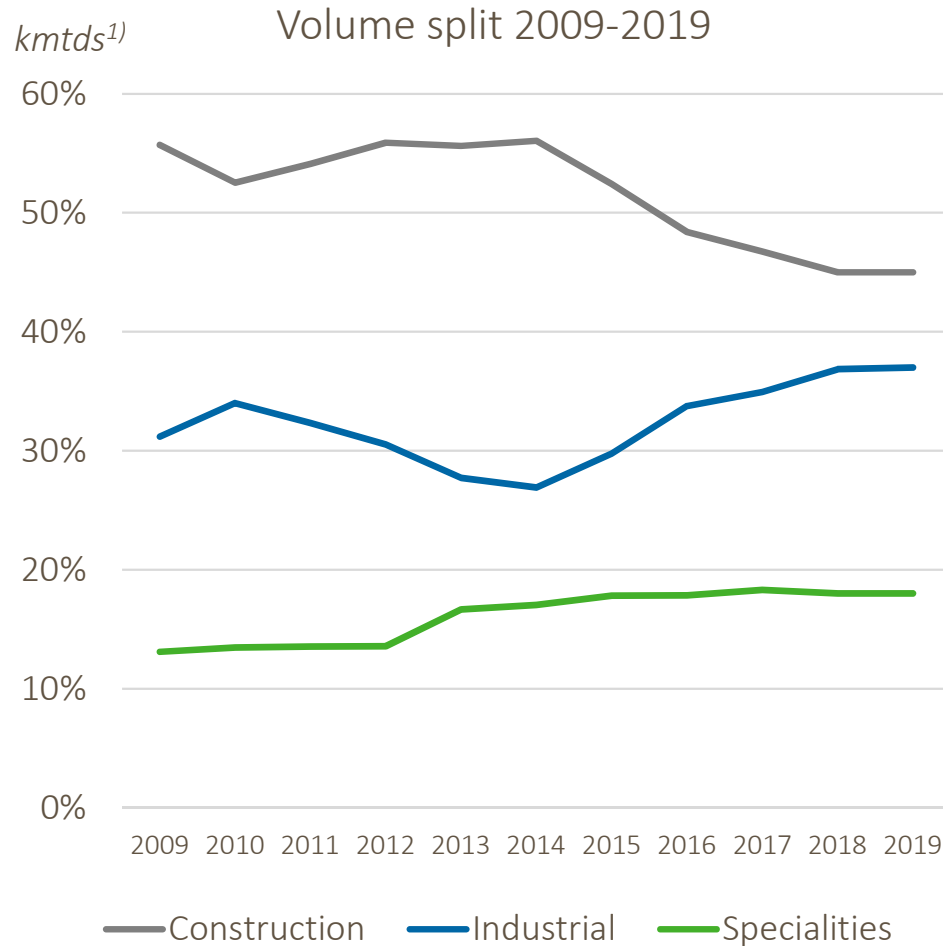
## Specialities

- Volume growth based on capabilities in innovation, application development and sales
- Lead acid batteries for automotive and industrial applications on a steady growth path
- Increasing use of green alternatives in agrochemical applications

<sup>1)</sup> Metric tonne dry solid (thousand)







# Driving specialisation and diversification

Industrial and Specialities targeted to represent 70% of total sales volume by end 2021










<sup>1)</sup> Metric tonne dry solid (thousand)

# Applications, functionality and substitutes









	Application	Functionality	Competing technologies	Value proposition:	
				Green alternative	Cost / performance vs. synthetics
	Batteries	Crystal growth control	Few	✓	✓
	Crop protection	Dispersant	Synthetic surfactants	✓	✓
	Metals and minerals	Dispersants and binder	Synthetic and organic surfactants	✓	✓
	Crop nutrition	Soil conditioner / complexing agent	Humic acid, ethylenediaminetetraacetic acid (EDTA)	✓	✓
	Concrete admixtures	Plasticiser	Superplasticizers: naphthalene, melamine sulfonates and polycarboxylic acids	(✓)	✓
	Animal feed pellets	Binder	Starch residues, bentonite and mechanical compacting	✓	

# Agriculture

Crop nutrition ( Agro )			Crop protection ( Agchem )	
				
Micro-nutrients ( Zn, Fe, Cu, Mn)	Soil conditioners (+ source of C&Ca)	Macro-nutrients (N, P, K, S)	Pesticides/fungicides (used as dispersing agent)	
Formulation/ complexing agent	Enhancers/ bio-stimulants	Basic nutrients	Water based	Solvent based
✓	✓	✗	✓	✗
	Granulation aid/binders for pesticides, fungicides, fertilisers, limestone, feed & gypsum			

# Batteries

Automotive:

			
Start battery	Start/stop battery	Hybrid	Electric vehicle <sup>1)</sup>
			
Lead acid	Absorbant Glass Mat (AGM)	AGM as start battery	Other technologies
Fuel for motion	Fuel for motion	Fuel/NiMH/lithium ion for motion	Lithium ion for motion

Other:



1) Lead acid battery for 12V auxiliary system



# LignoTech Florida



- The venture
  - Located at Rayonier Advanced Materials' (RYAM) Fernandina Beach softwood sulphite pulp mill
  - Borregaard (55%) and RYAM (45%) ownership
  - Borregaard's know-how and technology
- Expansion project in two phases
  - Phase one (2018) represents 100,000 mtds capacity, investment USD 110 mill.
  - Phase two will give additional 50,000 mtds, investment USD 25 mill.
- New plant officially opened 26 June 2018
  - Investment completed on time and cost
  - Production commenced in June
- Commercialisation
  - Diversified product and application portfolio established
  - Sales volume developing according to plan

# Update on Sarpsborg lignin investment programme



- 500 mNOK capex, 70% expansion/30% replacement
  - Additional dryer with packaging capacity
  - Tanks for storage of liquid materials
  - Improved solutions for logistics, infrastructure and energy
  - In operation from July 2019
  - Capex  $\approx$ 10% below budget
- Several benefits
  - Further specialisation on a unique raw material base
  - Reduced exposure to cyclical market segments
  - Optimisation of production campaigns, internal and outbound logistics
  - Substantial environmental and safety benefits
- Annual cost savings >40 mNOK expected
  - Gradual realisation through 2020
  - Full impact from 2021

# New lignin warehouse at the Port of Borg

- New, modern warehouse for dried lignin
  - 19,000 square metres/43,000 pallet positions
  - Will replace several rented warehouses
  - Located inside the port area at Øra, Fredrikstad
  - Built, owned and operated by the Port of Borg
  - Will be treated in accordance with IFRS 16
- Several benefits
  - Optimise product flow and improve logistics
  - Reduce CO<sub>2</sub> emissions from road transport
  - Reduce local heavy transport
- In operation from June 2019



