# UBE NYLON for COMPOSITES

Edgar Veloso – UBE LATIN AMERICA

# UBE INDUSTRIES

| Corporate name: | UBE Industries Ltd. |
|---|---|
| Head office | Ube city / Tokyo (Japan) |
| Establishment | 1897 |
| Employees * | 10.700 |
| Turnover * | 5.983 MM Eur. |


- Chemicals
- Pharmaceuticals
- Cement & Construction Materials
- Machinery
- Energy and Environment
- R&D

(*) Data for Fiscal Year 2015

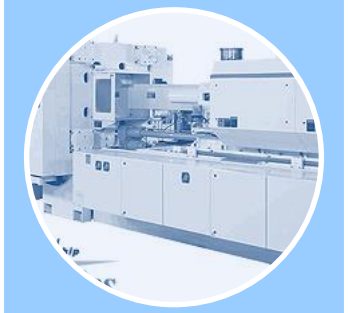
# UBE INDUSTRIES

Chemicals

44%

Cement & Construction Materials

33%



Machinery

12%

Energy & Environment

10%

Pharmaceuticals

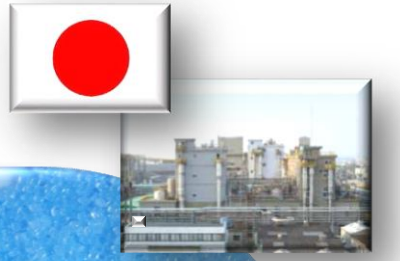
1%

# Global UBE Nylon

Spain

**UBE Corporation Europe**
**Total production capacity:**
**~32.500 MT / year**

**UBE City**
**Capacity: ~ 55.000 MT/y**



Japan

Thailand

**Rayong**
**Production Capacity:**
**25.000 MT/y**
**-> 75.000 MT/y (2009)**

**PA Total Capacity > 165 kT / year**

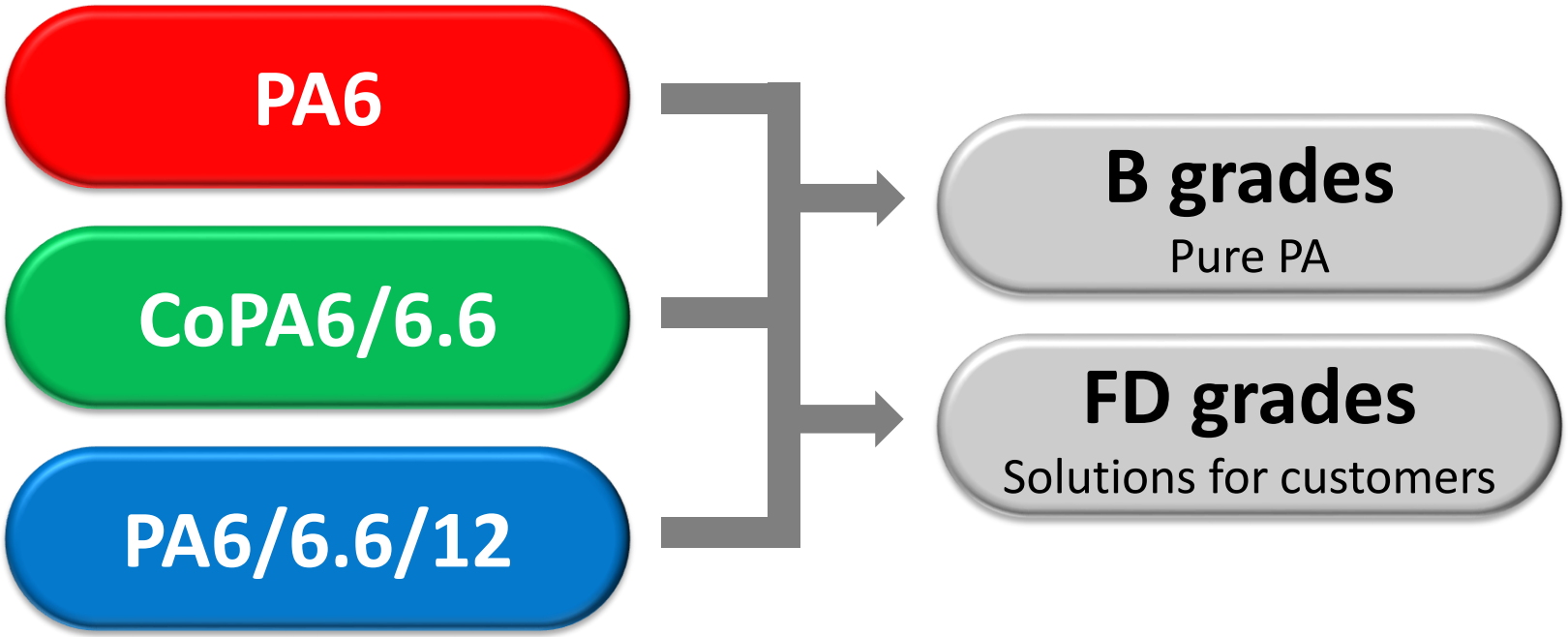
**Know-how and more of 30 years in experience with Nylon**

