



# The role of bio-based PA6.10 in advancing sustainable polyamide solutions

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**@13<sup>th</sup> International Bioeconomy Conference 2025**



# DOMO CHEMICALS AT A GLANCE: EUROPE ROOTED, GLOBALLY DRIVEN

**2,000**  
employees

**€1.3**  
billion  
turnover

**10**  
production sites

**14** sales offices  
in key regions

**DOMO**

## UPSTREAM INTEGRATION

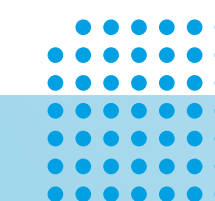
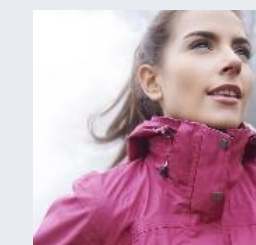
PA6 Intermediates

PA66 Intermediates

## BASE POLYAMIDES

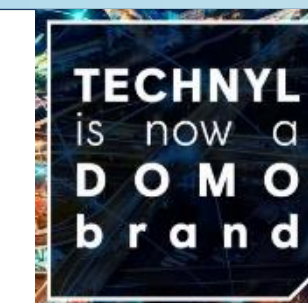
**DOMAMID®**  
(+co-polymers)

**STABAMID®**  
(+co-polymers)



## ENGINEERED MATERIALS

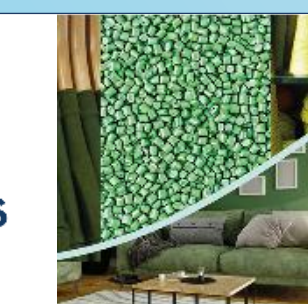
**TECHNYL®**



**TECHNYL® 4EARTH®**  
Sustainable polyamide



**NYLEO®**  
Nylon 66 Performance Fibers





# INTEGRATED PRODUCTION OF POLYMERS & INTERMEDIATES ON **LEUNA PRODUCTION SITE**



***Join the bus tour  
on June 19<sup>th</sup>!***

## **Produktion in Leuna:**

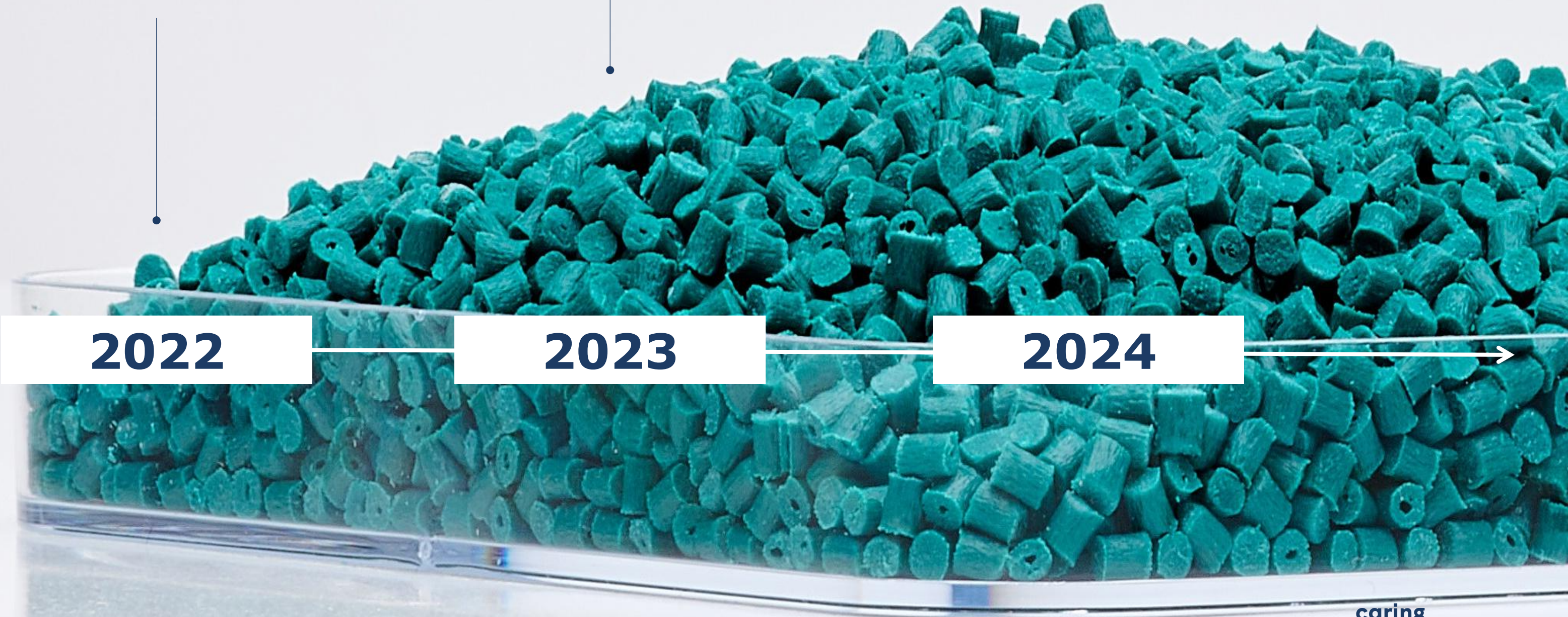
- ① Benzol
- ② Cumol
- ③ Phenol und Aceton
- ④ Cyclohexanon
- ⑤ Schwefelsäure
- ⑥ HAS
- ⑦ Caprolactam
- ⑧ Polyamide 6-Granulat
- ⑨ Spezialpolyamide