# Speciality Cellulose

## Market position

- Strong positions in Europe and Asia within high-end niches

## Production

- Sarpsborg, Norway with capacity of 160,000 mt

## Operating revenues 2019

- NOK 1,725 million

## Focused applications

- Ethers
- Acetate
- Nitrocellulose
- Other cellulose specialities

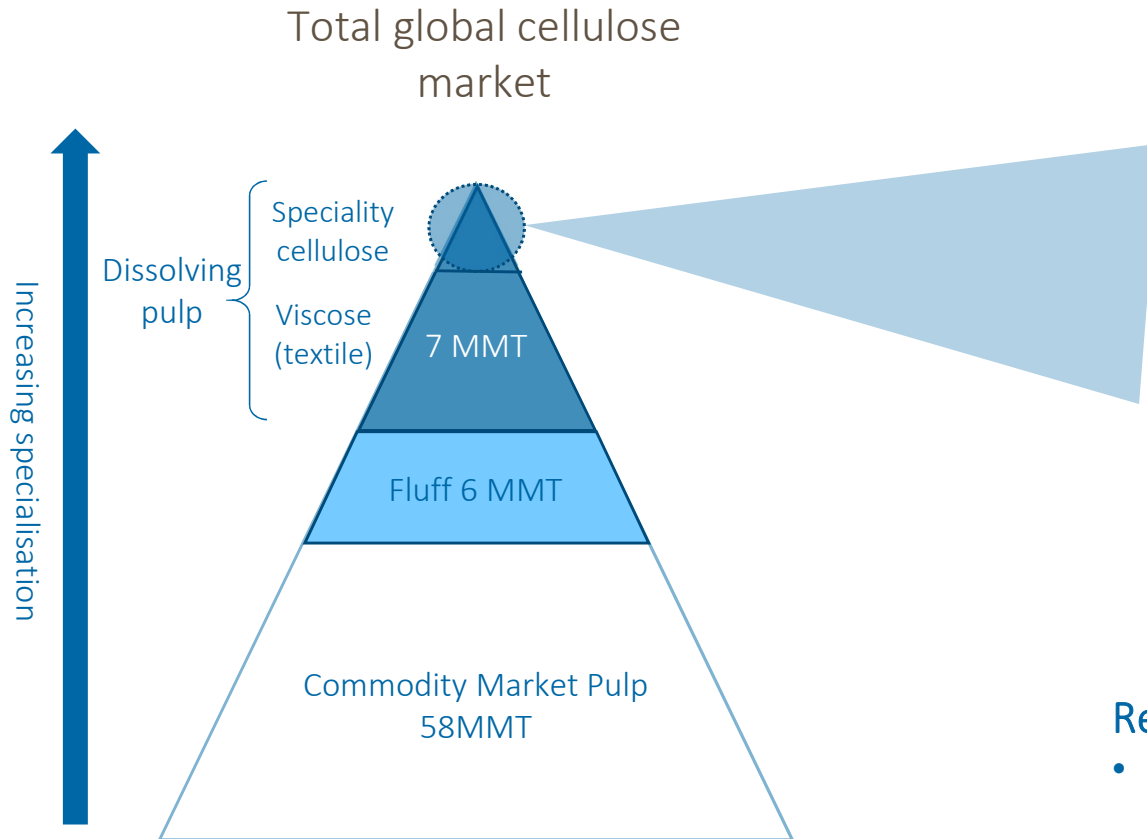
## Long term market growth<sup>1)</sup>

- Ethers: 3-4%
- Acetate: -2-0%
- Nitrocellulose: 0%

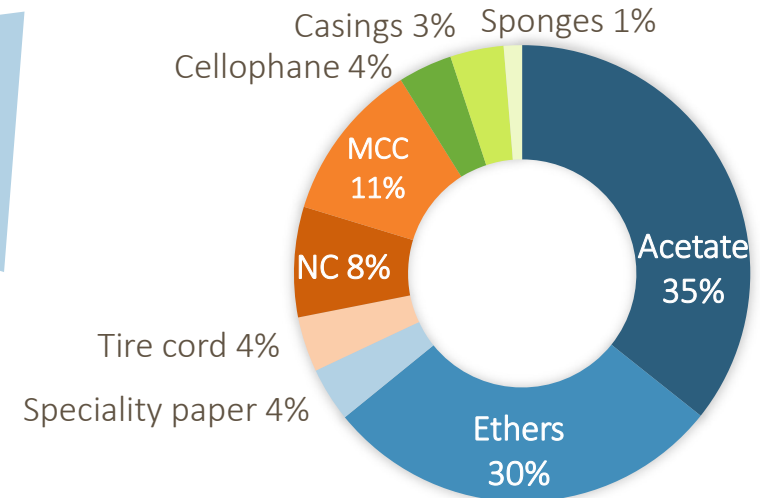


*High quality speciality cellulose  
with strong niche positions*

# The speciality cellulose market



Speciality Cellulose Market ~1.6 MMT



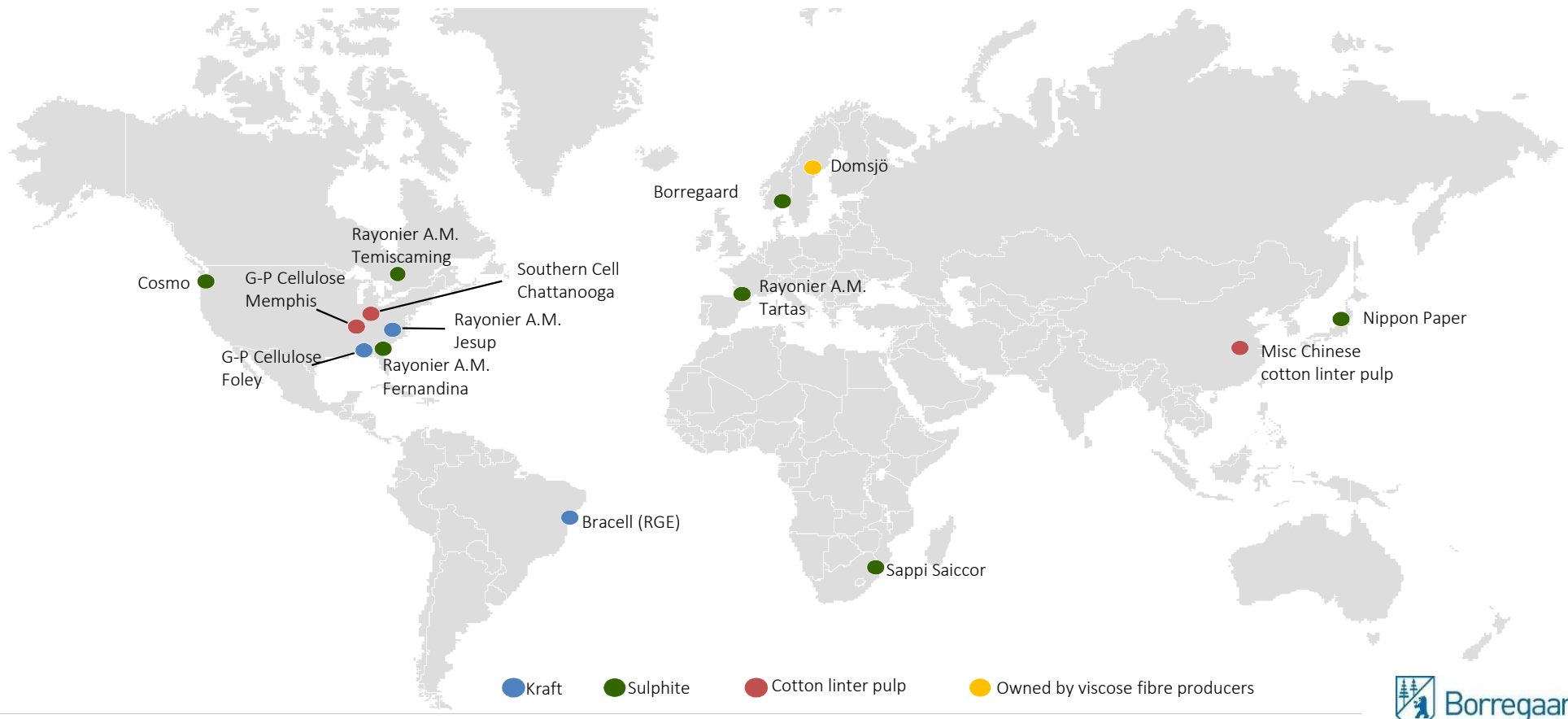
## Recent trends

- Total speciality cellulose market relatively unchanged
- Viscose (textile) market growth 8.4% annually last 5 years
- Industry restructuring



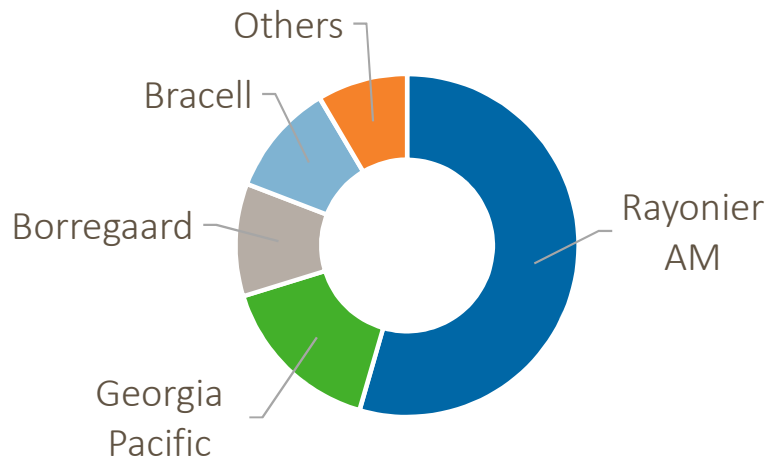
# Speciality cellulose suppliers

- 12 players supplying 1.6 million mt speciality cellulose
- Top 4 players (Rayonier Advanced Materials, G-P Cellulose, Bracell and Borregaard) have 90%<sup>1)</sup> market share
- Top 4 players use textile and fluff markets as capacity filler
- Limited volumes from viscose pulp producers into speciality segments due to barriers to entry



# Speciality cellulose industry

Speciality cellulose sales volume by producer



- Speciality cellulose market is approximately 1.6 million mt
- Top 4 speciality cellulose producers have 90% market share and use hardwood and softwood as raw material
- In addition, there are a few cotton linter pulp producers supplying this market
- Main end-uses for speciality cellulose include acetate and ether, accounting for more than 60% of the market

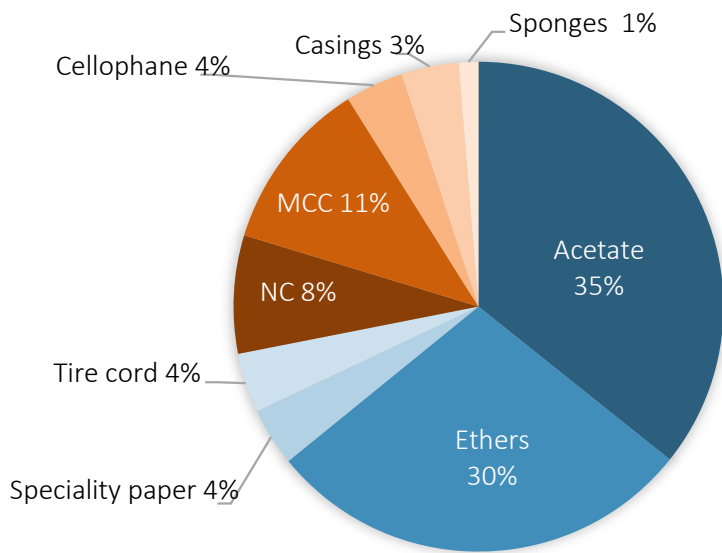
Top 4 speciality cellulose producers by wood species and pulping process

	Hardwood/ kraft	Softwood/ kraft	Hardwood/ sulphite	Softwood/ sulphite
Rayonier AM	✓	✓		✓
Georgia-Pacific		✓		
Bracell	✓			
Borregaard				✓

Source: Borregaard estimates, [www.celco.ch](http://www.celco.ch)

# Speciality cellulose market

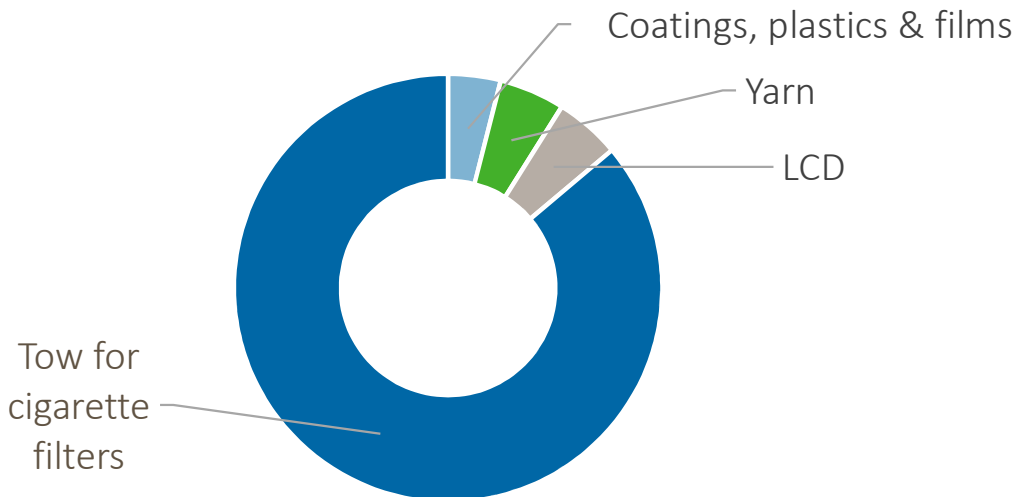
Speciality cellulose demand 2018 (1.6 million mt<sup>1)</sup>)



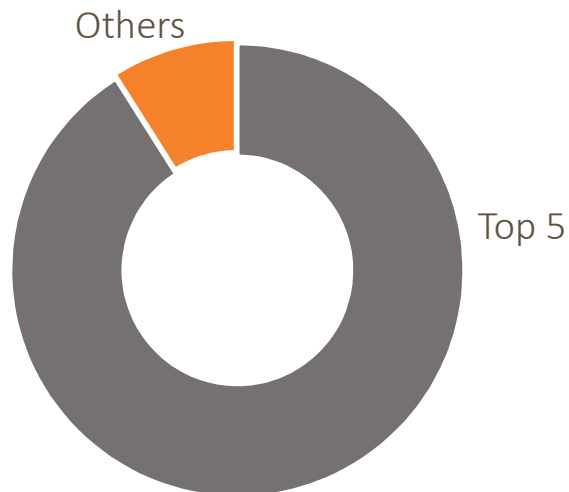
	Segments	Applications	Market size '000 mt (2018)	Annual growth 2019-2022
Highly specialised	Acetate	Cigarette filters, plastics, LCD, yarn	550	-2-0%
	Ethers <sup>2)</sup>	Construction, coatings, food, pharma, personal care	475	3-4%
	Speciality paper	Automotive filtration, bank notes	60	1-2%
	Tire cord	High-performance tire cords	60	3-4%
Other specialities	Nitrocellulose (NC)	Coatings, printing inks, nail varnish, energetic grades	125	0%
	Microcrystalline cellulose (MCC)	Food, pharma	180	3-4%
	Cellophane	Food packaging	55	0-1%
	Casings	Sausage casings	55	3-4%
	Sponges	Sponge cloths	20	1-2%

