ARKEMA

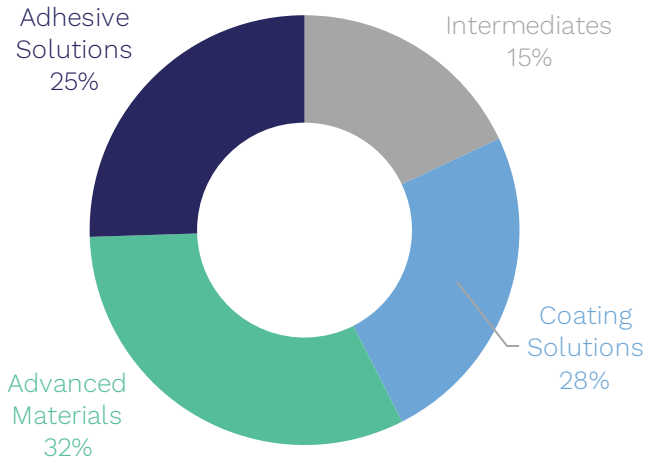
KYNAR®

HIGH PERFORMANCE FLUOROPOLYMERS

GENERAL PRESENTATION

We make the materials that make a difference

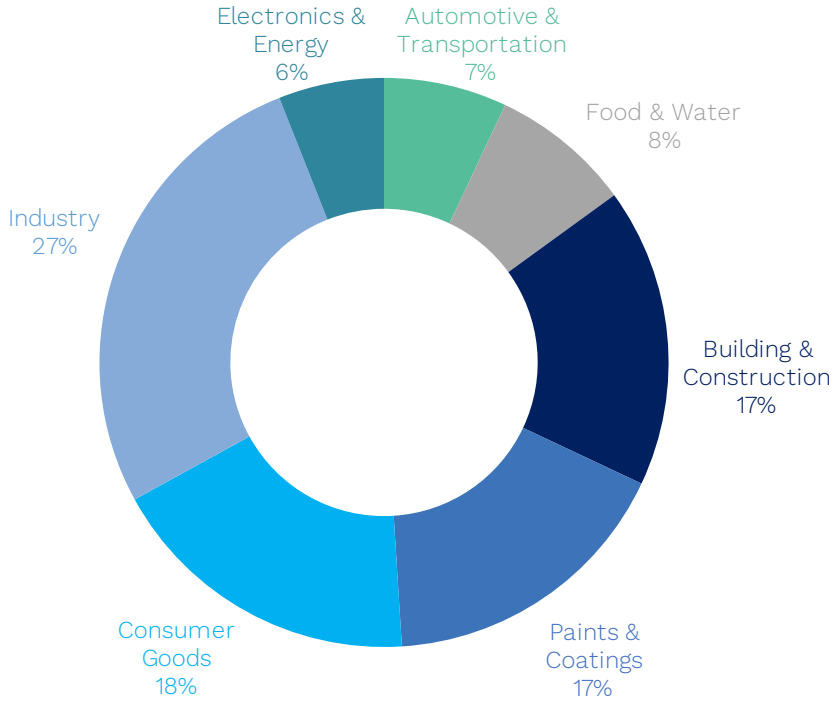
The right products



Specialty Materials

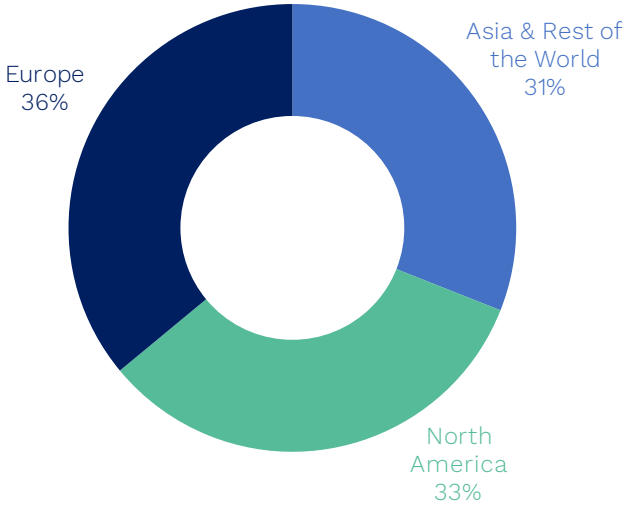
85%

For the right markets



Based on 2020 sales

With balanced geographical footprint



2021 Sales

€9.5bn

Sustainable innovation is in our DNA

1,600
researchers.