# PROVING OUR SUSTAINABILITY LEADERSHIP

## EcoVadis Platinum Medal

Awarded in 2024 for outstanding performance across Environment, Labor & Human Rights, Ethics, and Sustainable Procurement





# DOMO'S RECYCLED & BIOBASED OFFERING

## Partnership-based technologies

**Mass Balance  
ISCC+ Certified**







Used Cooking Oil  
(UCO)

► PA6

**Depolymerization  
technology**







Fishing Nets

► PA6

## Exploring technology

**Dissolution  
technology**



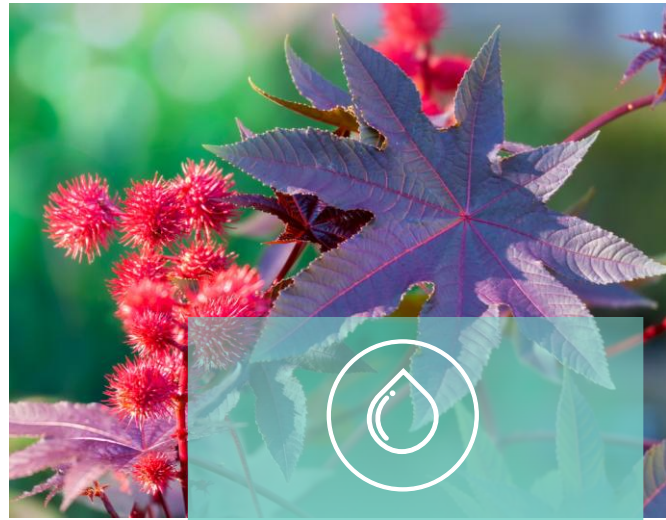



Plastic Parts

► PA6 and PA66

## In-house technologies

**Bio based PA6.10**







Castor oil

► PA610

**Move 4EARTH®  
Patented  
technology**







Coated Airbags

► PA66

**Standard  
Mechanical  
technology**





Textile –  
Uncoated Airbags  
Film Fishing  
Nets

► PA6 and PA66



# NET ZERO PA6

## ENDLESS APPLICATIONS

Mass Balance  
ISCC+ Certified

Mass Balance  
ISCC+ Certified

Used Cooking Oil (UCO)

PA6 & PA66

Depolymerization  
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Fishing Nets

PA6

Dissolution  
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Plastic Parts

PA6 and PA66

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Textile -  
Uncoated Airbags  
- Film - Fishing  
Nets

PA6 and PA66

### UPSTREAM INTEGRATION

**PA6 Intermediates**

Cumene, Phenol, Acetone, Alpha-methylstyrene, Acetophenone, Cyclohexanone, Cyclohexanol, Caprolactam

### BASE POLYAMIDES

**DOMAMID®**  
(H24-H27-H33-H36-H40)

### INDUSTRY BENCHMARK



\* Data based on DOMO PCF calculation, third party certified for fossil-based materials. Calculation of equiv. biogenic carbon dioxide removal (from atmosphere) in product done according to ISO 14067 and TfS.