# Cellulose acetate industry status and outlook

Cellulose acetate sales by end-use



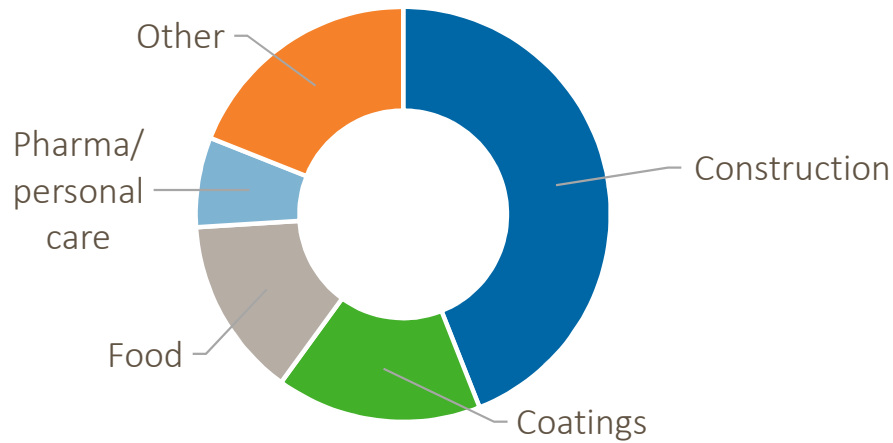
Cellulose acetate tow industry structure



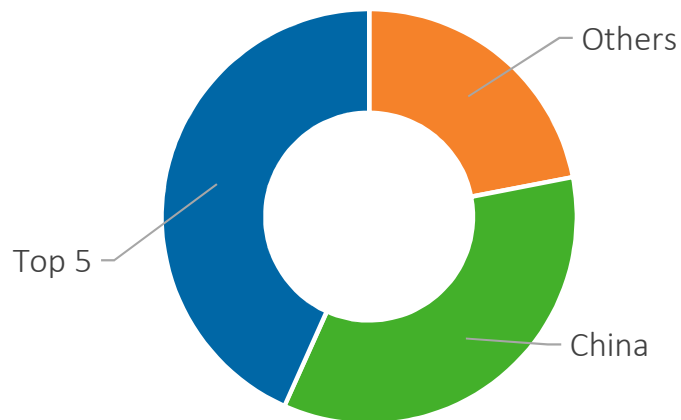
- In 2015-19, demand for acetate pulp declined -2% annually, expected at -2-0% going forward
  - Cigarette filter sales ~85% of total sales
  - Global cigarette consumption declining, China is the key market
  - 'Heat-not-burn' cigarettes (e.g. PMI IQOS) becoming popular, still small share
  - Low capacity utilisation in acetate tow
- Top 5 acetate tow producers represent >90% of global capacity
- Some acetate applications growing, e.g. acetate yarn and plastics.
- Ice Bear strategically important
  - Ability to offer higher purity products important to defend existing and compete for new/additional filter tow business
  - Potential for growth in other acetate segments

# Cellulose ether industry status and outlook

Cellulose ether sales by end-use



Cellulose ether industry structure



- In 2015-19, demand for ether pulp grew > 4% annually, expected at 3-4% going forward
  - Strong growth in food, pharma and personal care
  - Solid growth in construction
- Top 5 cellulose ether producers represent ~43% of global capacity
  - 1/3 of global capacity is in China
- New cellulose ether capacity under construction
- Potential for further growth and specialisation

# Ice Bear status

- Strategic initiative enabling further specialisation and flexibility
  - Higher purity products important to defend existing and compete for new/additional filter tow business
  - Increasing interest from other speciality segments – “niches within the niches”
- Capacity expansion completed on time and cost in Q4-18
  - 115 mNOK investment
  - 60,000 mt total capacity
- Ramp-up based on market demand

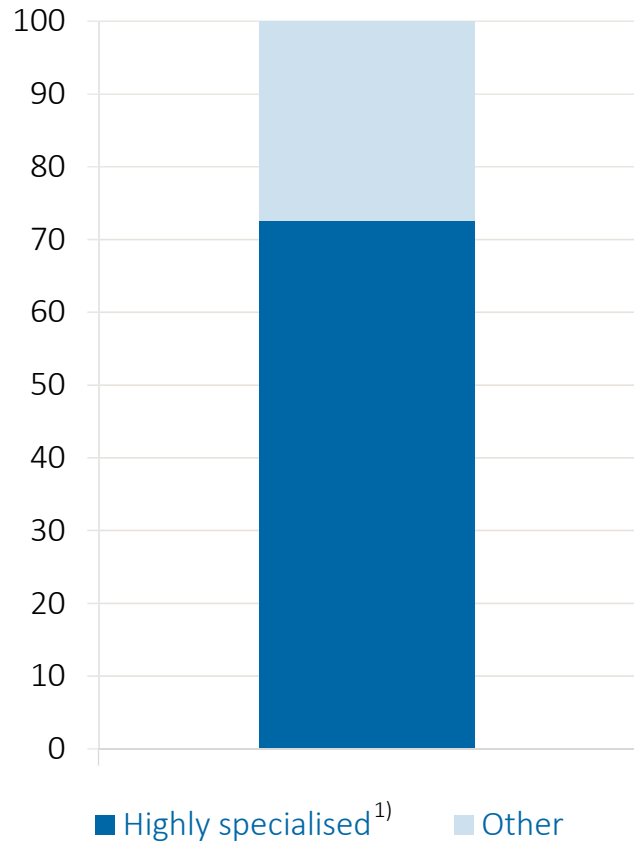




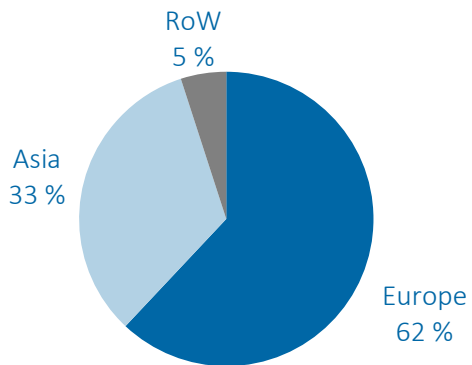
# Cellulose sales distribution 2019

Borregaard is positioned in high-end segments in Europe and Asia, with strong and long lasting customer relationships

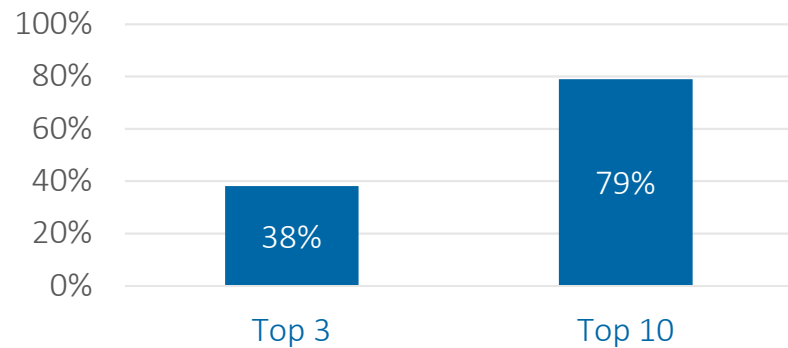
Volume split %



Geographical split (sales revenues)



Customer base and concentration (sales revenues)



Source: Borregaard  
 1) Acetate, ether and tire cord grades

# 2<sup>nd</sup> generation bioethanol



- Bioethanol contributes to the overall value creation in the biorefinery
- 20 million litres capacity, delivered as 96% or 100% bioethanol (full flexibility between grades)
- Life cycle analysis shows favourable environmental footprint compared with petrochemical substitutes
- Political incentives drive specialisation and value
- Major part goes to biofuel, where growth has been significant



# Other Businesses

## Ingredients

### Market position

- Leading supplier of vanillin products
- The only supplier of wood based vanillin

### Production

- Sarpsborg, Norway

### Sales revenues 2019

- NOK 584 million

### Products

- Vanillin
- Ethyl vanillin
- Vanillin blends

### Applications

- Chocolate
- Bakery products
- Confectionary
- Dairy products
- Perfume

### Market growth<sup>1)</sup>

- ≈10% for plant based



## Fine Chemicals

### Market position

- Leading producer of intermediates for contrast agents

### Production

- Sarpsborg, Norway

### Sales revenues 2019

- NOK 260 million

### Products

- C3 aminodiols
- Intermediates for pharmaceutical products




### Applications

- Contrast agents for medical imaging
- Medicines

### Market growth<sup>1)</sup>

- 5-7%

# Positive trend for Borregaard's wood based vanillin

	Vanilla beans	Plant based vanillin				Oil based vanillin & ethyl vanillin	
							
Raw material	Beans	Ferulic acid from bran/straw	Eugenol from clove	Lignin from wood	Guaiacol from creosote/tar	Guaiacol	Guethol
Key selling points	Natural/flavor profile	Plant based/natural raw material/sustainability /flavor profile				Price	
Sales volume (MT) <sup>1)</sup>	≈2400 <sup>2)</sup>	≈2000				≈15 000	≈5 000
Indicative price level USD/kg <sup>1)</sup>	≈350	≈400	25 - 100		10 - 15		
# of manufacturers <sup>1)</sup>	1000+	5	4	1	3	3 - 5	5
Growth <sup>1)</sup>		≈10%				≈1%	

1) Company estimates

2) Cured vanilla pods contain around 1-2% vanillin, corresponding to around 25 – 50 MT on pure vanillin basis

# Capacity increase for plant based vanillin

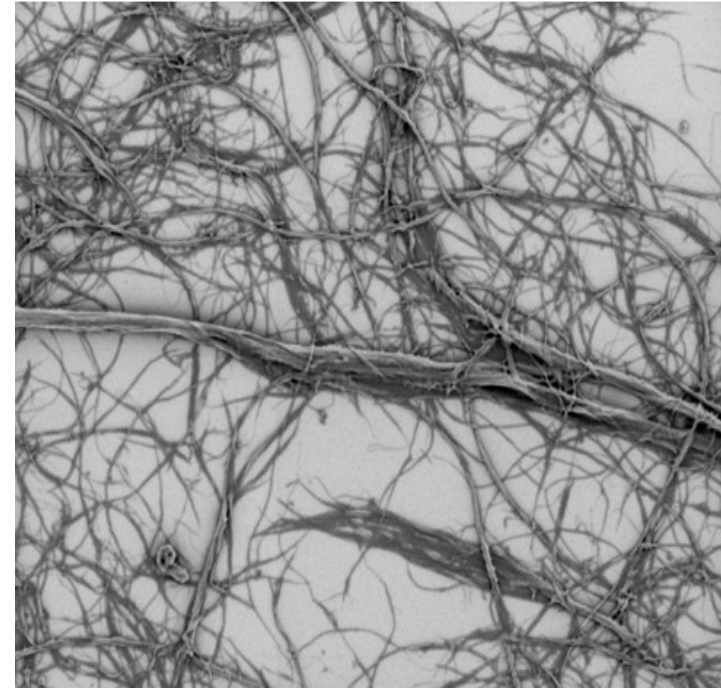


- Capacity increase at least 250 tonnes
  - Part of the increase will be gradually realised during construction phase
- Construction started 2H 2019, completion 1H 2021
- Debottlenecking of existing facility
- Capex NOK 130 million



# Cellulose Fibrils - Exilva

- Microfibrillar cellulose (MFC) is cellulose fibers defibrillated into millions of tiny fibrils (100,000 times thinner than hair)
- Exilva is Borregaard's brand name for microfibrillar cellulose used in industrial applications
- Exilva is a sustainable biobased material with multifunctional properties
  - Improves flow, stability, flexibility and strength in industrial formulations and materials
  - Enables customers to develop new and improved products