**Same technology and specifications in Spain, Japan and Thailand.**

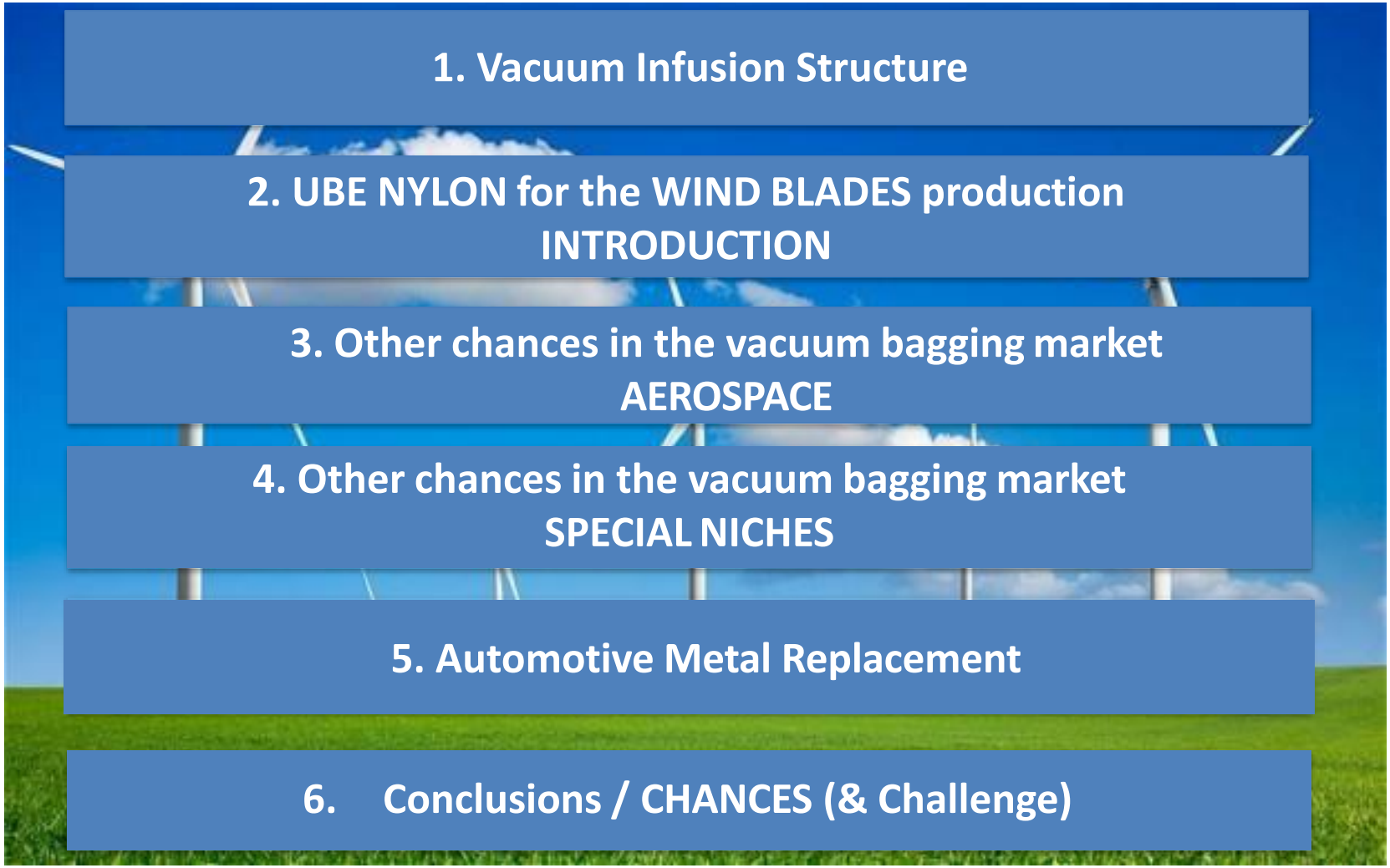
# UBE's products range

## UBE NYLON

EXTRUSION APPLICATION

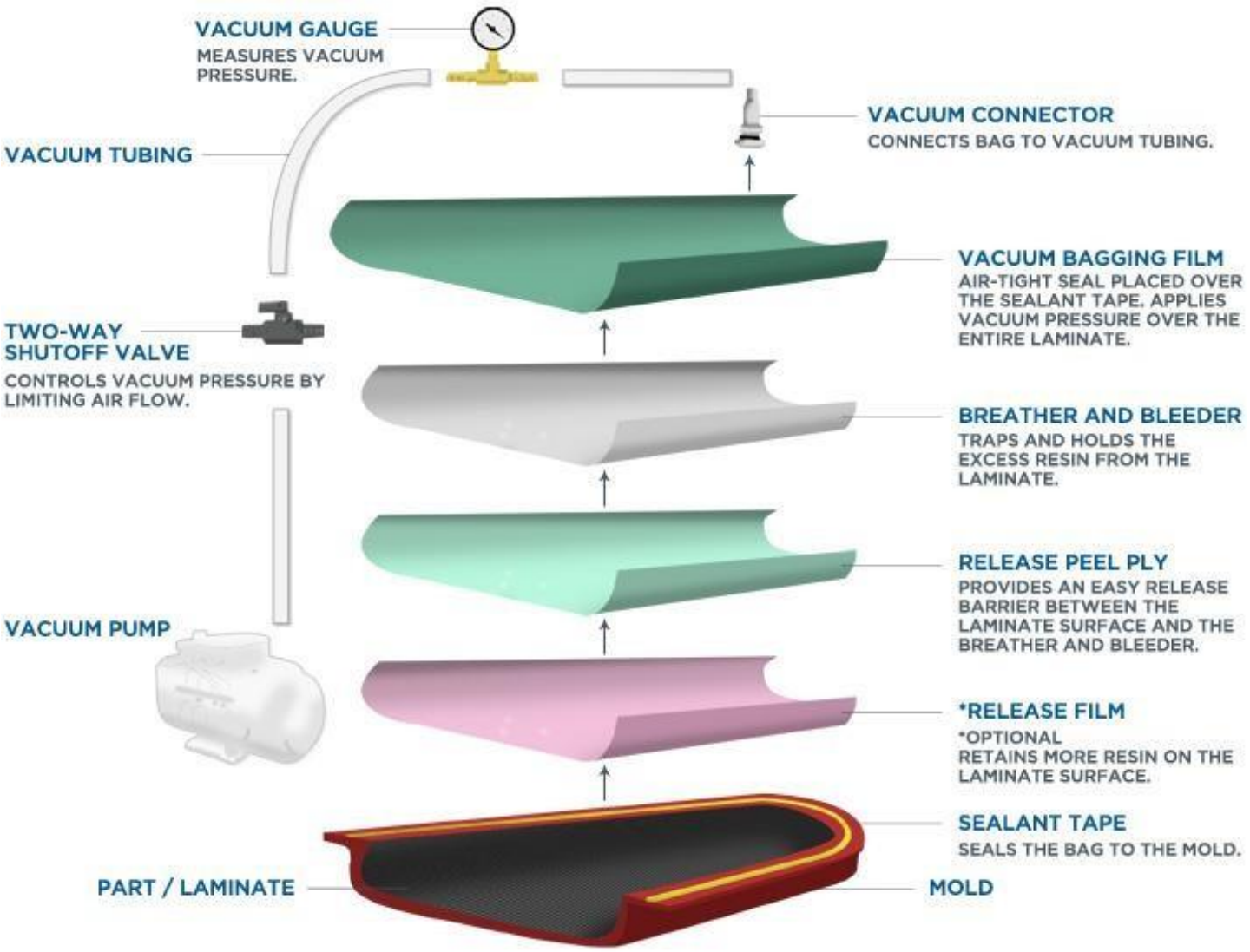


# Contents



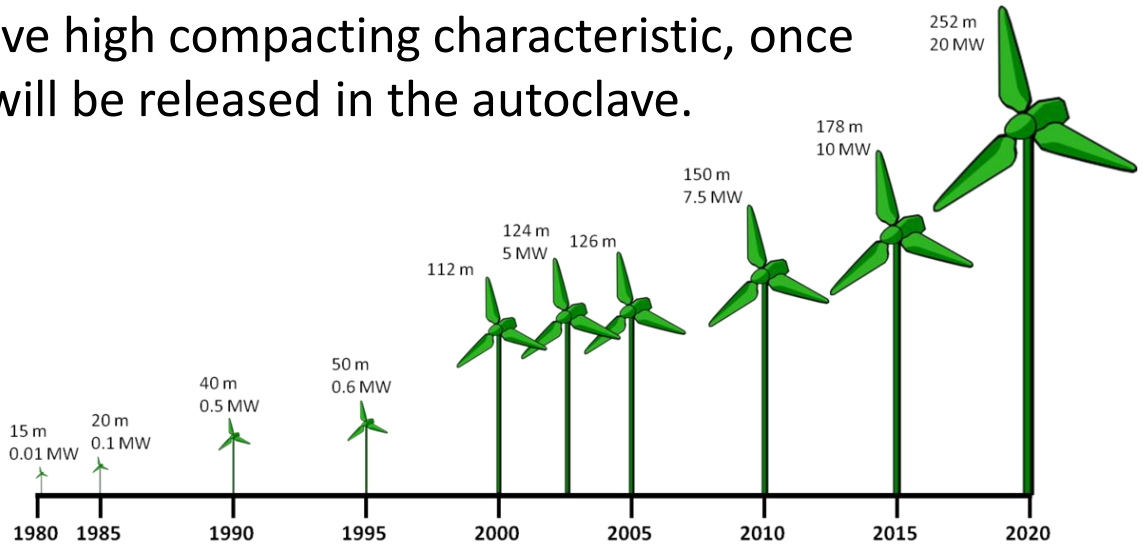
# 1. Vacuum Infusion Structure

# UBE NYLON for vacuum bagging films



# UBE NYLON for