60
R&D partnerships.

15
R&D centers
in Europe, Asia and America.

203
patents filed.

3.1%
of company sales allocated in R&D.

1
incubator dedicated to disruptive innovations.

~15%
of sales from products launched within last 5 years.

Archimedes program

65% of our sales significantly contributing to UN SDGs by 2030

Life Cycle Analysis (LCA) target

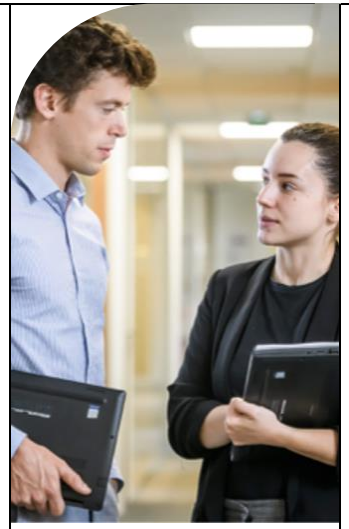
50% of our sales covered by a LCA by 2024

Our people make it happen

Diversity and inclusion

20,600

passionate employees across the globe.



Rising talents

1,300

recruitments in 2020.

Committed to our **10,000** customers

Collaborations with leading brands.

Expertise across the globe

55 countries

147 plants

15 R&D centers

Arkema's positioning is unique

High Performance Polymers
(Part of Advanced Materials Platform)

KYNAR®

KEPSTAN®

ORGASOL®

PEBAX®

RILSAN®

Growth Strategy:
Commercial and Industrial presence in each region, Leadership in capacity: "Serving the region from the region"

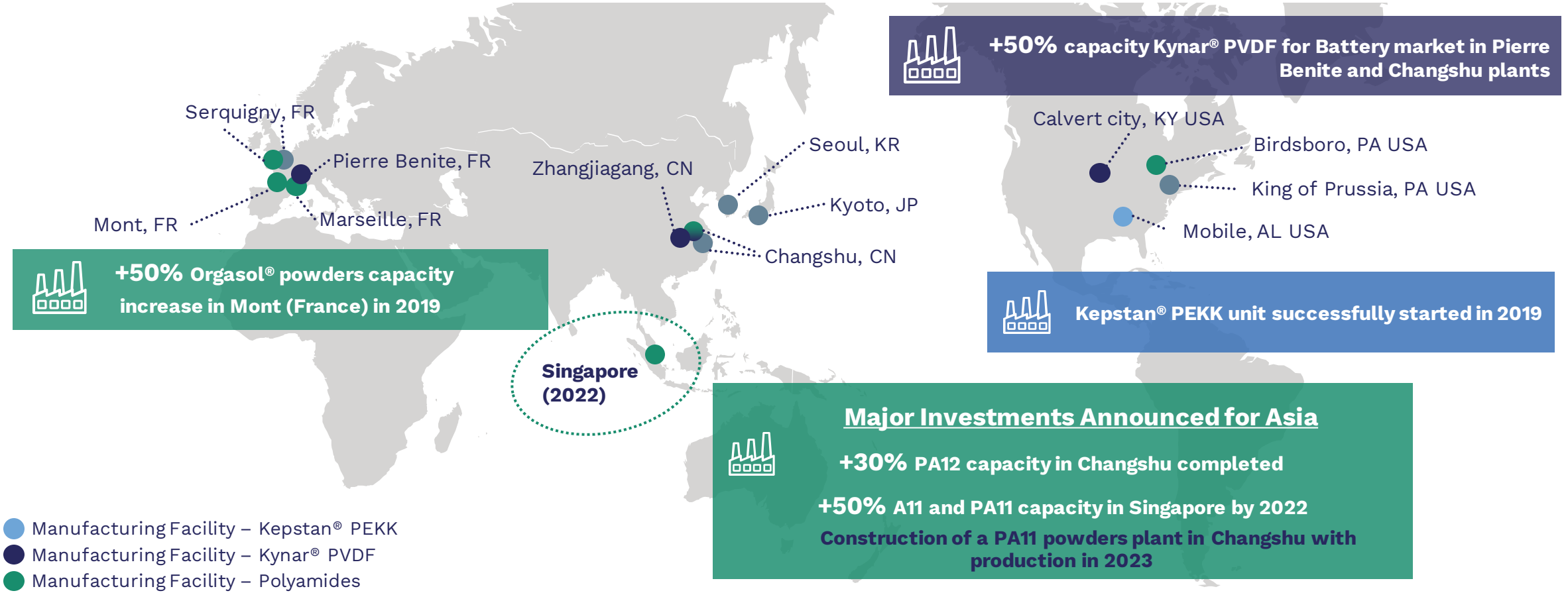
Sustainable innovation driven by market growth in Asia and emerging countries competitiveness