# Nanocellulose landscape

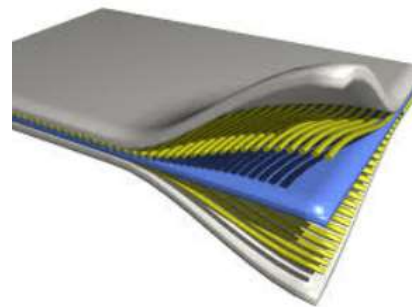
- Three main product categories
  - NCC/CNC - nano cellulose crystals
  - NFC/MFC - nano/microfibrillated cellulose
  - CNF - ionic cellulose nano fibrils
  - Significant variations within each product group
  - Few standards exist
- Typically more complementary than competing in use, some overlaps
- Crystals and ionic fibrils classified as nano by EU and USA (EPA), while NFC/MFC are not as they form micro clusters
- One commercial size plant exists in each category
  - NCC/CNC - Celluforce, Canada
  - NFC/MFC - Exilva, Norway
    - Several full-scale captive plants in pulp and paper
  - CNF - Nippon Paper, Japan
  - Many pilot plants with 5-30 mt capacity



NCC/CNC – strength focus



NFC/MFC – rheology focus



CNF – composites focus

# Nanocellulose market still embryonic

- Market analysts estimate that the nanocellulose market could grow to 700-1,000 mUSD by 2024<sup>1)</sup>
  - NFC/MFC estimated to be 50%
  - Awareness a possible limitation
- NFC/MFC market today
  - Largest volumes in paper and packaging (captive)
- The rheology modifiers market is large (5 bnUSD), but complex and fragmented
  - Highest interest from Exilva prospects



# Horizon 2020 support for commercialisation of Exilva<sup>1)</sup>

- Covers 60% of total costs, including depreciation
- Support period is four years (1 May 2016 - 30 April 2020)
- Granted amount is 25 mEUR
- Not covering costs outside EEA



1) Exilva has received funding from the Bio-Based Industries Joint Undertaking (BBI) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 709746.

# Cellulose Fibrils – Exilva status



- Additive for industrial applications
  - Improves flow, stability, flexibility and strength in industrial formulations and materials
- Market introduction ongoing
  - ≈ 50 regular customers
  - Volumes still relatively small
- Strong pipeline growth
  - >1800 prospective customers received samples and/or in lab/trial phase
  - More than 500 new prospects last six months
  - Long lead times
- Horizon 2020 grant ends in April 2020

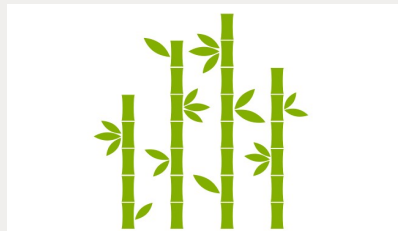
# Research & development

- Innovation Management Teams
- ~100 employees in R&D – of which 72 at the research centre in Sarpsborg – 33 has a PhD
- R&D and innovation spending ~4.3% of revenues<sup>3)</sup>
- IP strategies for each BU and major innovation projects

*~13%<sup>1)</sup> of Borregaard's revenues come from new products<sup>2)</sup>*



Cellulose Fibrils: Exilva microfibrillar cellulose



«BALI»: Utilisation of various biomasses for lignin products



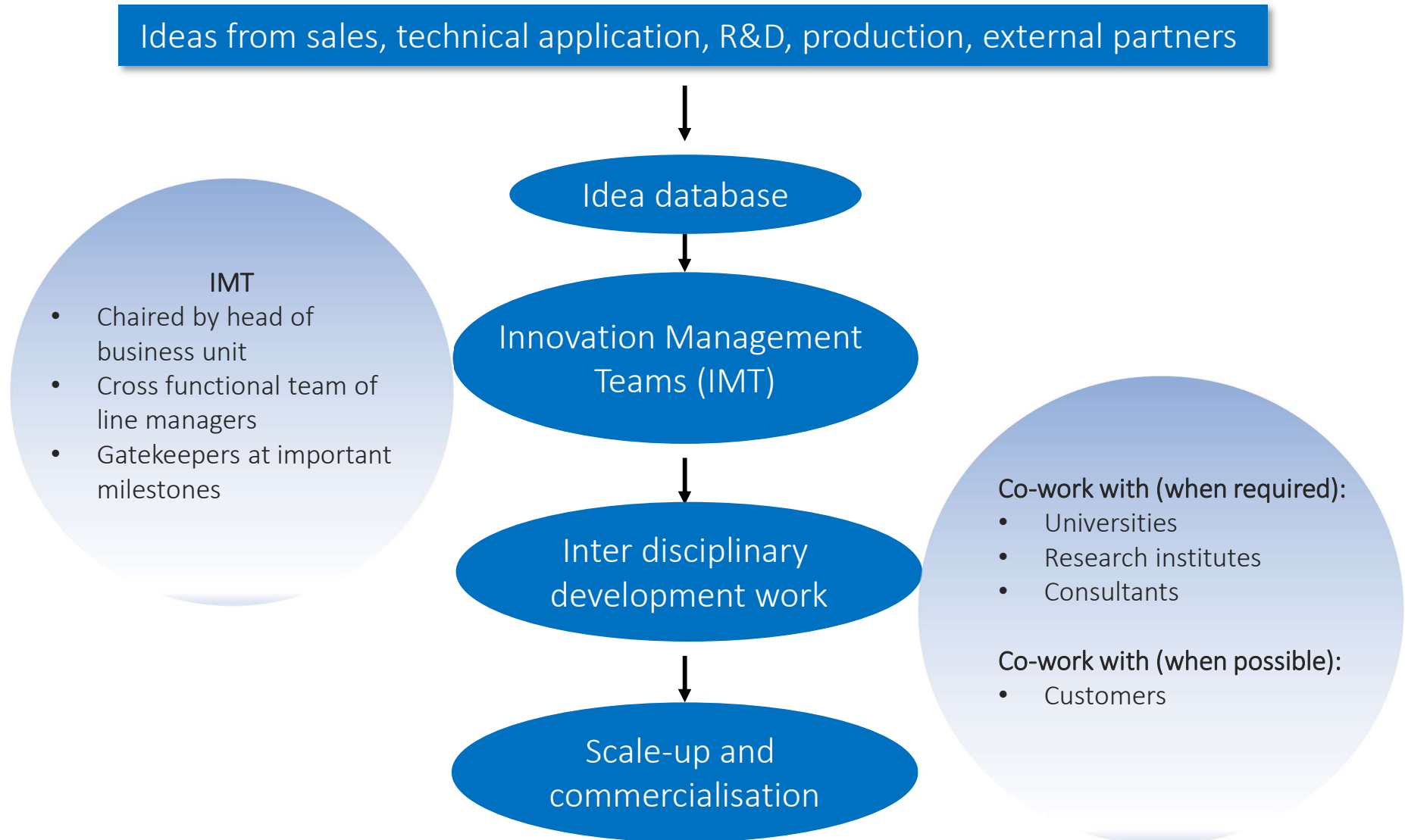
Continuous specialisation and improved products

1) Average last 5 years. 15% in 2018

2) Launched the last 5 years

3) Includes R&D centres, operation of BALI/Exilva pilots and market/application innovations

# Business driven innovation model





# Sustainability

## Key element of business mission

Borregaard shall provide sustainable solutions based on renewable raw materials and unique competence

# One of three core values



- Sustainability
  - Green chemicals that substitute petrochemicals
  - Sustainability demonstrated through life-cycle analysis
  - Focus on EHS across the organisation
  - Profitability is key to sustainability
- Long-term perspective
  - Consistent strategy over time
  - Long-term perspective on innovation, market development and investments
  - Competence development through training programmes, organisational development and use of technology
- Integrity
  - High credibility through transparency, honesty and predictability
  - Act responsibly in relation to stakeholders and exercise corporate responsibility
  - Demonstrate respect for individuals and different cultures while maintaining integrity and adhering to the company's code of conduct

# Integral part of market offering

## RAW MATERIALS



Natural, renewable,  
sustainable raw materials

### Sustainable and certified wood

- Documentation
- PEFC<sup>1)</sup> and FSC<sup>1)</sup> standards
- Lignin raw materials from certified forests

## PROCESSES



Efficient and sustainable  
production and value chain

### Reduced emissions improve LCA<sup>2)</sup>

- Target based CO<sub>2</sub>-reductions
  - Energy conservations
  - New/Green energy sources
- Reduced emissions to water and air
- “Greener” logistical solutions

## PRODUCTS



Sustainable  
biochemicals

### Products add sustainable value to customers

- **Climate:** LCA<sup>2)</sup> shows favourable GHG footprint
- **Biobased:** Natural raw materials preferred
- **EHS<sup>3)</sup>:** Non-toxic, harmless products

1) PEFC: Programme for the Endorsement of Forest Certification, FSC: Forest Stewardship Council

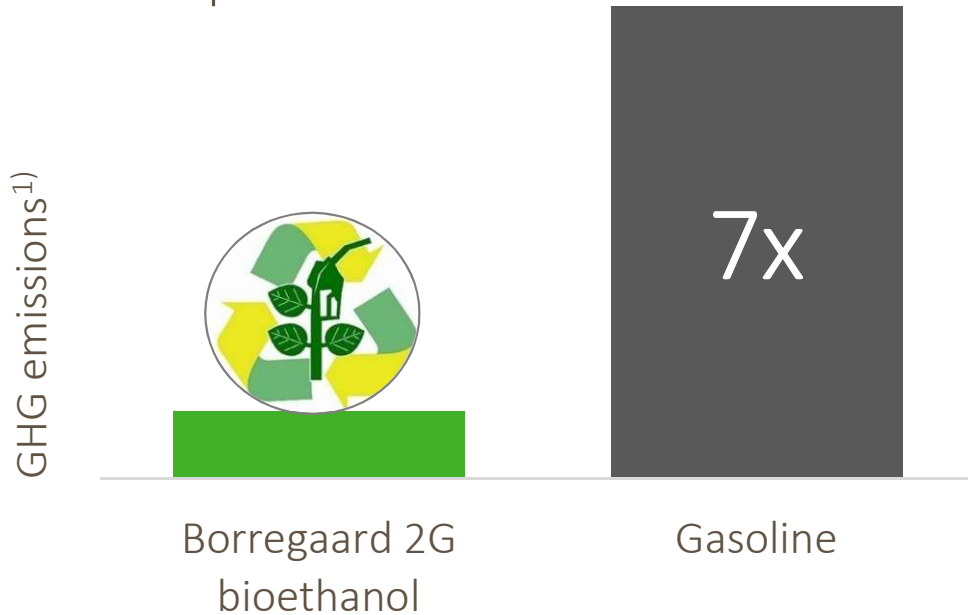
2) Life Cycle Analysis

3) Environment, Health and Safety

# Sustainability

## Favourable climate footprint

Fuel – production and use



- 2<sup>nd</sup> generation bioethanol vs petroleum-based fuel
  - Increased demand in different countries due to incentives
- Most of Borregaard's products have favourable GHG footprint compared with alternatives