vacuum bagging films

- Vacuum bagging uses atmospheric pressure as a clamp to hold laminate plies together.
- The laminate is sealed within an airtight envelope, which may be an airtight mold on one side and an airtight bag on the other.
- Epoxy and phenolic thermoset resins are commonly used for composites applications, due to their antirust properties. These resins must have high compacting characteristic, once volatile compounds will be released in the autoclave.



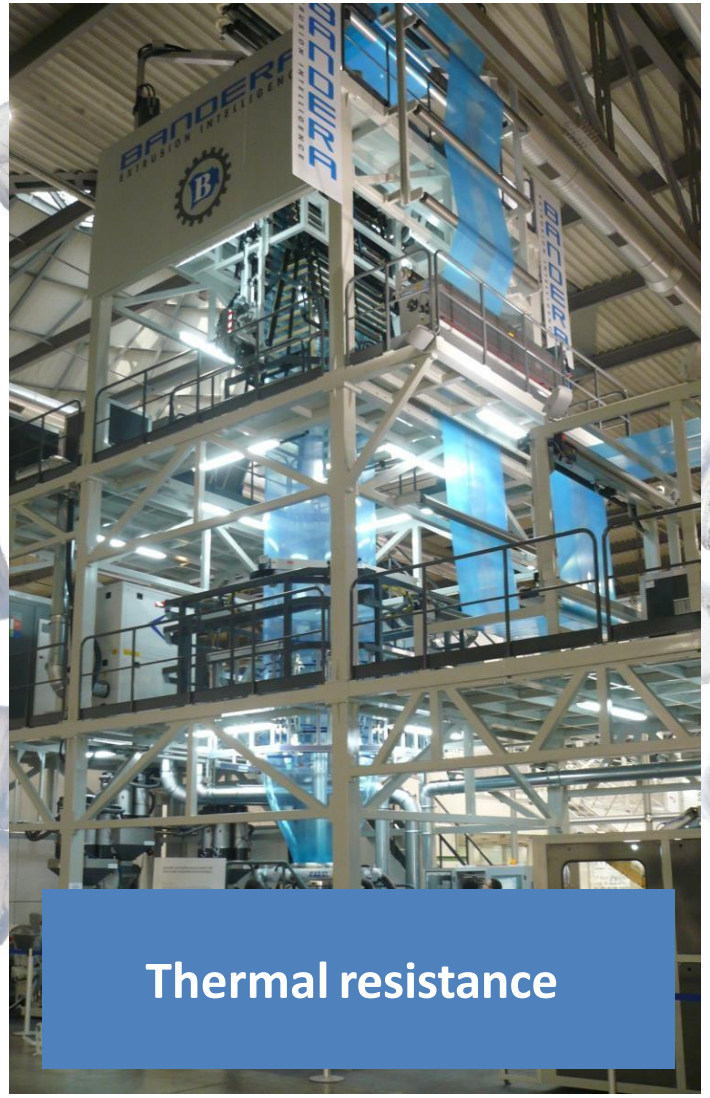
# UBE NYLON for vacuum bagging films

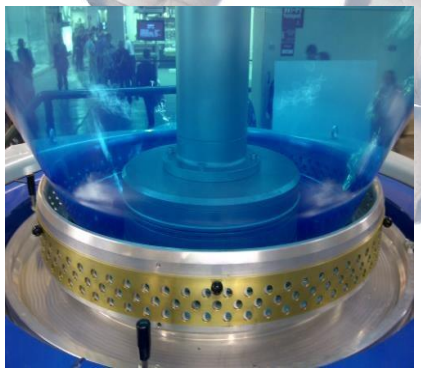
- When the bag is sealed to the mold, pressure on the outside and inside of this envelope is equal to atmospheric pressure.