Arkema will gradually reduce the share of its **Intermediates businesses (Fluorogases & Asia Acrylics)**

High Performance Polymers – A Global Presence

Supply the region from the region

Moving closer to our customers



+50% Orgasol® powders capacity increase in Mont (France) in 2019

+50% capacity Kynar® PVDF for Battery market in Pierre Benite and Changshu plants

Kepstan® PEKK unit successfully started in 2019

Major Investments Announced for Asia

+30% PA12 capacity in Changshu completed

+50% A11 and PA11 capacity in Singapore by 2022

Construction of a PA11 powders plant in Changshu with production in 2023

- Manufacturing Facility – Kepstan® PEKK
- Manufacturing Facility – Kynar® PVDF
- Manufacturing Facility – Polyamides
- R&D Center

Innovative materials for a sustainable world

Bio-based
Advanced Bio-Circular materials derived from sustainable castor oil

Recycling
Virtucycle® Program: A virtuous recycling program for our partners

Durability
Our products are highly durable in their intended applications

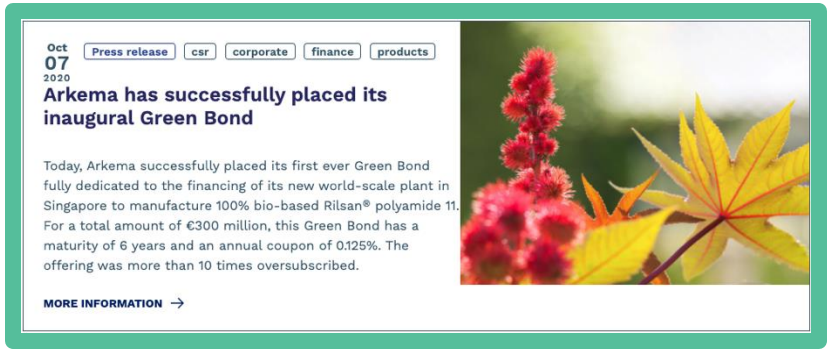
ADVANCED BIO-CIRCULAR MATERIALS
THE CIRCLE OF LIFE MEETS THE CIRCULAR ECONOMY

ARKEMA

Positive Social & Environmental Impacts
Life Cycle Analysis Pragati – Castor Oil Initiative

A strong commitment to sustainability, recognized globally

Arkema's new polyamide 11 plant in Singapore will be 100% dedicated to castor oil feedstock.



