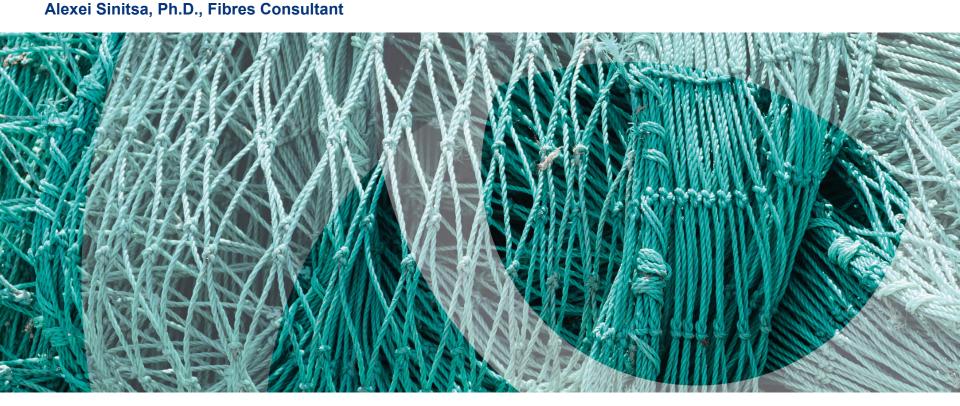
ITMF Annual Conference 2020

In the wake of COVID-19: impact on the fibre world and sustainability debate





Trusted Chemicals Intelligence woodmac.com/chemicals



Can any segment of the worldwide fibre and textile industries feel right and safe about its future?



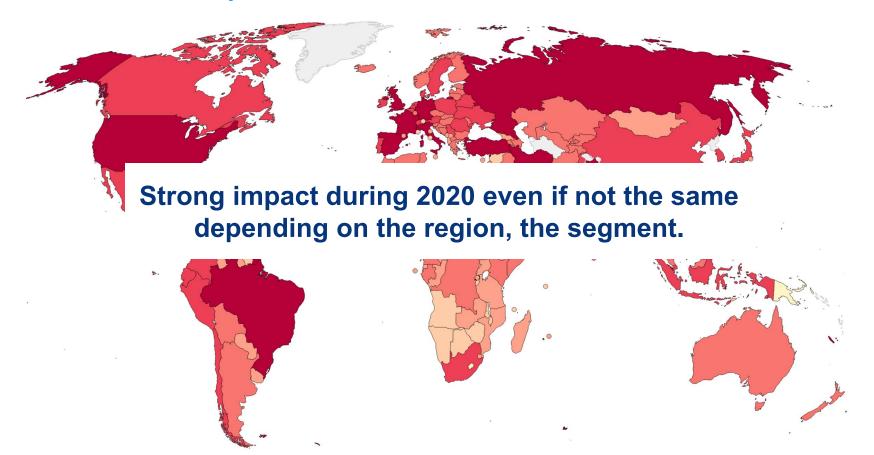
Agenda

- 1 Global Fibre market overview and COVID-19 impact
- 2 Raw materials for fibre business available and plentiful
- 3 Sustainability debate and Synthetic Fibres position
- 4 Wood Mackenzie Fibre Services
- 5 Closing remarks and Q&A

1. Global Fibre market overview and COVID-19 impact



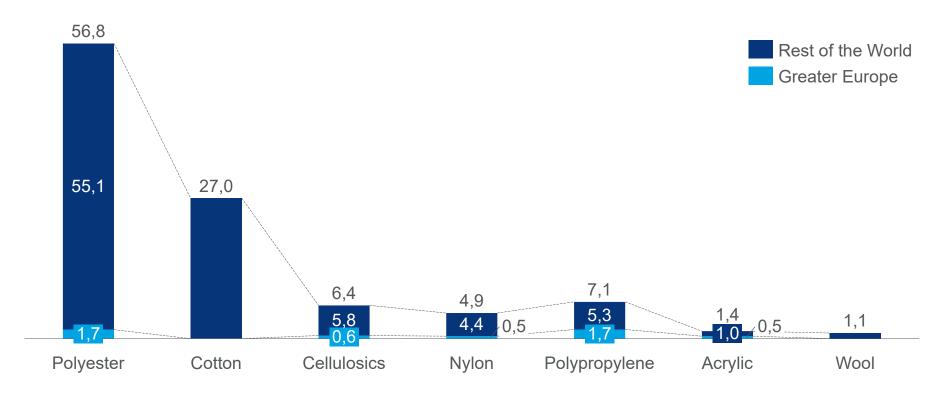
Fibres: Covid-19 impact





Estimated 2019 global fibre manufacturing (long time ago, before COVID)