- As a vacuum pump evacuates air from the inside of the envelope, air pressure inside of the envelope is reduced while air pressure outside remains the atmospheric pressure, forcing the sides of the envelope and everything within the envelope together, putting equal and even pressure over the surface of the envelope.

# 2. UBE NYLON for the WIND BLADES production INTRODUCTION

# (Large dimesioned) Vacuum Bagging



Thermal resistance

Strong
(Mechanical resistance)

Flexible
(Flex crack resistance)

Contains
(Barrier for liquid resin and oxygen)

# UBE NYLON / (Large dimesioned) Vacuum Bagging




Change & Challenge
Driving Growth

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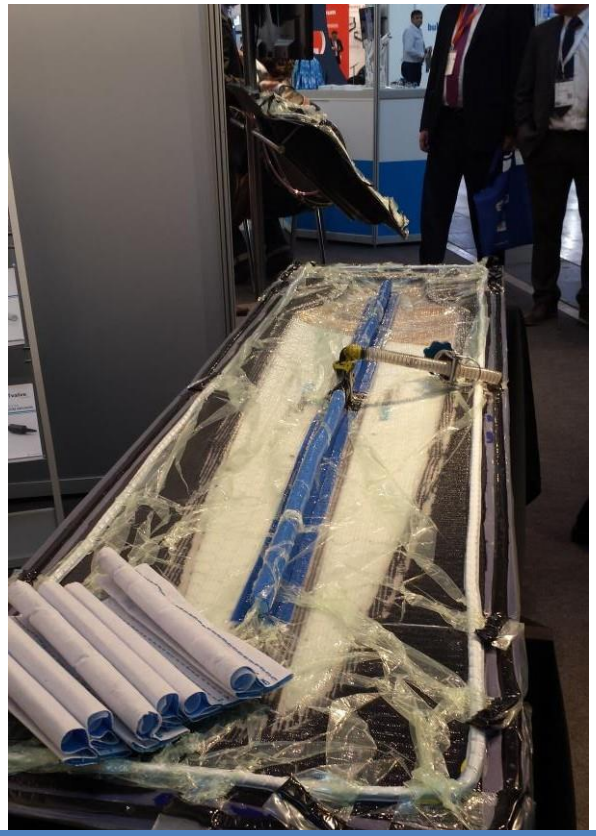
# UBE NYLON / (Large dimesioned) Vacuum Bagging



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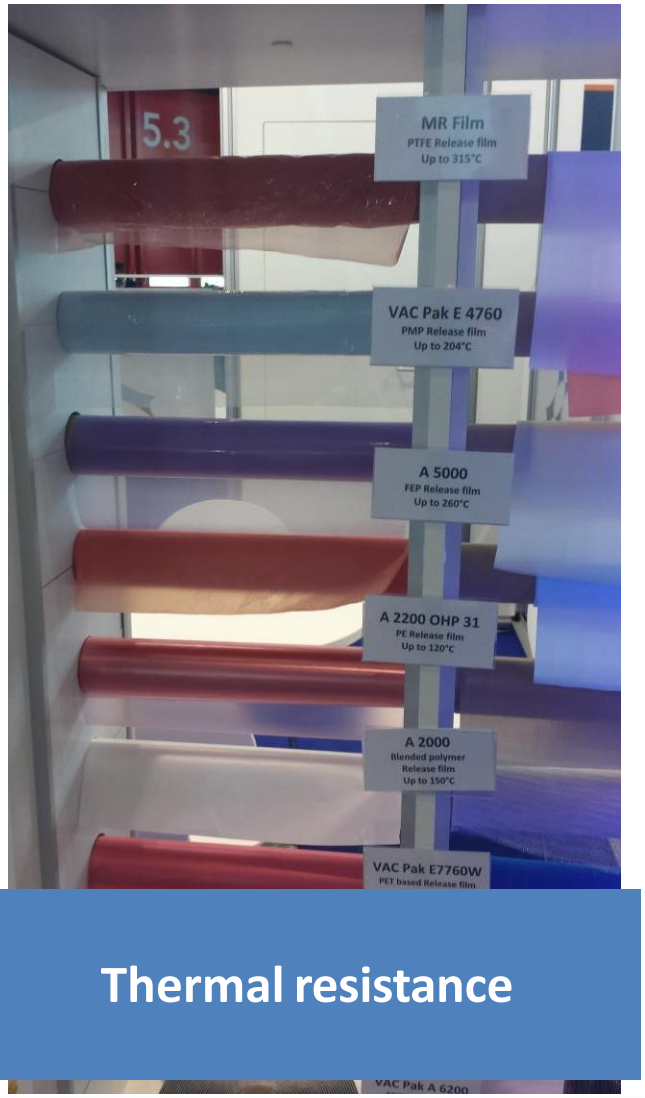