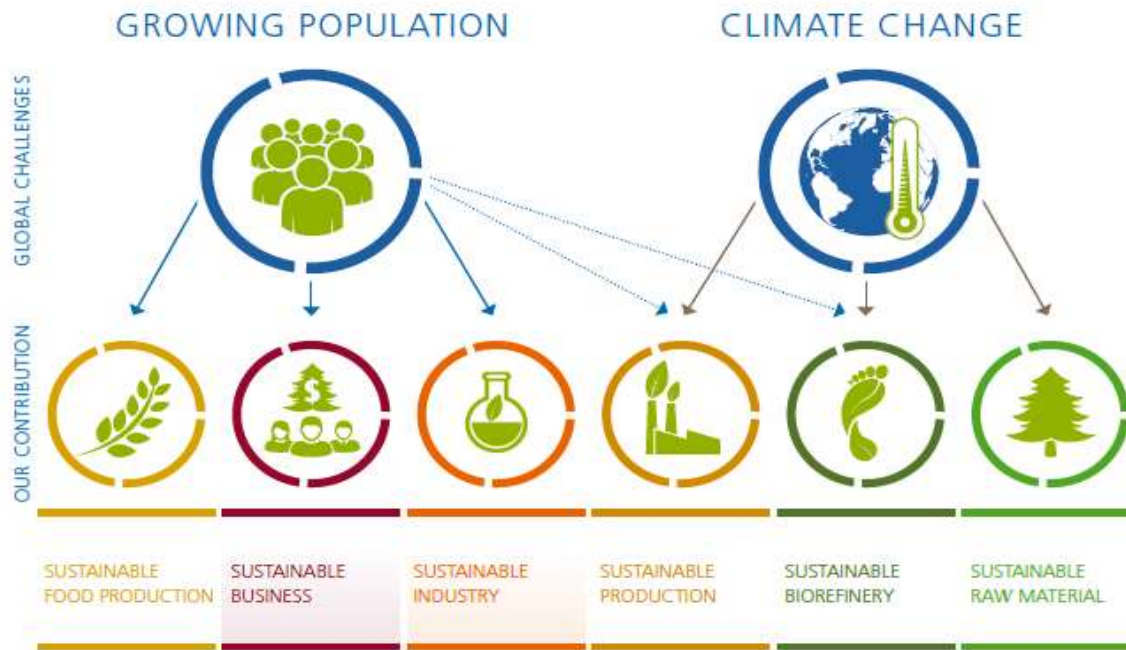
## Positive EHS impact in crop protection



- Lignin products in crop protection have a favourable environmental impact
  - Water-based solutions as an alternative to solvent-based formulations
  - Good safety and health performance as binders (less dust) in crop protection granules



# Alignment with UN's Sustainable Development Goals



Contribution to market growth



Variety of green solutions

## THE SIX PRIORITISED SUSTAINABLE DEVELOPMENT GOALS FOR BORREGAARD



Alignment with long-term global goals

# Financial objectives and dividend policy



## Financial objectives

- ROCE >15% pre-tax over a business cycle
- IRR >15% pre-tax for expansion capex
- Average net working capital at 20% of operating revenues
- Replacement capex at depreciation level
- Maintain key financial ratios corresponding to an investment grade rated company
  - Leverage ratio<sup>1)</sup> targeted between 1.0 and 2.0 over time

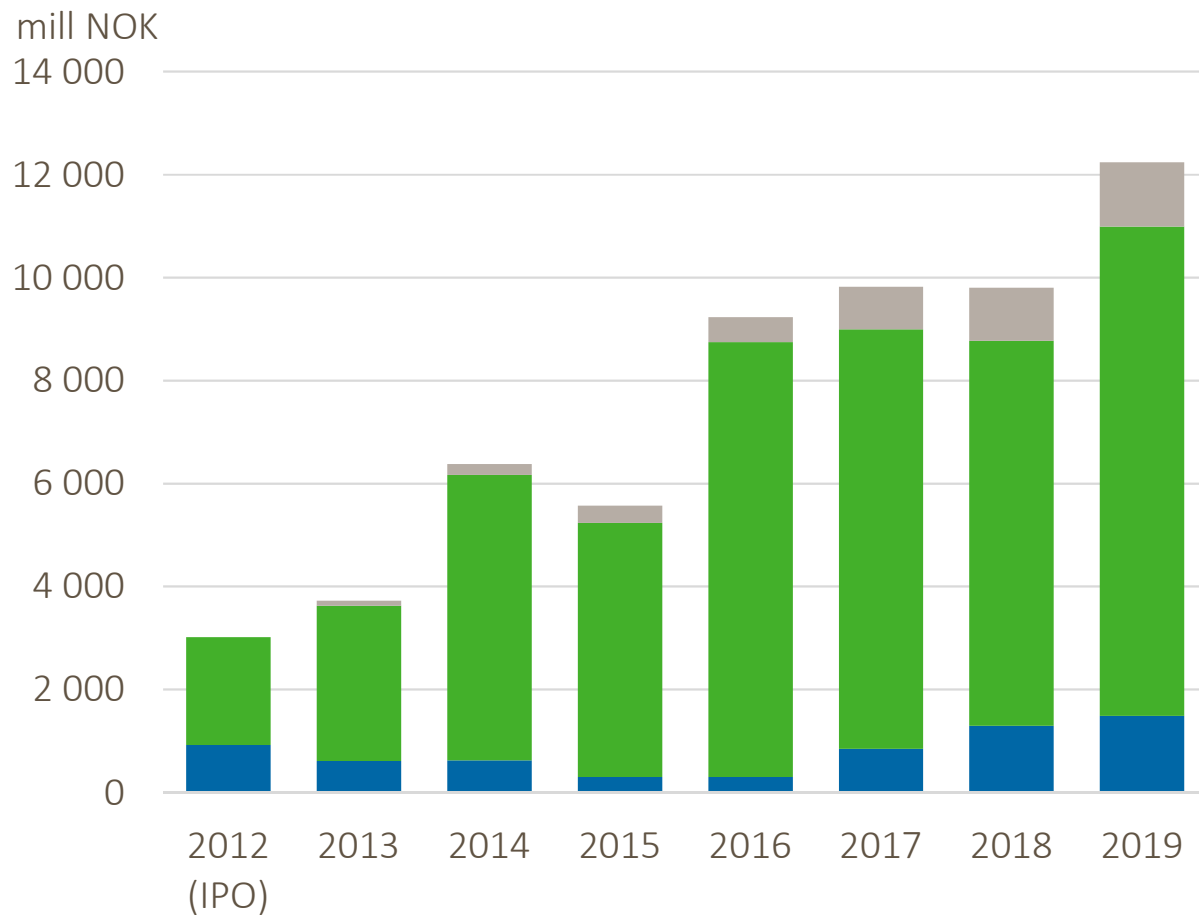


## Borregaard's dividend policy

- To pay regular and progressive dividends reflecting Borregaard's expected long term earnings, free cash flows and expansion capex
- Annual dividend is targeted between 30% and 50% of net profit for the preceding fiscal year



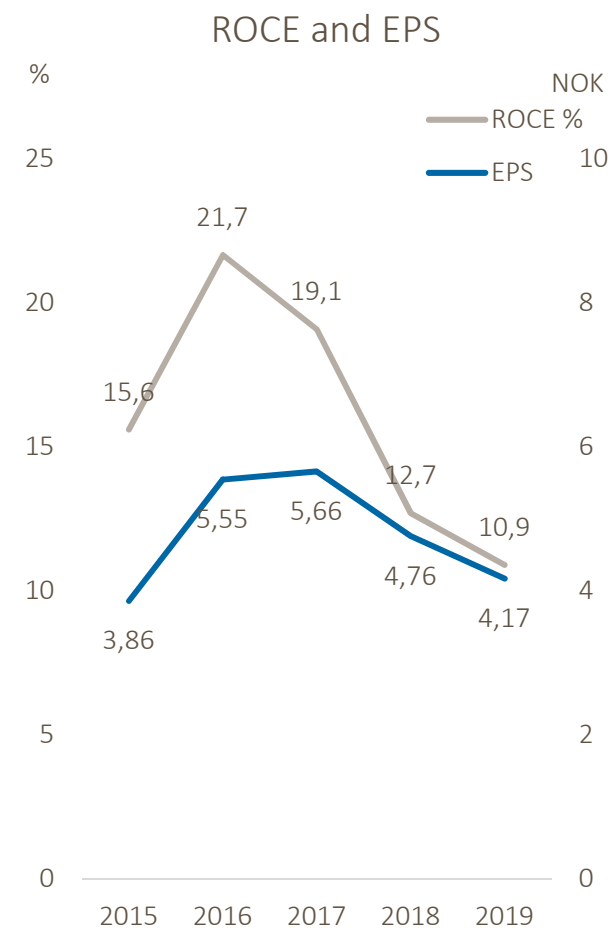
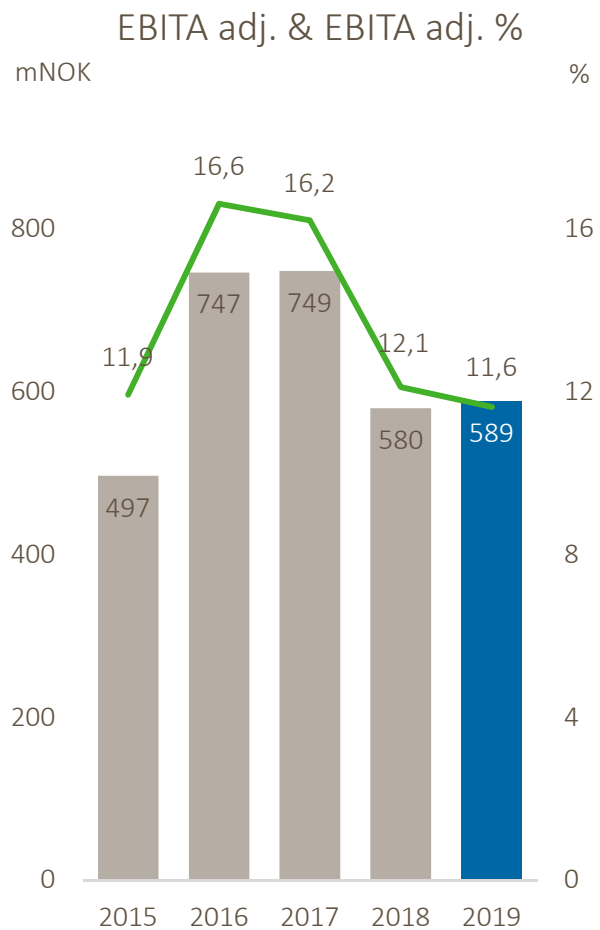
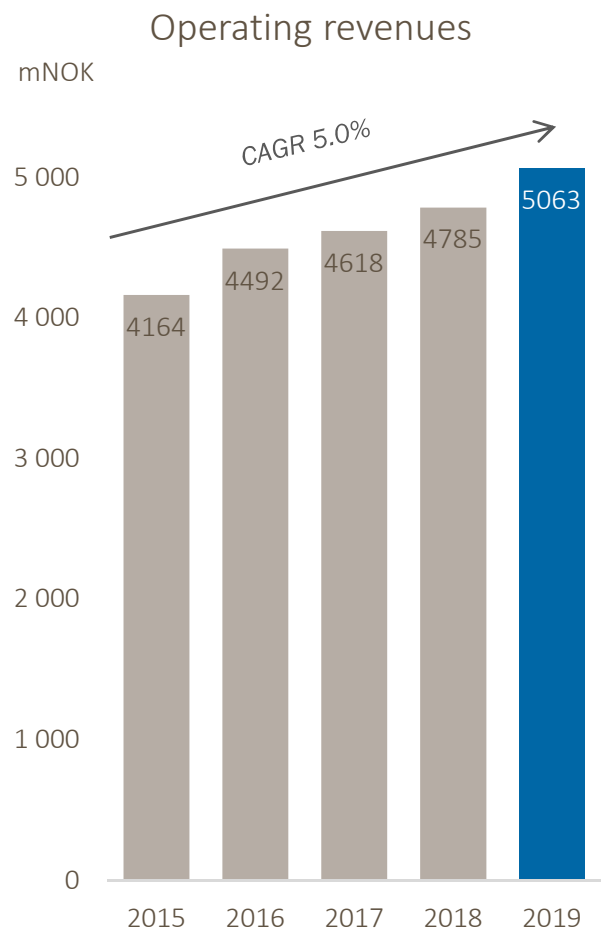
# Value creation since IPO