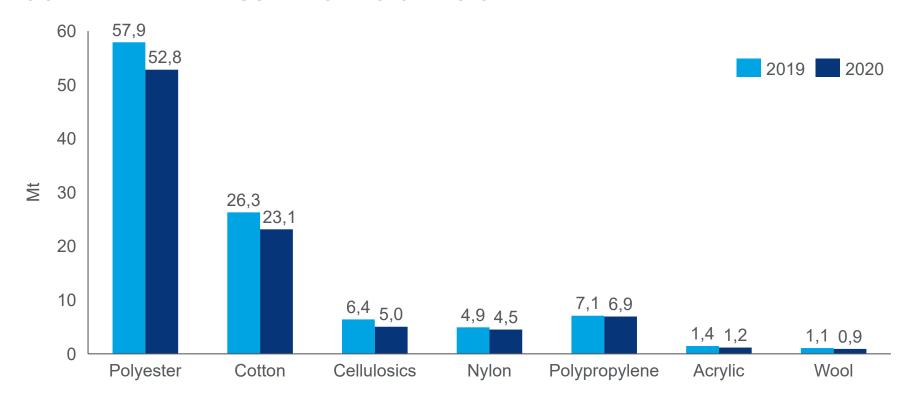
104 Million Tons





Estimated global fibre mill consumption

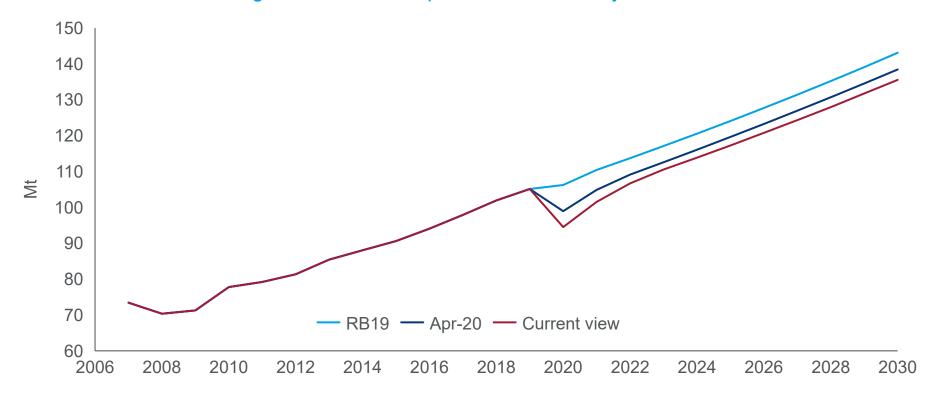
10.6 million tons lost to COVID-19 in 2020 vs 2019





Global fibre mill consumption volumes – impact of COVID-19

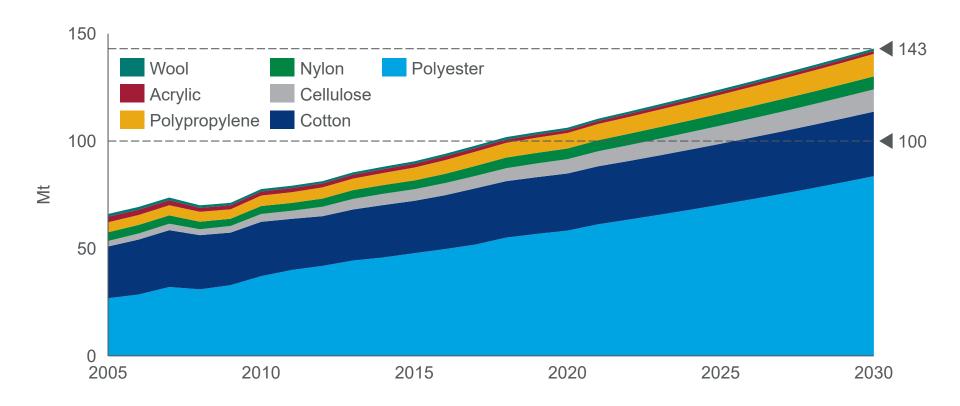
Evolution of forecasts in global mill consumption, from our analysis for "RedBook 2019", as