Arkema's Green Bond successfully placed for €300M, October 7, 2020 Oversubscribed x10

American Chemistry Council™

IAPD SUSTAINABILITY CHAMPIONS

PARTICIPATING AMGTA MEMBER

SUSTAINABILITY AWARD 2021

Our High Performance Polymers awarded Business Intelligence Group's Sustainability Initiative of the Year

Arkema ranked:
#1 in Chemicals #11 Globally

A leading global supplier of specialty polymers

KYNAR®

Polyvinylidene fluoride (PVDF) resins and copolymers designed for extreme inertness in harsh environments, flame & smoke properties, durability and ease of processing

PEBAX®

Thermoplastic elastomers (TPE) designed for unmatched combination of light weight, energy return, and ease of processing

(optionally bio-based)

RILSAN®

Advanced bio-circular polyamide 11 resins, coatings and additives that deliver toughness, flexibility and chemical resistance

KEPSTAN®

Ultra-high-performance polymers (PEKK)
Lightweight, strong and resistant to (almost) everything

ORGASOL®

Multifunctional Specialty Polyamide Additives
Matting and Texturing Agent
Improve Strength and Durability of Coatings

Arkema's High Performance Polymers portfolio

KYNAR®

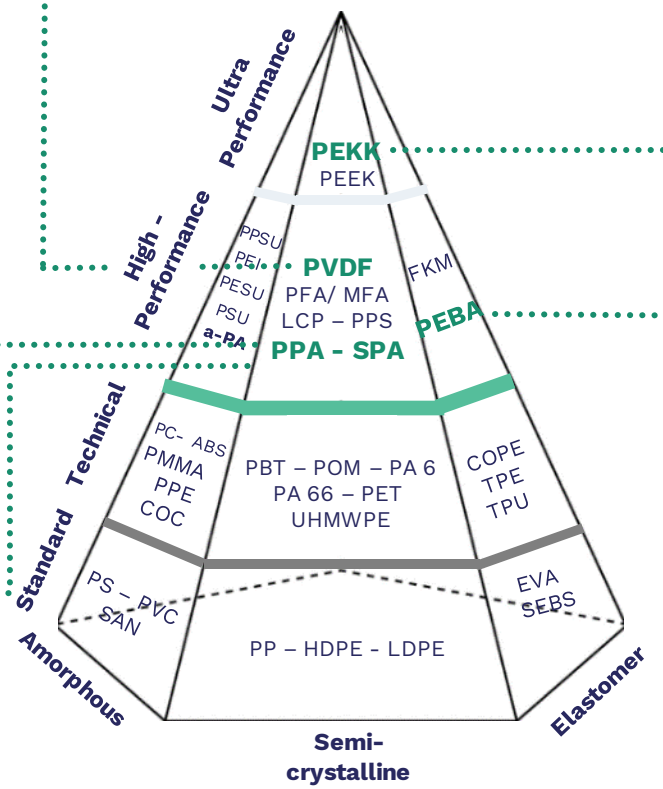
High-performance fluoropolymers
- *Extreme resistance to UV, FR, chemicals…*
- *Easy to process*
- *High durability and strength*

RILSAN®

Advanced bio-circular polyamide 11
- *Lightness*
- *Toughness*
- *Chemical resistance*
- *Fatigue resistance*

ORGASOL®

Multifunctional Specialty Polyamide Additives
- Gloss, texture and haptic properties
- Abrasion and burnishing resistance
- Stain and chemical resistance
- Easy to use in all coating technologies



KEPSTAN®

Ultra-high performance PEKK
- *Ultra-high temperature performance*
- *Ultra-high strength*
- *Ultra-high chemical resistance*
- *Ultra-high tribological performance*

PEBAX®

High-performance elastomers
- *Lightness*
- *Toughness*
- *Flexibility*
- *Energy return*

A Broad Portfolio of Solutions

HOMOPOLYMERS
Kynar ® 700 Standard Series, High Purity
Kynar ® 1000 Series, High Whiteness
Kynar ® HSV Series (Customized for Li-ion Battery)
Kynar 500®

UHM™
Ultra high modulus grades

PPA
Specific grades for Polymer Processing Aids

FLEXIBLE POLYMERS
Kynar Flex® series
Heterogeneous copolymers
Ultra flexible grades

ADHESION GRADES
Kynar ADX® Range of functionalized adhesion grades

FOAMS
Low density
Closed, Open cell

LATEX
Kynar Aquatec®
Proprietary Fluoro Latex (upon request)