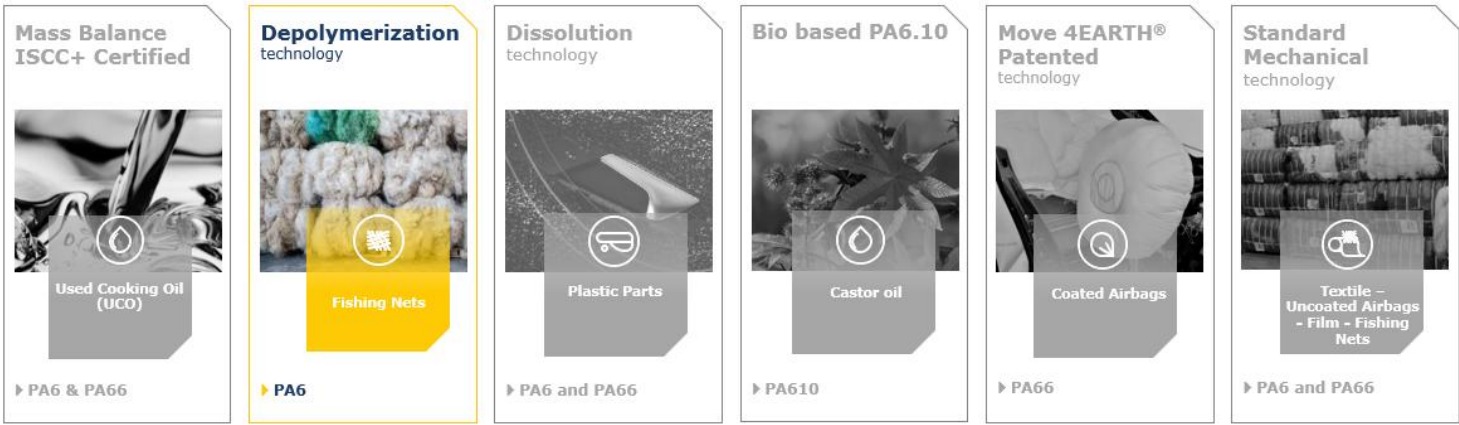
Tracking and  
Verification





# DEPOLYMERIZATION CRITICAL PARTS

## Depolymerization



## TECHNYL® 4EARTH®

Sustainable polyamide

From waste to more sustainable residual current circuit breakers



50% recycled nylon



20% less CO<sub>2</sub> footprint  
Compared to conventional materials



Perfect colour match



Similar performance to first choice



In cooperation with



caring  
is our formula



# TECHNOLOGICAL INNOVATION WITH POST CONSUMER PA

## Dissolution



Plastic Parts

### 48V DC/DC Converter



**rPA6**  
Compound produced with **30% post consumer PA6** from physical recycling (dissolution process) of end of life vehicles

### Flange with nozzles



**rPA66**  
Compound produced with **30% post consumer PA66** from physical recycling (dissolution process) of end of life vehicles