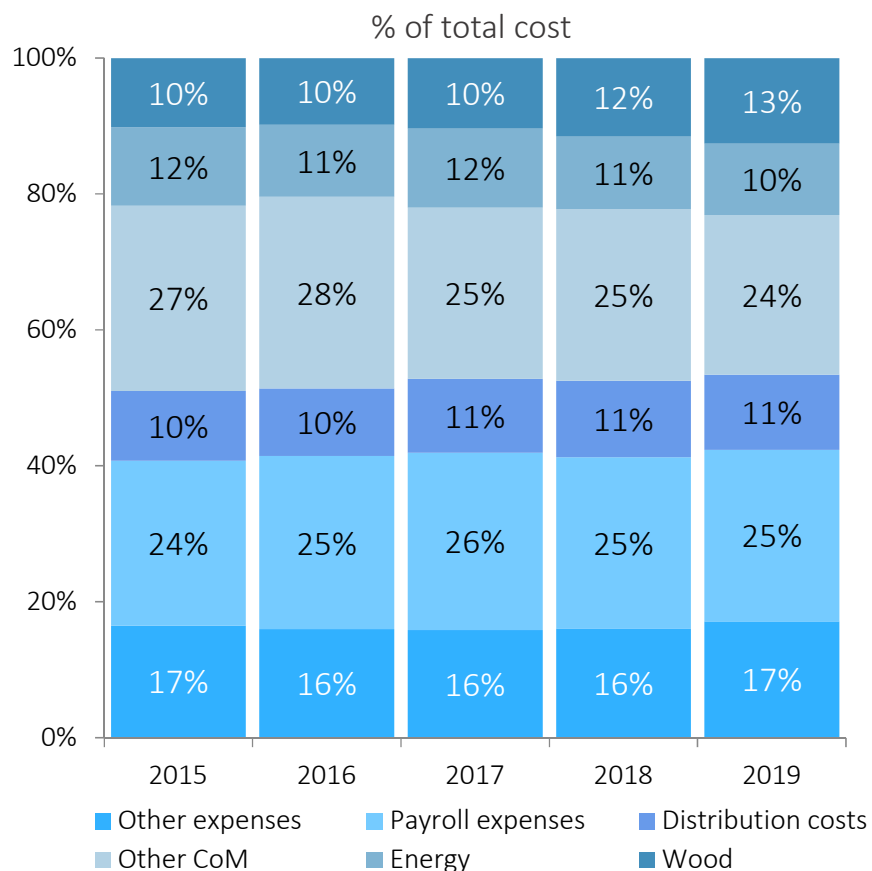
■ Net debt ex IFRS16 ■ Market capitalisation ■ Accumulated dividend

	CAGR
Share price, including reinvestment of dividend	27,2%
Enterprise value = market cap + net debt	19,6%

# Key figures 2015 – 2019



# Key cost items 2015-2019

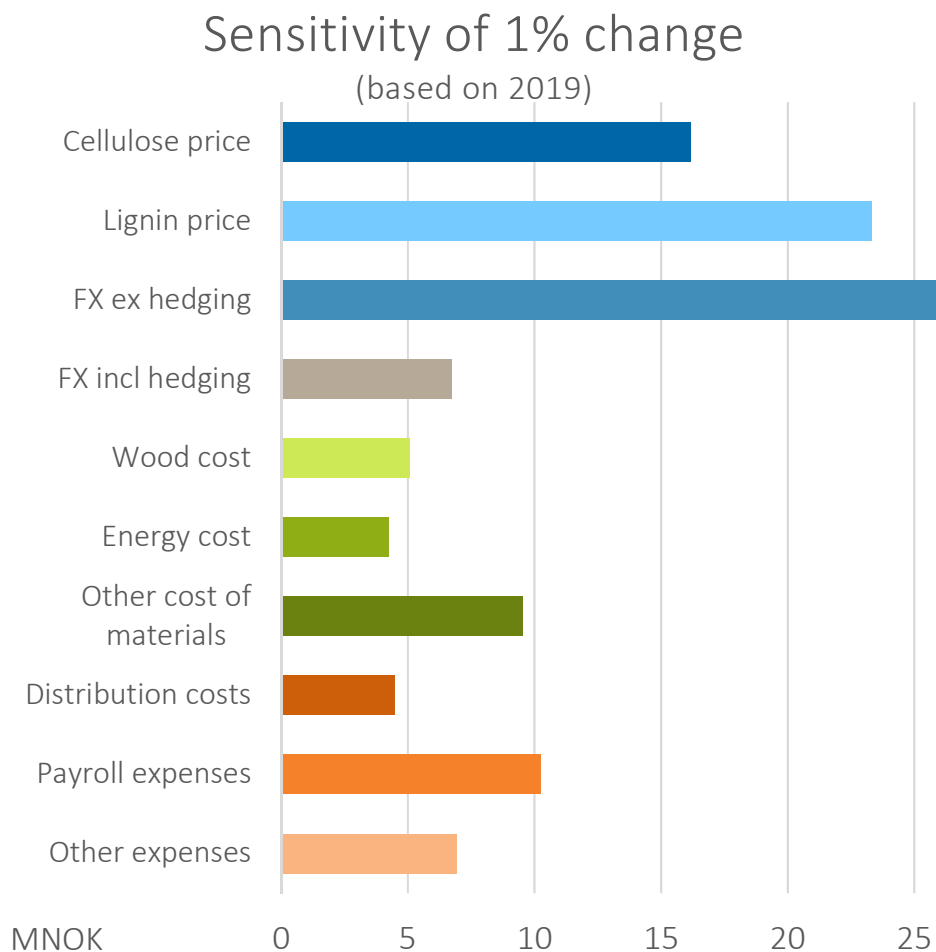


Wood	<ul style="list-style-type: none"> <li>75%-85% sourced from Norway, the rest mainly from Sweden</li> <li>Annual price and volume contracts, mid-year adjustments occur</li> <li>Includes inbound logistics, ~30% of wood cost</li> </ul>
Energy	<ul style="list-style-type: none"> <li>Energy consumption: Heat energy 2/3, electricity 1/3</li> <li>Heat energy: Base load mainly covered by renewable energy sources, peak-load mainly covered by LNG and spot electricity</li> <li>Electricity: Long term contract to 2029 for substantial part of needed volume</li> </ul>
Other CoM	<ul style="list-style-type: none"> <li>Chemicals<sup>1)</sup> and other raw materials like lignin raw material</li> <li>Internal production of caustic soda</li> <li>Contract manufacturing of petrochemical-based vanillin</li> <li>Change in inventories</li> </ul>
Distribution costs	<ul style="list-style-type: none"> <li>Most products sold delivered customer</li> <li>Logistical optimisation important, especially for Performance Chemicals</li> </ul>
Payroll expenses	<ul style="list-style-type: none"> <li>Continuous productivity improvement, including de-manning and cost reduction activities</li> </ul>
Other expenses	<ul style="list-style-type: none"> <li>Repair and maintenance, external services, rental/leasing and other operating expenses</li> </ul>

- Total costs in 2019 close to 4.1 billion NOK
- 5.0% CAGR from 2015 to 2019
- Main cost components' share of total costs relatively stable over time

1) Main chemicals are caustic soda, salt, sulphur, epichlorohydrine and guethol

# Sensitivity on EBITA adj.<sup>1)</sup>



- Global presence, diversified product portfolio and GDP-driven demand reduce market risk
- Oil price affects demand and competition in certain markets, but main effect historically has been on NOK FX rate
- Significant FX exposure, softened by FX hedging<sup>2)</sup> in the medium term
- No major single component in other cost of materials
- Distribution costs: Most products sold “delivered customer”
- Other expenses are repair and maintenance, external services, rental/leasing etc.

1) Non-GAAP measure – see appendix

2) Hedging based on expected net cash flow (EBITDA)

- **Base hedge** - 75%/50% on a rolling basis for 6/9 months for major currencies

- **Extended hedge** - 75%/50% of the next 24/36 months if USD and EUR are above predefined levels

# FX impact and policy

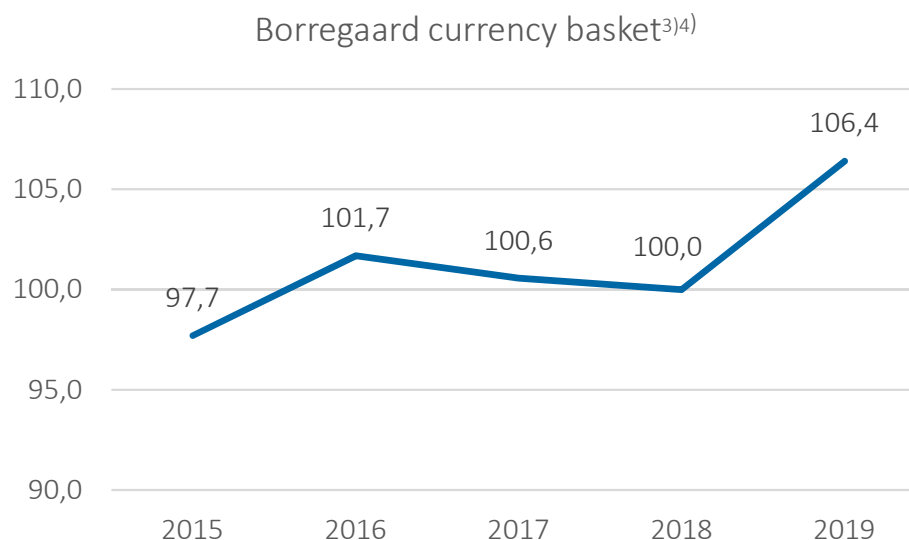
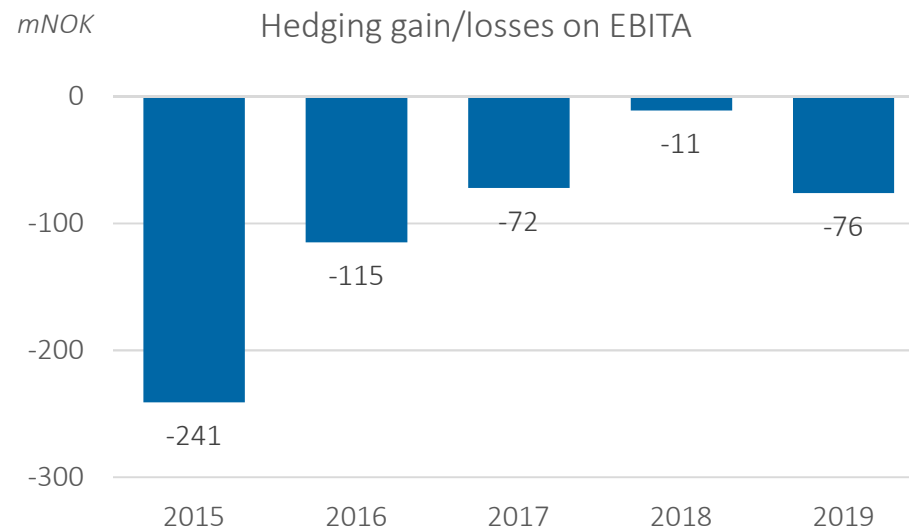
## Currency hedging strategy