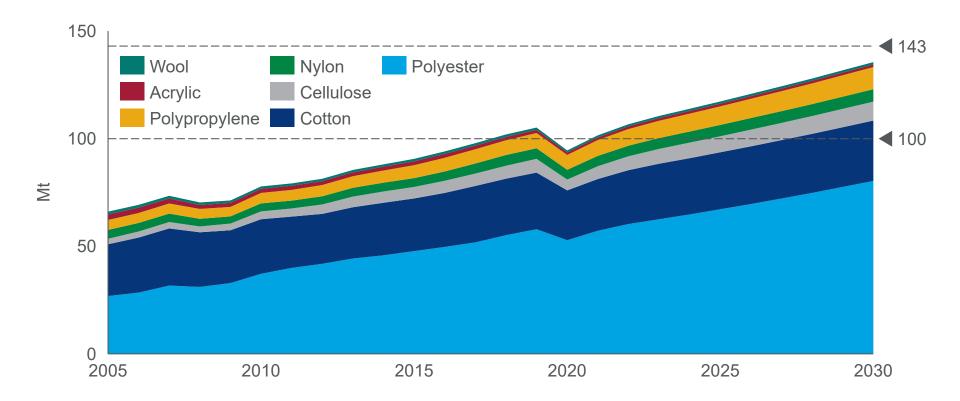


Estimated global fibre production – the way fibre markets evolved, before COVID-19 was first heard of.





Estimated global fibre production – now that we are here, and pandemic has taken its toll.



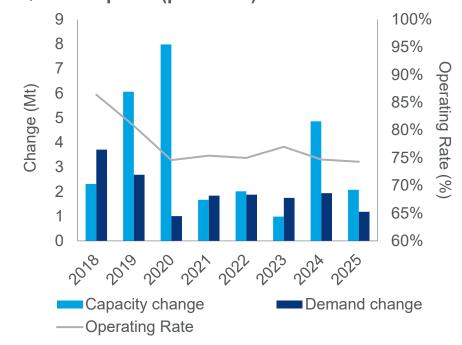
2. Raw materials for fibre business – available and plentiful

Bracing for the storm

2020 was set out to be difficult for PX industry as it grappled with oversupply



Change in global PX capacity and demand, Q1 2020 update (pre-covid)



Source: Wood Mackenzie Chemicals

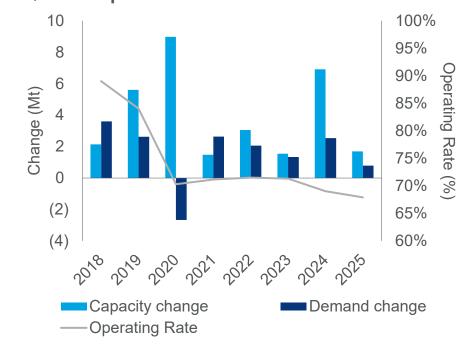


Coronavirus and demand -- the storm strengthens

Coronavirus resulted in drastic cutbacks; demand 3 Million tons lower than Q1 expectations



Change in global PX capacity and demand, Q3 2020 update



Source: Wood Mackenzie Chemicals



PA66 Intermediates – Good News or Bad News?



Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Polyamide FM Activity	Q1 Q2 Q3 Q4											
BASF PA6/pa66 Invista ADN/IHMD/PA66/AA Radici AA Invista ADN/IHMD/PA66 BASF MHD/PA66 Invista ADN/IHMD Invista PA66 Harvey Ascend HMD Solvay PA66 BASF HMD Butachimie Strike - ADN force majeure Solvay all PA66 chain Invista ADN/IHMD Radici All PA66 chain INEOS/BASF - HMD BASF - HMD Ascend PA66 Ascend - HMD Pensacola Ascend - HMD Decatur					•		^	•	•			

The answer depends on your expectation:

- End of Force majeure blackseries
- Successful Butachimie debottleneck
- ✓ End of intermediates shortage
- ✓ Price reduction
- ✓ Plummeting raw material costs

✓ Demand reduction

The Covid-19 brought forward to 2020 the (over)supply and demand situation that we were projecting to 2023

3. Fibre sustainability de	bate and sy	nthetic fibr	es position





Sustainability, Pollution, and the Circular Economy





Credit: Laura Murphy



Introduction to sustainability in fibres

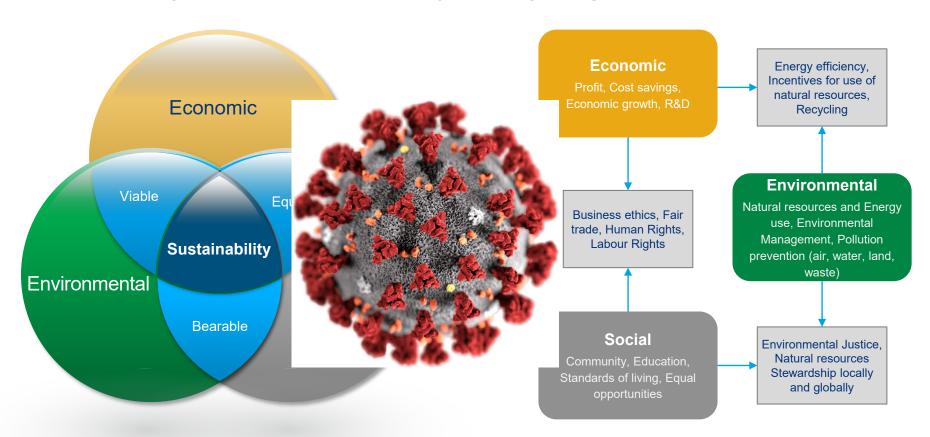
What is "sustainability" and its applicability in the fibres context