FILMS
Multilayer films used primarily for KPK® high performance solar backsheets

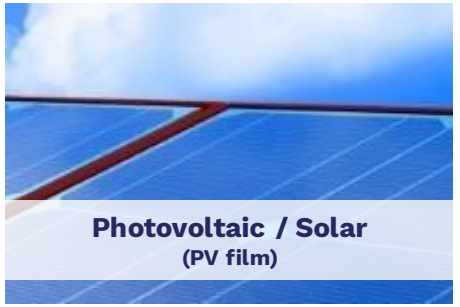
Kynar® PVDF Flagship Applications

KYNAR®

- Extreme UV resistance
- Extreme chemical resistance
- Outstanding flame and smoke properties
- High purity & whiteness
- Electro-chemical stability
- Easy processing

POWDER	PELLETS	LATEX
		

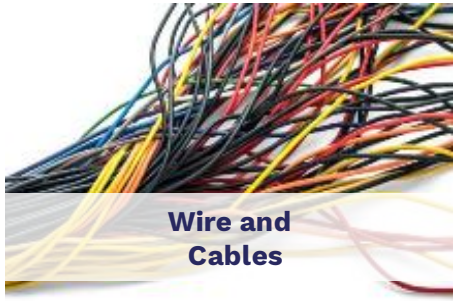
Lithium-ion Battery
(electrode binders & separator coatings)



Photovoltaic / Solar
(PV film)

Polymer Processing & Recycling Aids

Chemical Processing Industry (pipe, fitting)

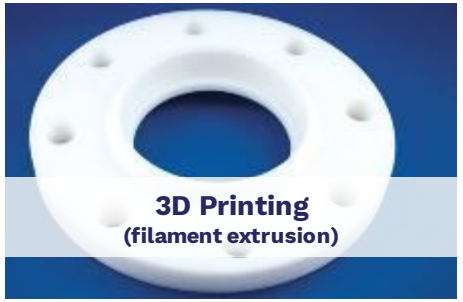


Wire and Cables

Construction Coatings
(cool roofing)

Oil & Gas
(pipe, flexible plow lines…)

Water Filtration Membranes



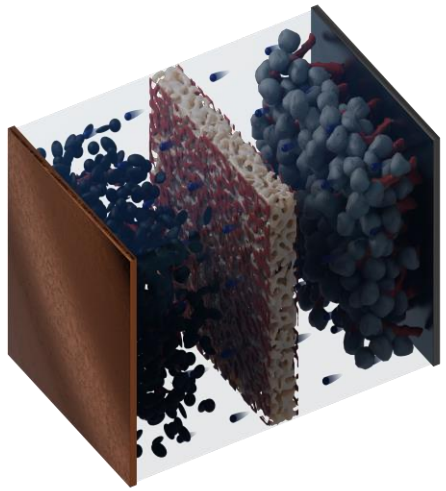
3D Printing
(filament extrusion)