## Validation

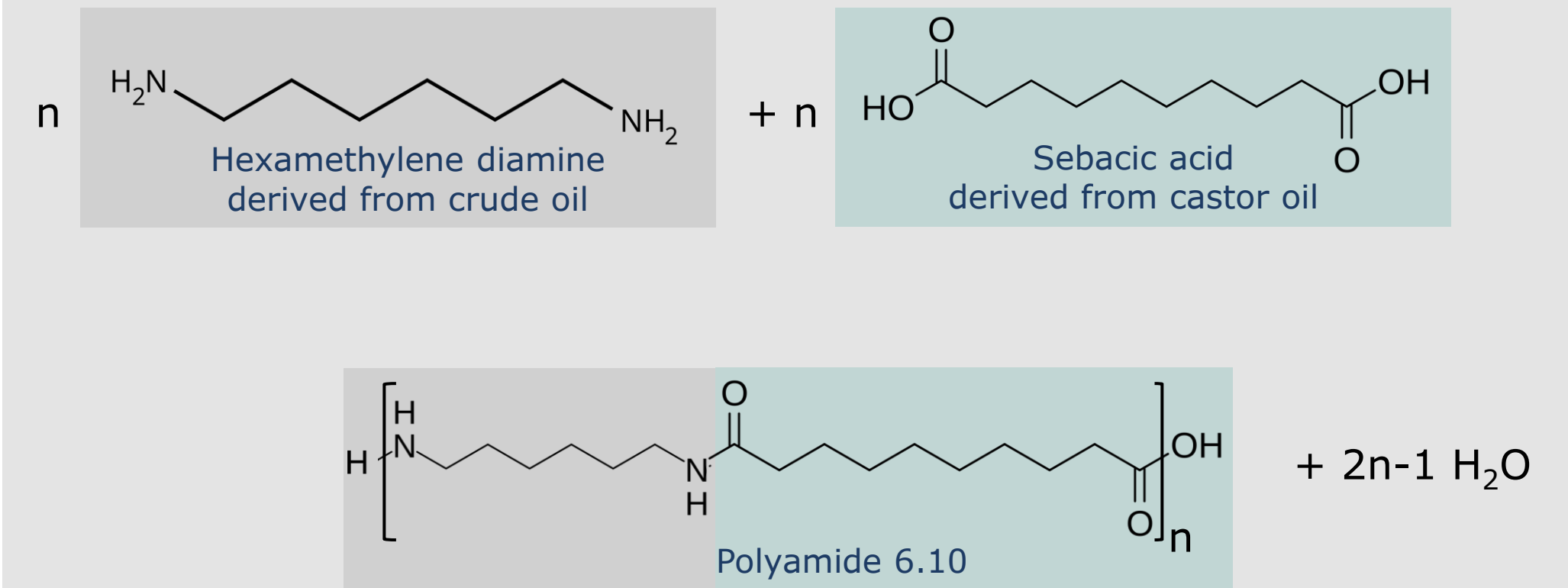
Processing on a series-basis and optical appearance	✓
Dimensional accuracy	✓
Material Validation	✓
Emissions and odor test	✓
Functional tests	✓



# BIO BASED PA6.10 FOR HIGH END APPLICATIONS

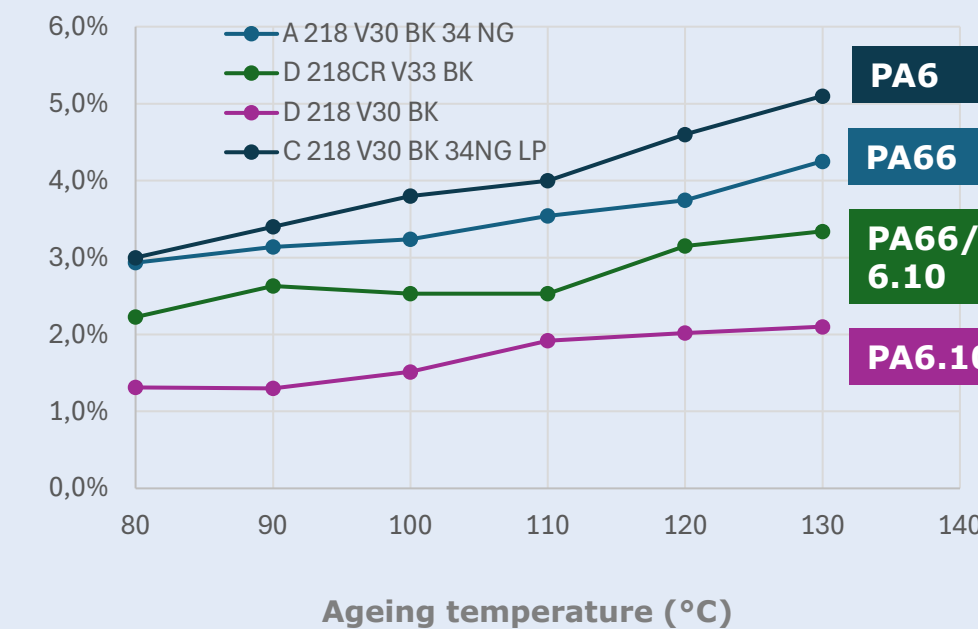
- Up to **62% bio-based content**  
Derived from castor oil (*Ricinus communis*)
  - non-food crop, grown on non-arable land in semi-arid regions (India, China, Brazil)
  - no competition with food supply or land use
- **Performance profile**
  - between PA6 & PA66 and PA12
  - low moisture uptake (1,5% at 23°C 50%RH vs. 3% for PA6)
  - excellent chemical resistance
  - suitable for injection molding and extrusion
  - Much higher compared to other bio-based polyamides (e.g. PA56)
- **Market reality**
  - Significantly more expensive than PA6 and PA66
  - Customers rarely pay a premium for bio-content alone
  - Adoption only when technical performance justifies added cost
- **Typical applications**  
High-end, chemically aggressive or dimensionally critical environments
  - e.g. (drinking) water management, cooling systems