Thermal resistance

# UBE NYLON / (Large dimesioned) Vacuum Bagging

**CoPA 6/6.6**
**UBE 5033B**

**190°C**
**6 hours**

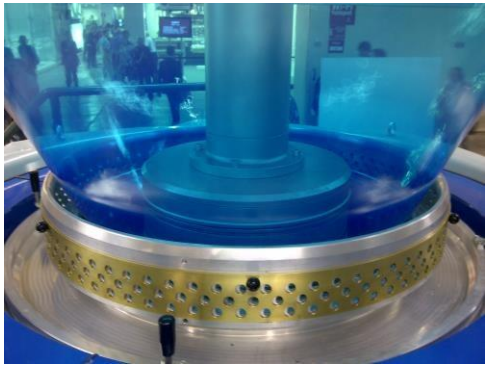
**Heat stabilizers**

**Other additives (anti-blocking)**

# UBE NYLON 5033FD10 for (LD) vacuum bagging films

## Process

- Airblown air cooling



## Typical heat stabilized structure

~~CoPA (+AB + HS)~~ – Tie – PE – Tie – ~~CoPA (+AB + HS)~~

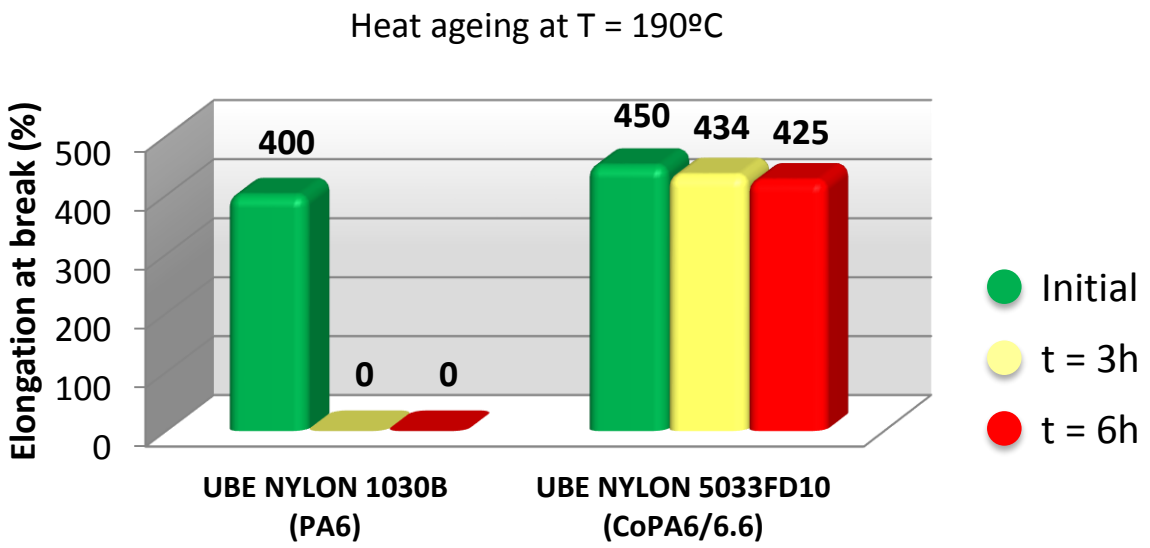
**5033FD10** **5033FD10**

# UBE NYLON 5033FD10 for (LD) vacuum bagging films

## UBE NYLON grades – CoPA6/6.6 (50- series)

5033FD10

Heat resistant grade containing anti-blocking agents.
Suitable for vacuum bagging process.