A Deeper Dive – Main Applications For KYNAR® Fluoropolymers

Architectural Coatings

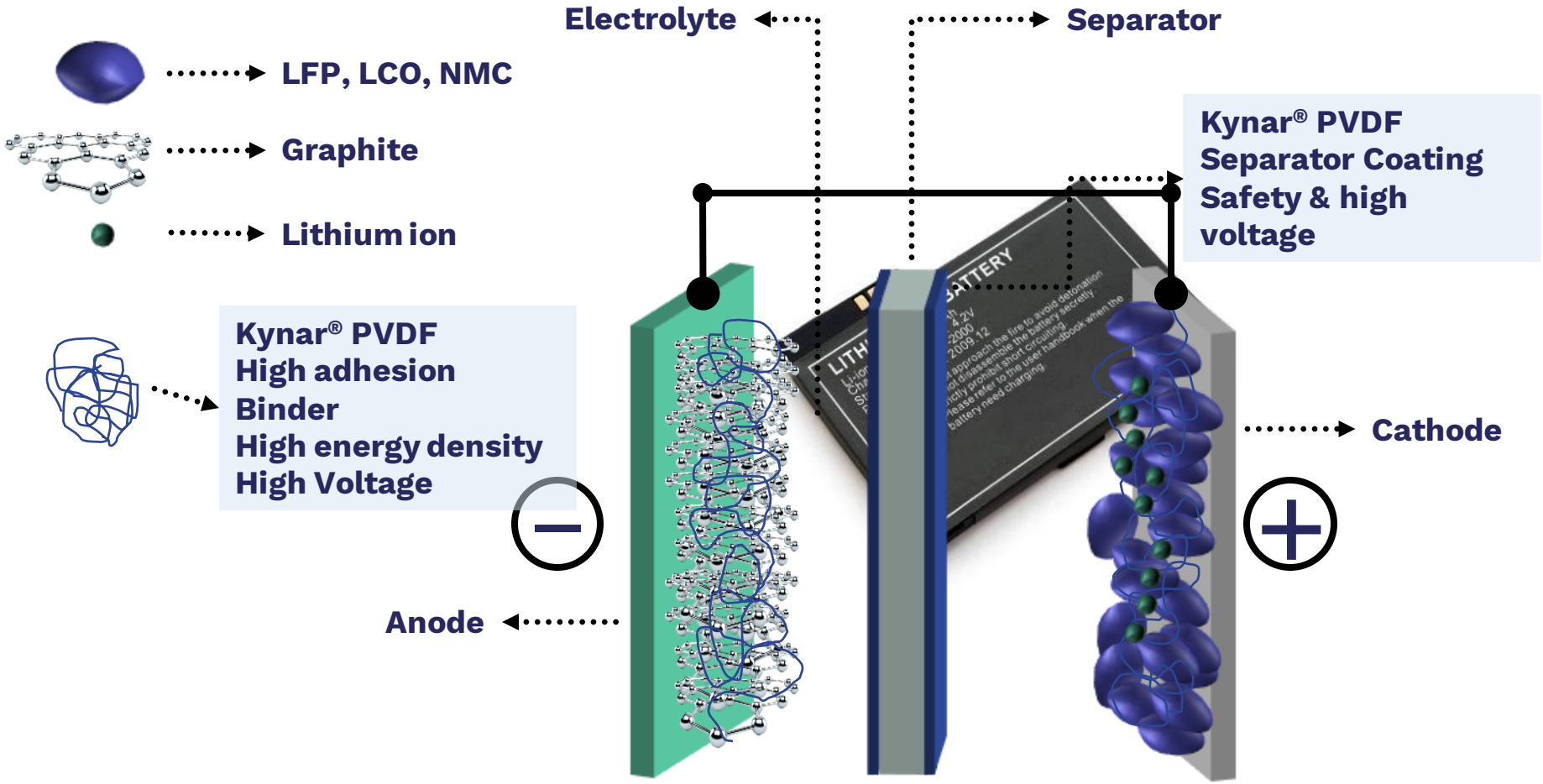
Chemical Processing Industry