## Bio-based PA6.10

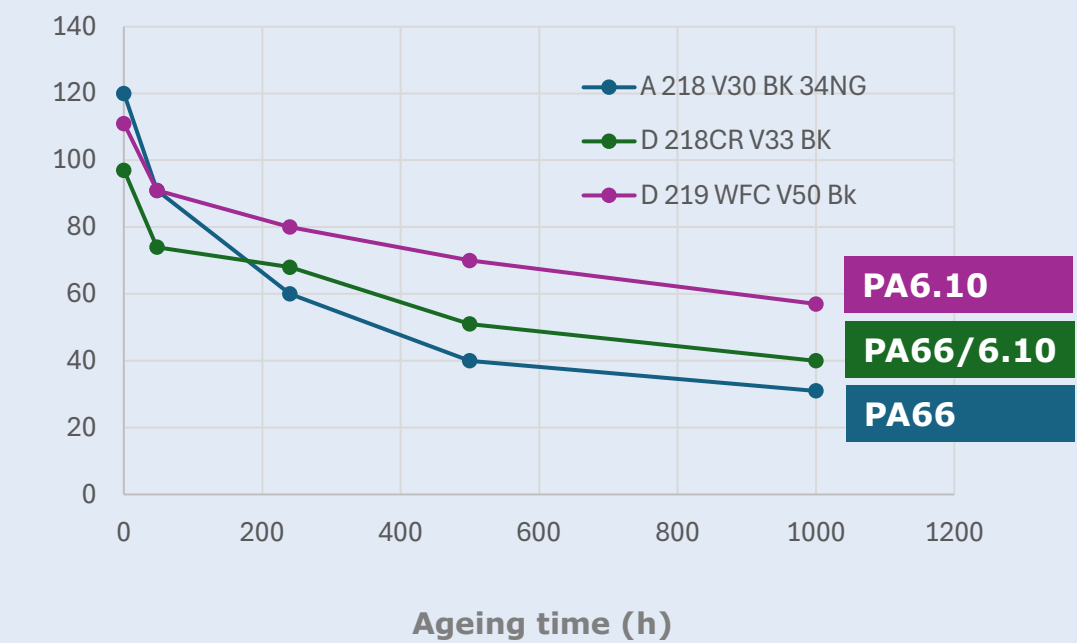


## Superior properties of PA6.10 compared to PA6 and PA66

Swelling (equilibrium) as a function of ageing temperature



Tensile properties after coolant ageing at 135°C measured at 100°C





# MECHANICAL RECYCLING FOR HIGH-END APPLICATIONS

Mechanical

Mass Balance ISCC+ Certified

Used Cooking Oil (UCO)