- Sustainability in fibres could be delivered via:
 - » Departure from non-renewables:
 - » as feedstocks
 - » as energy source
 - » Circularization of fibre materials
 - » Minimization of environmental footprint:
 - » as CO₂ and other atmospheric emissions
 - » as water effluents
 - » as workplace hazards
 - » as soil pollution and landfill waste

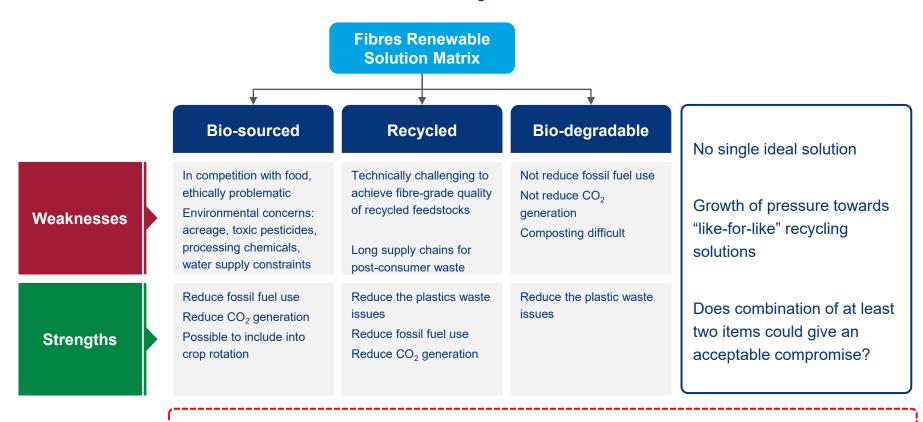
As per United Nations 1987 Bruntland Commission "Report of the World Commission on Environment and Development: Our Common Future", sustainability is defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."



Sustainability: More complex than just recycling



Fibres - renewable solution not found yet?



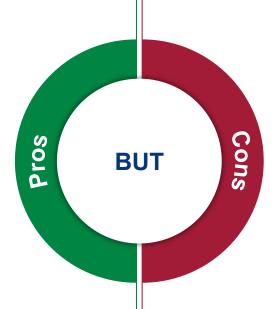
Bio-sourcing alone is not seen as an acceptable solution because it does not tackle the textile waste problem



60 million tons a year of textiles are discarded

Is existing polyester recycling model a solution for global synthetic fibre industry?

- Polyester industrial chain recycles more than 9 million tons of materials annually
- Reached 11% of all polyester volumes in the world
- Is on the ascendance, worldwide



- Polyester recycling is dominated, for now, by converting recovered plastic materials (mainly bottles) into mainly fibre products, i.e. the "loop is not closed".
- Collection and processing of postconsumer textile waste is dramatically different from bottles
- Long-term viability of existing polyester model is in question, as pressure towards "like-for-like" recycling grows
- Fibre business will not be able to depend on bottles as recyclate source



Some Recycling Targets – what does it mean?

2020 - 2030: The Bottle Wars

- rPET demand grows 3x from 2018 for bottles only
- Bottlers will begin reserving rPET supply to meet government and brand needs
- PET resin producers will need to expand rPET footprint and rationalize old vPET capacity
- rPET premium 10 c/lb over virgin now



- Fibers will not be able to depend on bottles as a recyclate source
- New, closed-loop fiber recycling systems needed

4. Wood Mackenzie Fibre Service

Fibres Services

- **Fibres Global Monthly Market**
- **Technical Fibres Global Monthly Market**
- **Synthetic Fibres Index**
- **Global supply demand report**
- **Bespoke reports and studies**
- **2020 Global Specialty Reports**
 - » Spandex
 - » Airbag Polyester and Nylon
- **2019 Global Specialty Reports**
 - » HMLS Tire Cord
 - » Nylon 66 Tire Cord



SUMMARY

Raw Materials: The price of all regional crude oil benchmarks weakened last week, having set a nine-week high the week prior at over \$68/bbl. Dated Brent then fell over \$1,50/bbl last week, which is not as severe as some of the US crudes, with WTI softening by almost \$2/bbl. Crude prices eased amid a rejuvenated risk of a trade war between the US and China. Brent rallied this week rising to US\$70/bbl on Tuesday.