Lithium Ion Batteries

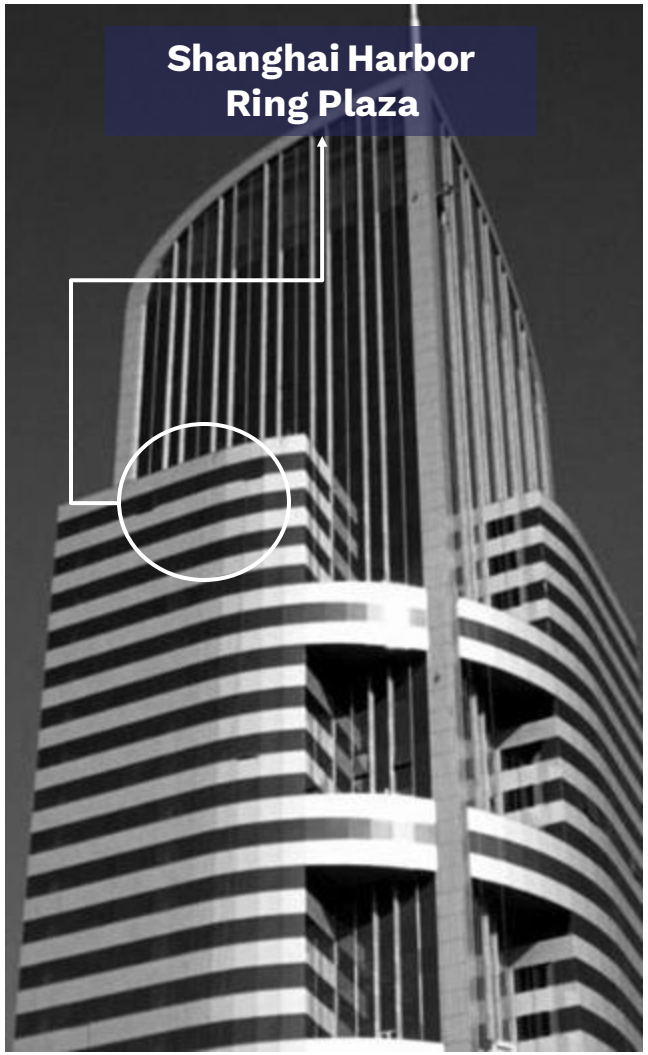


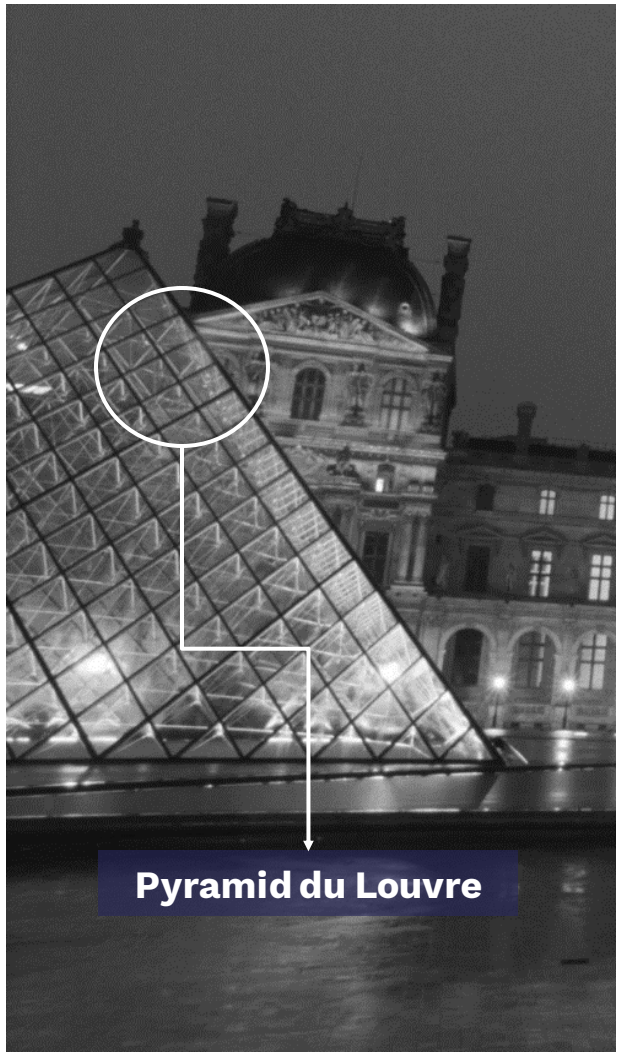
Solar Panel Backsheets

Li-Ion Battery – Where Is KYNAR® PVDF Used?