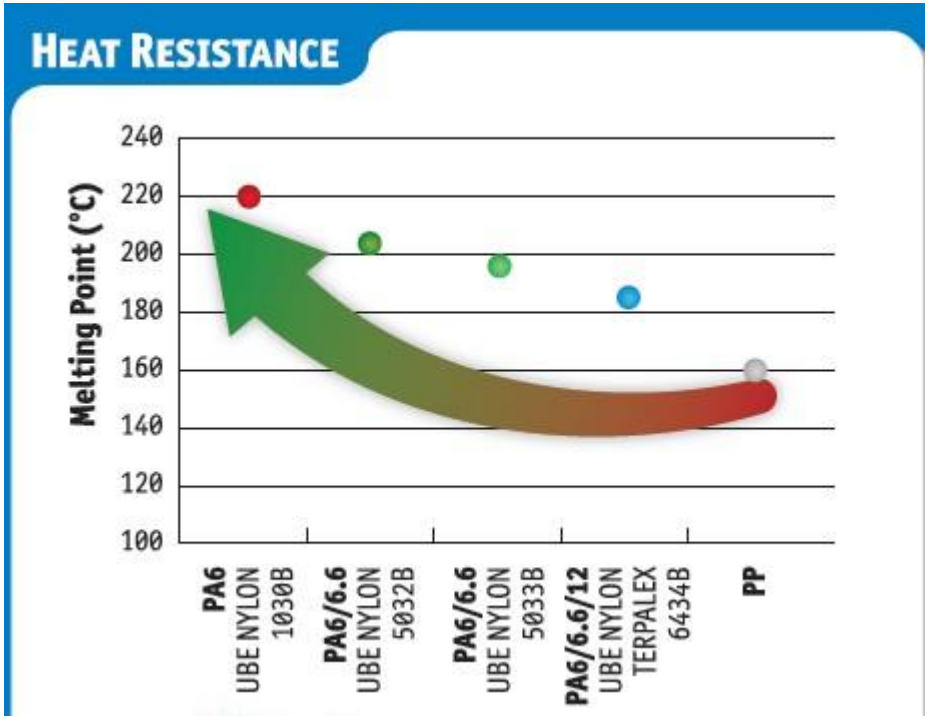
# 3. Other chances in the vacuum bagging market AEROSPACE

# Vacuum bagging films Areospace

## Areospace
## The NEEDS

**PA6**

**PA6.6**



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# 4. Other chances in the (smaller) vacuum bagging market SPECIAL NICHES