Fibre Markets: Chinese PSF exporters dropped prices -1 c/kg in an attempt to stimulate business and compensate for the weaker than expected market at home. Demand for textile filament is good in both the China domestic and export markets and DTY is up +1 c/kg. In China many spinners and weavers purchased more than their needs in anticipation of higher raw material costs.

rPET: Recycled flake prices, staple grade, hot water washed, are down -RMB100/t on last week to RMB6.400-6.500/t. In China domestic markets rPSF solid and hollow are down on weaker virgin PSF and competition from imported product. In other Asia markets rPSF prices are stable but business is weaker. Buyers are concerned that rPSF is too close to virgin product and some are considering a gradual change to virgin in some of their lines.

Cotton: International cotton prices initially fell last week as commodities felt the full impact of speculators taking risk averse positions on fears of a trade war between the US and China. Cotton is among the list of US imports that week col

shipment

PTA CFR East Asia (\$) - MEG Lowest Announced ACP (\$) - MEG Spot (RMB) Nylon industrial filament (840 den) by regio

PTA & MEG RMB/t + \$/t PTA slipped to RMB5,430/t on Monday as a key producer took to the

sidelines. CFR China prices inched up to \$760-770/t but with little or no

business. MEG bullishness spread and spot and import numbers advanced to

RMB7,865/t and \$1,002/t. The buying spree drew imported material from

major ports. Estimated inventory drawdown reached 72 kt week-on-week.

Polyester industrial filament (1000 den) prices by region

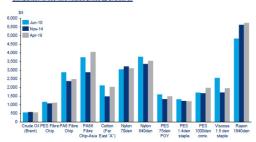


gradually falling back to the high-50s over the following 12 months. We then expect prices to increase But this Leader is not a treatise on forecasting oil prices. Rather it is about the implications for the global fibres industry if oil prices do now move higher again. To put this in context, the chart below compares a number of key fibre-related prices for Asia for June 2010. November 2014 and now, i.e. the last three times that Brent was \$75/bbl

progressively over the coming years, ultimately reaching \$80/bbl by 2022).

Wood Mackenzie is forecasting crude prices to strengthen marginally over the coming months, before

Comparison of key fibre-related prices @ \$75/bbl oil





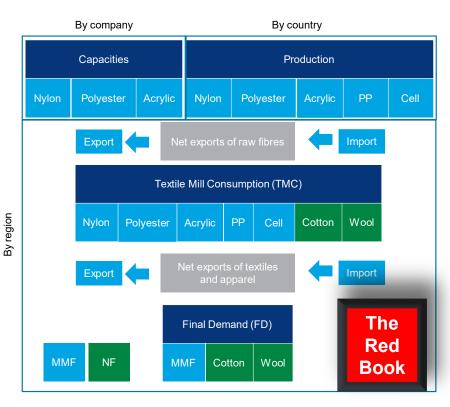
Annual Fibres Global Supply Demand Report

Overview

Explore and evaluate trends and growth opportunities in the global fibres industry with our comprehensive overview of supply and demand trends in this annual Global Supply Demand Analytics Service. Whether you are a business analyst, marketing director, sourcing executive or product manager, use our detailed database to understand where growth opportunities lie and to compare the outlook for different fibre types.

Data provided (1990-2030):

- Production by country for acrylic, nylon, polyester and by region for polypropylene, cellulosics
- Capacities by company per country for nylon, polyester and acrylic.
- TMC by region for MMF, cotton and wool (PP break before 2005)
- FD by region for MMF, cotton and wool (2007 onwards)







Alexei Sinitsa

Fibres consultant | Wood Mackenzie Chemicals

Biography

Dr Alexei Sinitsa joined Wood Mackenzie in 2018, following more than 20 years experience in the chemicals industry. His industrial career began with Rhône-Poulenc/Rhodia, spanning technical, commercial, executive and consulting roles in the nylon chain, including intermediates, polymers, fibres and downstream applications.

Alexei now leads the European fibres contribution to the Wood Mackenzie monthly Global Fibres Report covering nylon, polyester and other synthetic fibre businesses. He has significant experience across a range of international markets, focusing on West, Central and Eastern European markets in particular.

He graduated in Organic Chemistry with honours from Kiev University, and did his doctoral research with the Institute of Organic Chemistry, National Academy of Sciences of Ukraine.

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