Ultra-Durable Coatings – Skyscrapers, Monumental Buildings





Solar Panel Backsheets

- → Extreme Weather Resistance
- → Kynar® Films for KPK™ Patented Solar Backsheet Technology
- → Arkema Provides Both Resin and Film

Chemical Processing Industry (CPI)

Stock Shapes, Tubing, Molding, Plenum Pipe

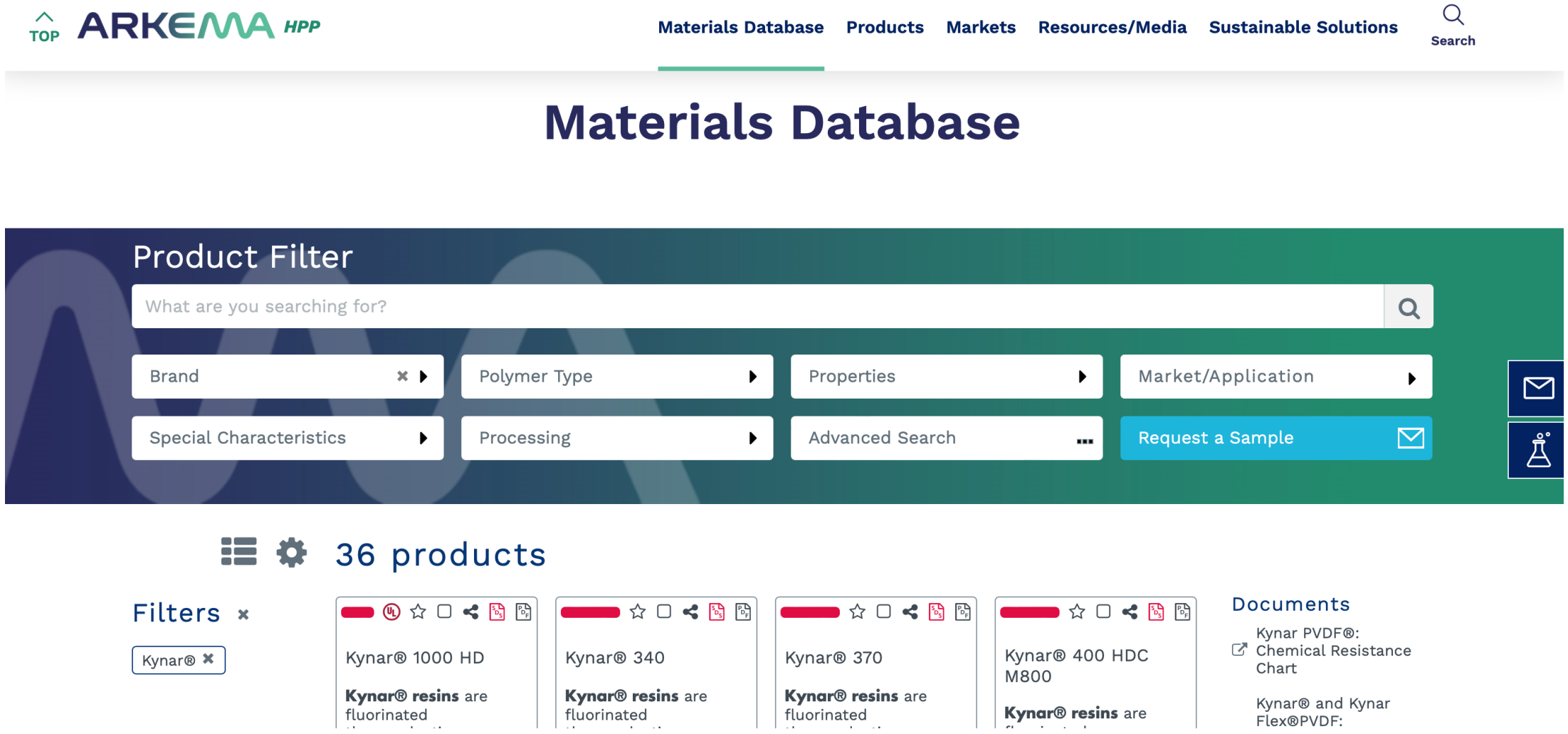
Semiconductor Industry

Tower Packing, Filters, Compounds

Key Properties of KYNAR® PVDF

- Ultra high purity (semi conductor processing), Pharmaceutical
- Chemical resistance – acids, bases, solvents
- Ozone resistance
- Steam sterilization resistance
- Gamma radiation resistance
- Thermal stability
- High whiteness and retention

Need Additional Information ?



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