Purpose is to delay effects of currency fluctuations and secure competitiveness

- Hedging based on expected net cash flow (EBITDA) <sup>1)</sup>
  - **Base hedge** - 75%/50% on a rolling basis for 6/9 months for major currencies
  - **Extended hedge** - 75%/50% of the next 24/36 months if USD and EUR are above defined levels
    - \* EUR; effective rate above 8.50
    - \* USD; gradually at effective rates between 7.50 and 8.50
  - **Contracts** <sup>2)</sup> - 100% hedged
- Balance sheet exposure hedged 100%
- Net investments in subsidiaries hedged up to 90% of book value in major currencies

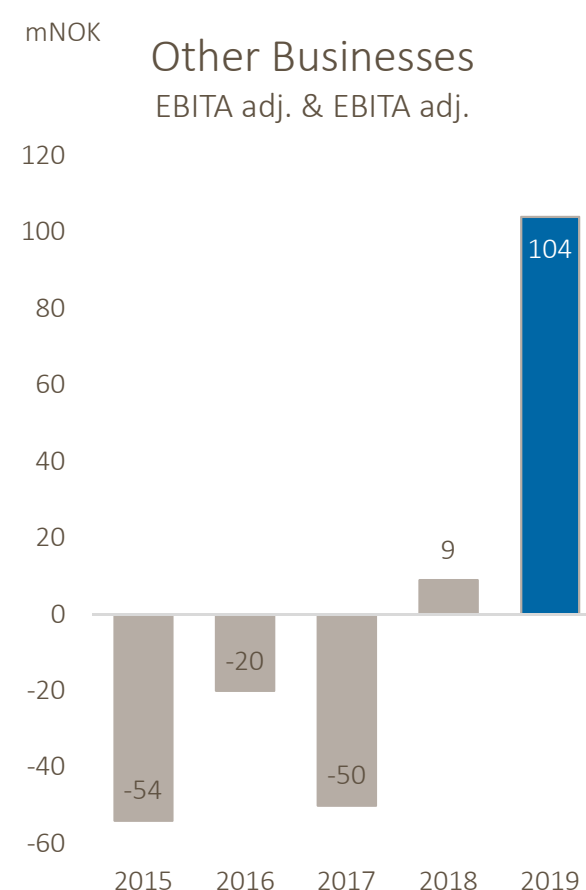
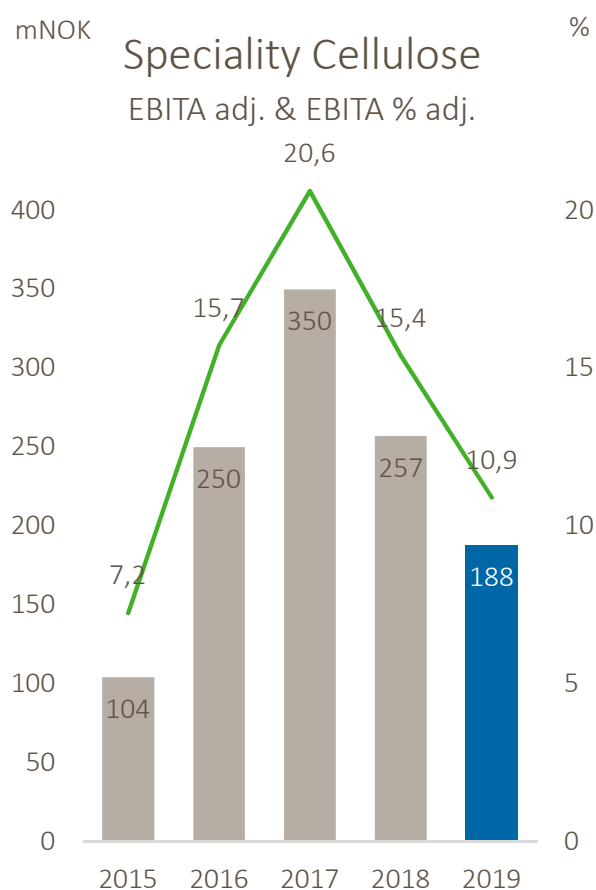
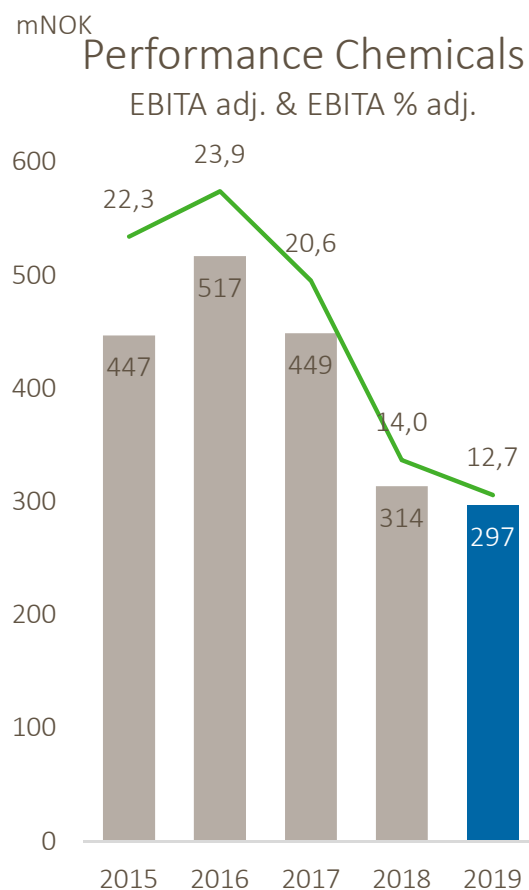
## FX exposure

- Borregaard's revenues are primarily in USD or EUR, while costs are primarily in NOK
- Net FX exposure in 2018
  - **USD**: 65% (approximately 190 mUSD)
  - **EUR**: 34% (approximately 84 mEUR)
  - **Other**: 1% (GBP, BRL, JPY, SEK, ZAR)



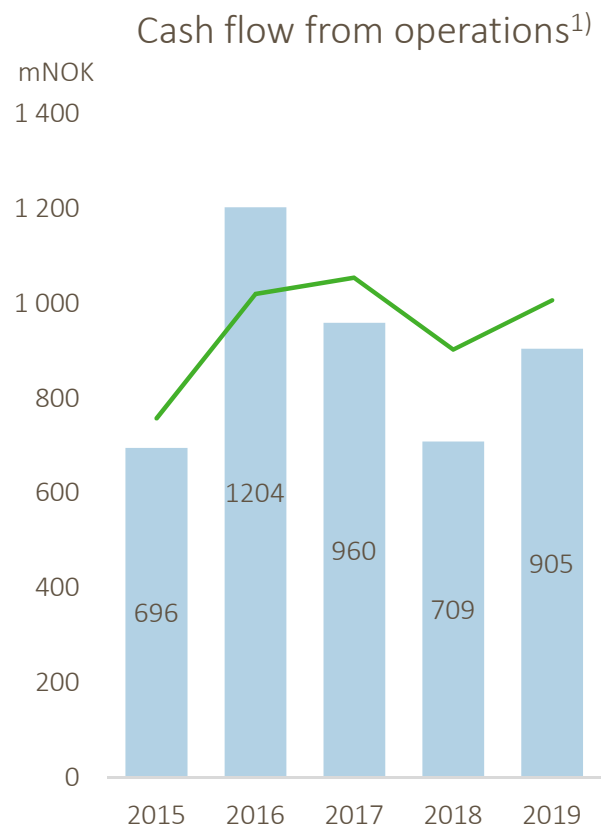
1) Net cash flow hedging mainly in the Norwegian company  
 2) Strict definitions for contracts applied for 100% hedging (mutually binding agreement in which price, currency, volume and time are defined)  
 3) Currency basket based on Borregaard's net exposure in 2018 (=100)

# Key figures 2015 – 2019

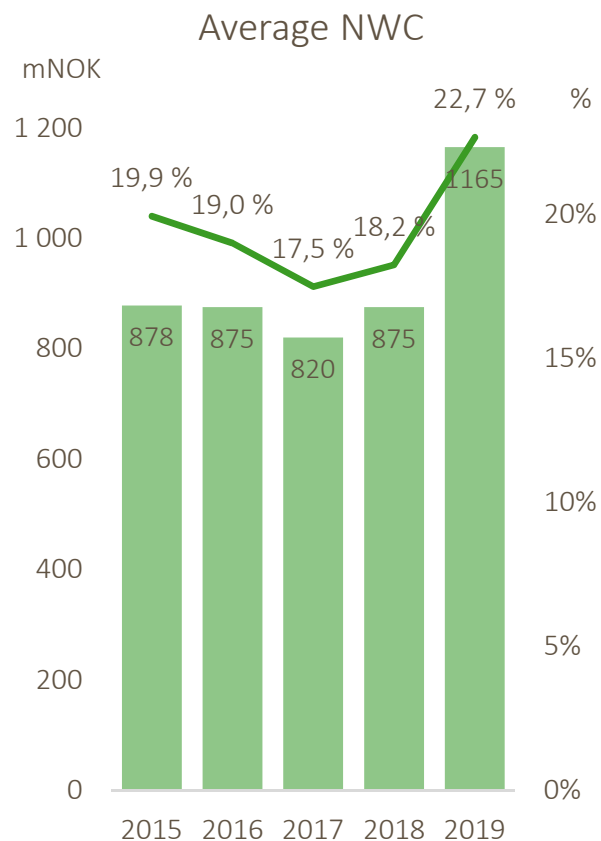




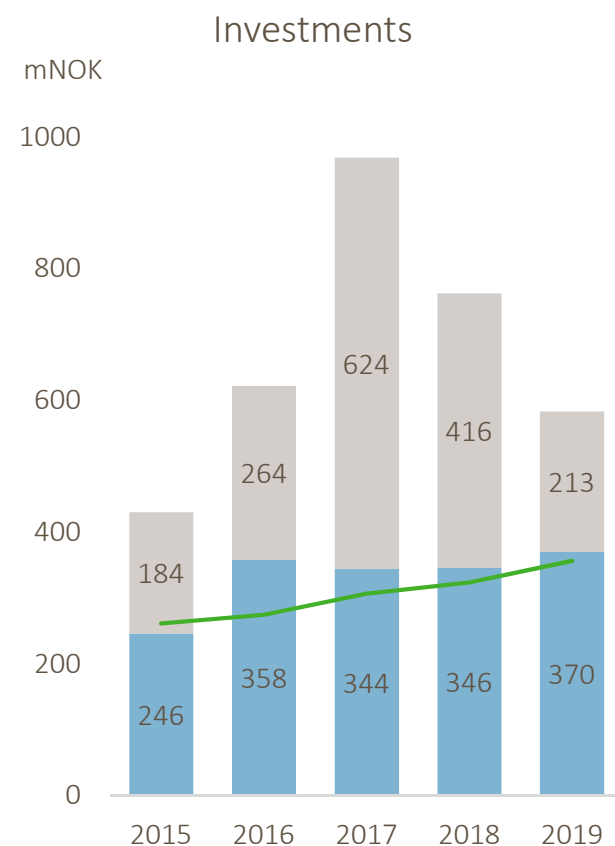
# Cash flow, NWC and investments 2015 – 2019



■ Cash flow from operations  
— EBITDA adj.