# Vacuum bagging films / Special

## Special VBF
## The NEEDS

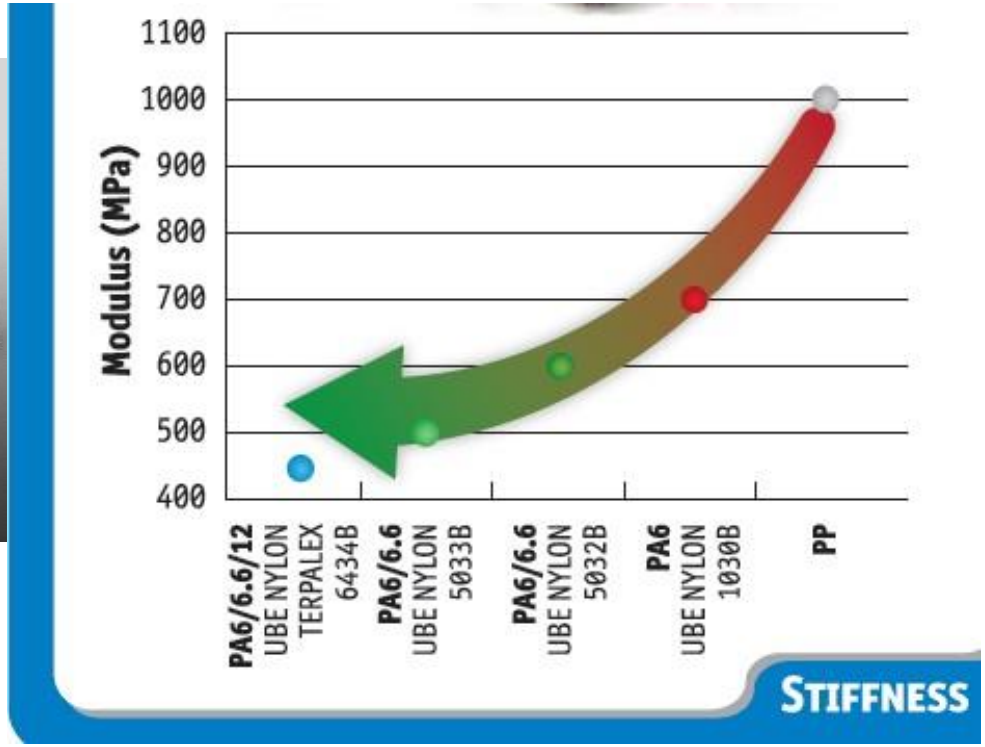

PA6

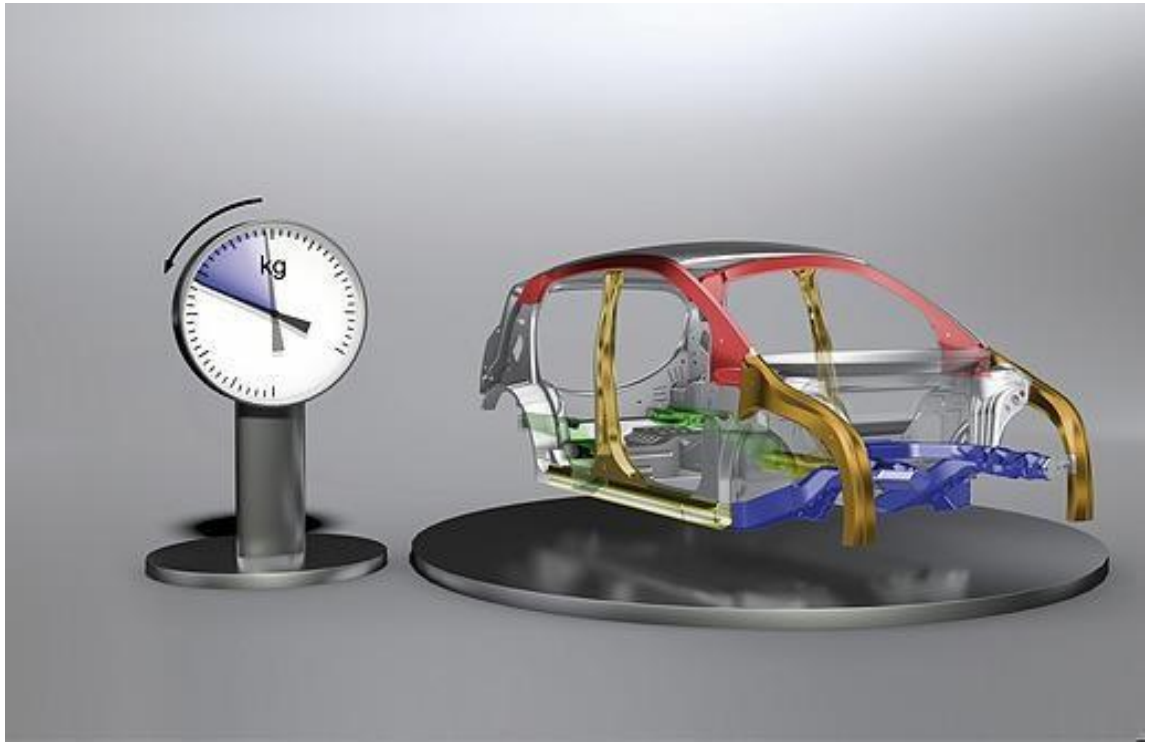
PA 6.6

PI

TerPA 6/6.6/12

## SOFTNESS






# 5. Automotive Metal Replacement

# (Automotive) Lightweight of tomorrow

**PA**

**Mechanical**

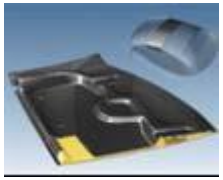
**Thermal**

**+**

**Fibers/ Textile**

**=**

**Composite = METAL REPLACEMENT**

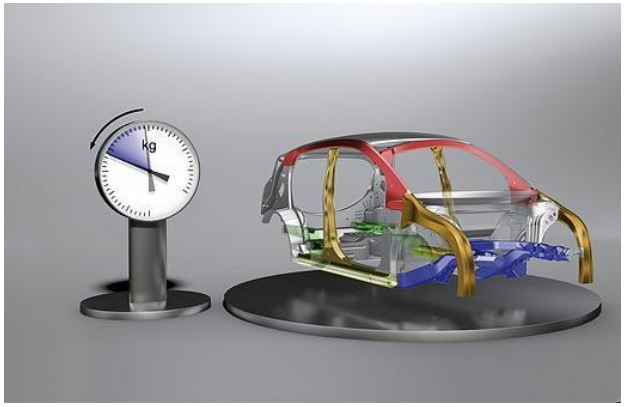


**Roof module**

**Structural interior parts**

**Structural exterior parts**

**Chassis**


# 6. Conclusions / CHANCES (& Challenge)



Challenge
Change & Challenge
Driving Growth

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# THANK YOU FOR YOUR ATTENTION!



Challenge
Change & Challenge
Driving Growth

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