PA6 & PA66

Depolymerization technology

Fishing Nets

PA6

Dissolution technology

Plastic Parts

PA6 and PA66

Bio based PA6.10

Castor oil

PA6.10

Move 4EARTH® Patented technology

Coated Airbags

PA66

Standard Mechanical technology

Textile - Uncoated Airbags Film Fishing Nets

PA6 and PA66

Coated Airbags



Sustainable version of PA66 market reference for **Hydrolysis Resistance**

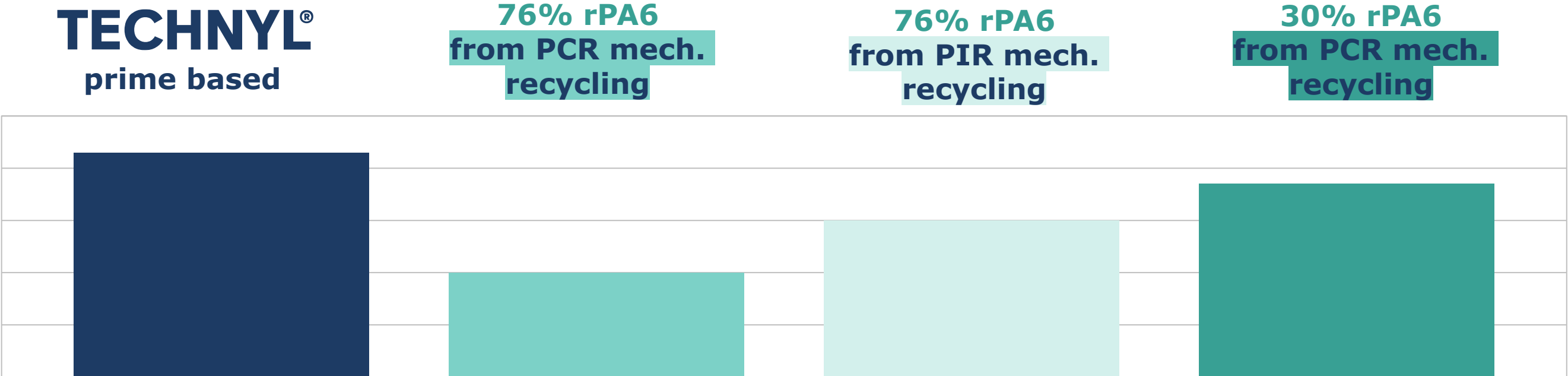
**TECHNYL® 4EARTH®**  
Sustainable polyamide  
**A1E 218 V30 34NG LP**

Excellent compatibility with refrigerants and dielectric oils

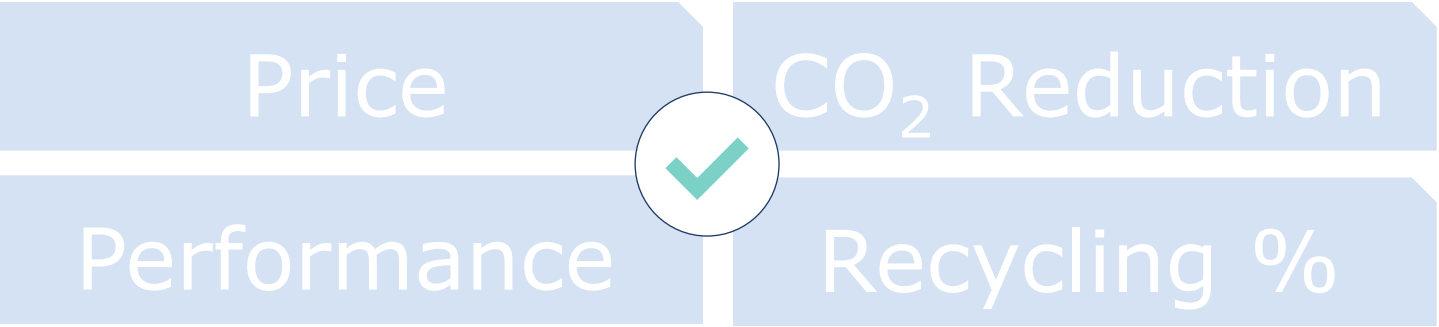


Textile - Uncoated Airbags - Film Fishing Nets

Alternatives



Evaluation criteria





# SUMMARY

- ✓ At DOMO, we embrace a sustainable vision by offering a diverse portfolio of recycled and bio-based technologies, matched to real customer needs - ensuring both **environmental impact reduction** and **functional performance**.
- ✓ Bio-based PA610 contributes to the bio-economy through:
  - Non-food biomass sourcing (castor oil)
  - Lower environmental footprint
  - Strong technical properties in demanding applications
- ✓ Bio-based alone is not a silver bullet. To build a resilient bio-economy, we must combine technologies - using bio-based polyamides **where they add real value**, alongside **advanced recycling technologies** for broad, scalable impact.
- ✓ DOMO's strength lies in selecting the **right sustainable technology based on customer-specific needs**:
  - High performance
  - High recycling content
  - High bio-based content
  - Low CO<sub>2</sub> footprint
  - Fast drop-in replacement





**THANK YOU  
FOR YOUR  
ATTENTION**