■ Average NWC  
— % of OpRev ex hedging

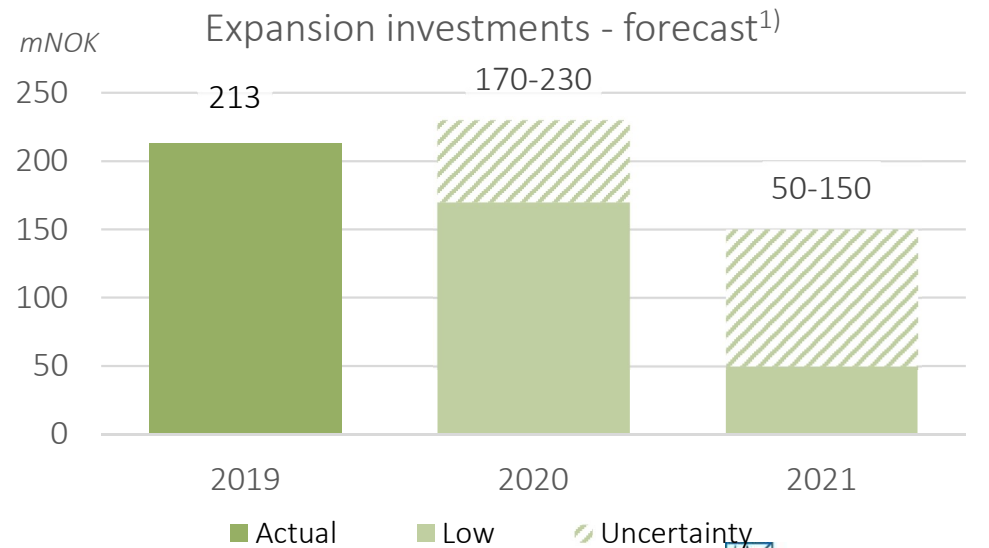
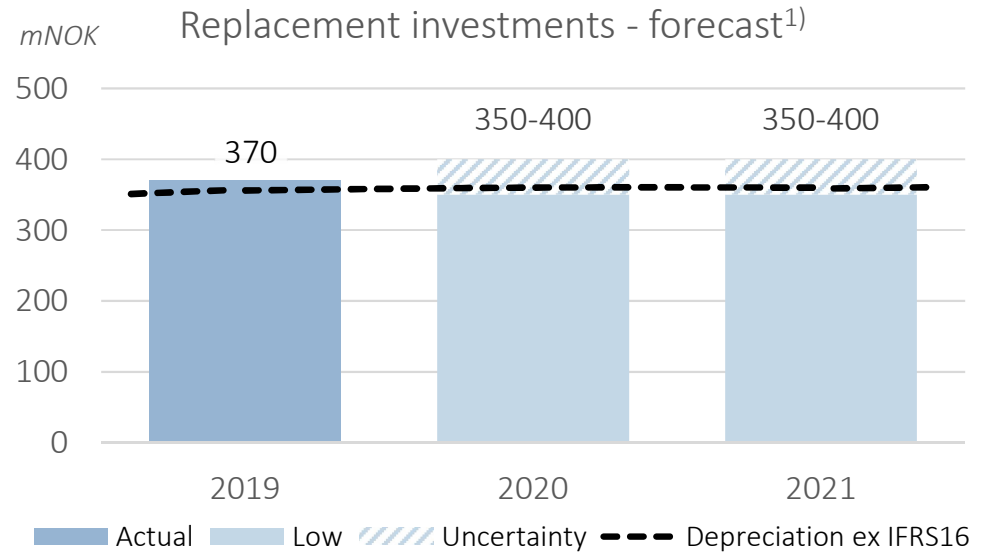


■ Replacement ■ Expansion  
— Depr. ex IFRS16

1) Cash flow from operating activities (IFRS) + tax paid +/- net financial items +/- dividend (share of profit) from JV

# Updated investment forecast 2020-2021

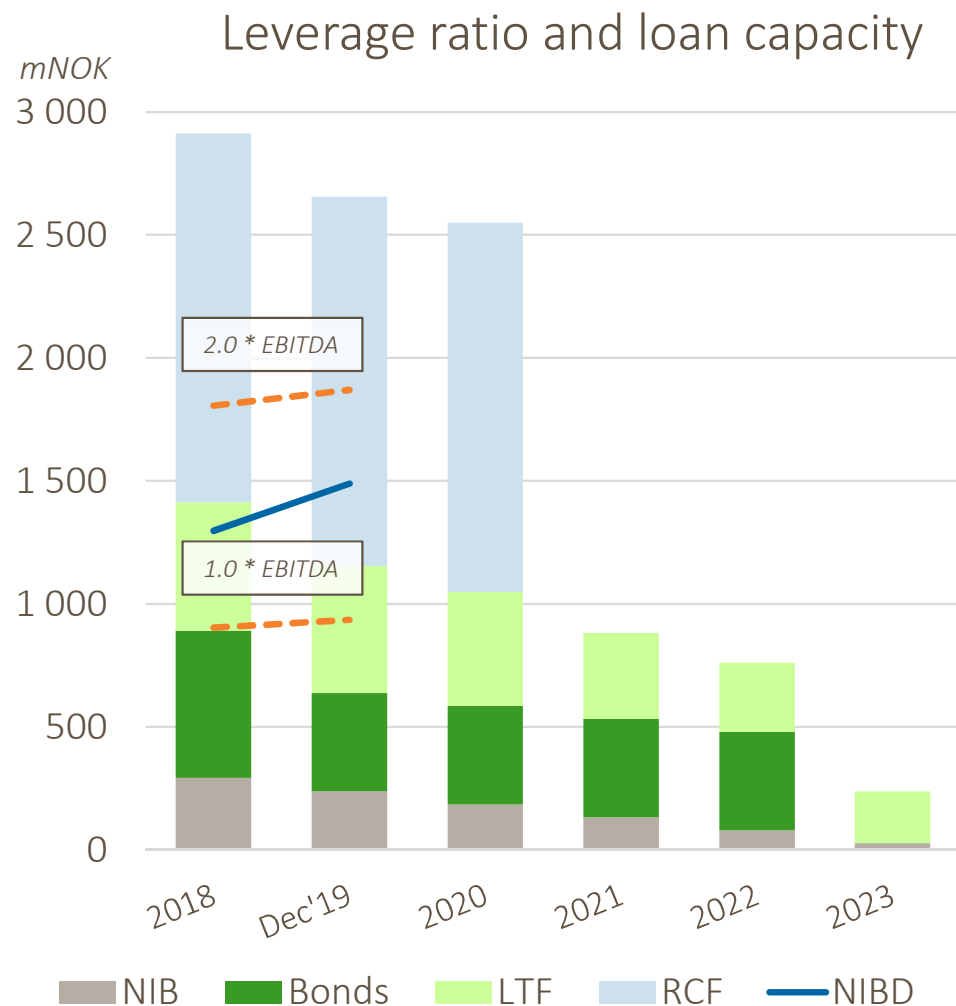
- Replacement investments
  - Targeted at depreciation level
  - Upgrade of caustic soda production facility cannot be handled within target
- Expansion investments
  - Capacity expansion for wood based vanillin the main project (130 mNOK, H2-19 to mid 2021)
  - A few smaller expansion projects are ongoing or planned
- New projects may lead to additional investments



<sup>1</sup> Uncertainty is related to final investment decisions, timing of investment payments, execution time and risk and unexpected events e.g.

# Capital structure

- Target for capital structure
  - Maintain key financial ratios corresponding to an investment grade rated company
  - Leverage ratio<sup>1)</sup> targeted between 1.0 and 2.0 over time
- Solid capital structure as per 31.12.19
  - Leverage ratio 1.59
  - Equity ratio<sup>1)</sup> 51.4%
- Borregaard has financial capacity for expansion
  - Revolving credit facilities (RCF), 1,500 mNOK, maturity 2021
  - 60mUSD term loan for LignoTech Florida (LTF), tenor 8.5 years from completion of project phase 1
  - Bond issues, 400 mNOK, maturity June 2023
  - Nordic Investment Bank (NIB) loan, 40 mEUR, maturity 2024



1) Non-GAAP measures – see appendix

# Highly experienced and proven management team



CEO

Per A. Sørli

- CEO since 1999
- Member of management team since 1990
- **30 years** with Borregaard



Per Bjarne Lyngstad

- CFO
- 22 years in current position
- **32 years** with Borregaard



Tuva Barnholt

- SVP Strategic Sourcing and Logistics
- 14 years in current position
- **22 years** with Borregaard



Tom Erik Foss-Jacobsen

- EVP Performance Chemicals
- In current position from May 2019
- **21 years** with Borregaard



Kristin Misund

- SVP R&D and Business Development
- In current position from May 2019
- **27 years** with Borregaard



Gisle Løhre Johansen

- EVP Speciality Cellulose and Fine Chemicals
- In current position from May 2019
- **29 years** with Borregaard



Dag Arthur Aasbø

- SVP HR & Comm./Public Affairs
- 12 years in current position
- **27 years** with Borregaard



Ole Gunnar Jakobsen

- Plant Director - Sarpsborg Site
- 12 years in current position
- **25 years** with Borregaard



Sveinung Heggen

- General Counsel
- 7 years in current position
- **7 years** with Borregaard

# Appendix - Non-GAAP measures

In the discussion of the reported operating results, financial position and cash flows, Borregaard refers to certain measures which are not defined by generally accepted accounting principles (GAAP) such as IFRS. Borregaard management makes regular use of these non-GAAP measures and is of the opinion that this information, along with comparable GAAP measures, is useful to investors who wish to evaluate the company's operating performance, ability to repay debt and capability to pursue new business opportunities. Such non-GAAP measures should not be viewed in isolation or as an alternative to the equivalent GAAP measure.

- **Cash flow from operations:** Cash flow from operating activities (IFRS) + tax paid +/- net financial items +/- dividend (share of profit) from JV.
- **EBITA adjusted (EBITA adj.):** Operating profit before amortisation and other income and expenses.
- **EBITA adj. margin:** EBITA adj. divided by operating revenues
- **EBITDA adjusted (EBITDA adj.):** Operating profit before depreciation, amortisation and other income and expenses.
- **Equity ratio:** Equity (including non-controlling interests) divided by equity and liabilities.
- **Expansion investments:** Investments made in order to expand production capacity, produce new products or to improve the performance of existing products. Such investments include business acquisitions, pilot plants, capitalised R&D costs and new distribution set-ups.
- **Other income and expenses:** Non-recurring items or items related to other periods or to a discontinued business or activity. These items are not viewed as reliable indicators of future earnings based on the business areas' normal operations. These items will be included in the Group's operating profit.
- **Leverage ratio:** Net interest-bearing debt divided by last twelve months' (LTM) EBITDA adj., excluding the impact on EBITDA of IFRS 16 Leases.
- **Net interest-bearing debt (NIBD):** Interest-bearing liabilities minus interest-bearing assets
- **Return on capital employed (ROCE):** Last twelve months' (LTM) EBITA adj., excluding the impact of IFRS 16 Leases, divided by average capital employed based on the ending balance of the last five quarters. Capital employed is defined by Borregaard as the total of net working capital, intangible assets, property, plant and equipment (excluding the impact of IFRS 16 Leases) and investment in joint venture minus net pension liabilities.