



# High-quality leather coatings with Capa™ in PUDs

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# Outline

- ➔ Brief about Perstorp
- ➔ Introduction of polycaprolactones (Capa™)
- ➔ Use of Capa™ polyols in polyurethane dispersions
- ➔ Conclusions



## Perstorp in brief

- ➔ World leader in several sectors of the specialty chemicals market
- ➔ Perstorp was formed in 1881, over 130 years of winning formulas
- ➔ Pioneer in formalin chemistry, plastics and surface materials
- ➔ Production plants in 10 countries in Europe, Asia and North America
- ➔ Sales offices in all major markets



# Capa™ Polyols

- ➔ Aliphatic, light stable polyesters produced by ring opening polymerization
- ➔ Typical for Capa™ polyols:
  - Molecular weight, functionality and polydispersity precisely controlled
  - Melting point, crystallinity and viscosity fine tuned with choice of initiator
- ➔ Di-, tri- and tetra-functional polyols available
- ➔ Molecular weights from 400 - 8,000 g/mol

## Examples from Capa™ portfolio

Diols	Grade	Initiator	Molecular weight	OH value (mg KOH/g)	Acid value (mg KOH/g)	Reactivity	Viscosity, 60°C (mPas)	Melting range (°C)
	Capa™ 2085	DEG	830	135	<0.25	Slow	100	25-30
	Capa™ 2101 A	NEO	1,000	112	<0.05	Slow	150	30-40
	Capa™ 2201 A	NEO	2,000	56	<0.05	Slow	385	40-50
	Capa™ 2203 A	BDO	2,000	56	<0.05	Slow	460	40-50

# Polyurethane dispersions

- ➔ Allows formulation of soft flexible or hard durable systems
- ➔ Environmentally friendly – low volatile organic content (VOC)
- ➔ Suitable for wide range of substrates e.g. wood, plastic, metal, textiles & leather

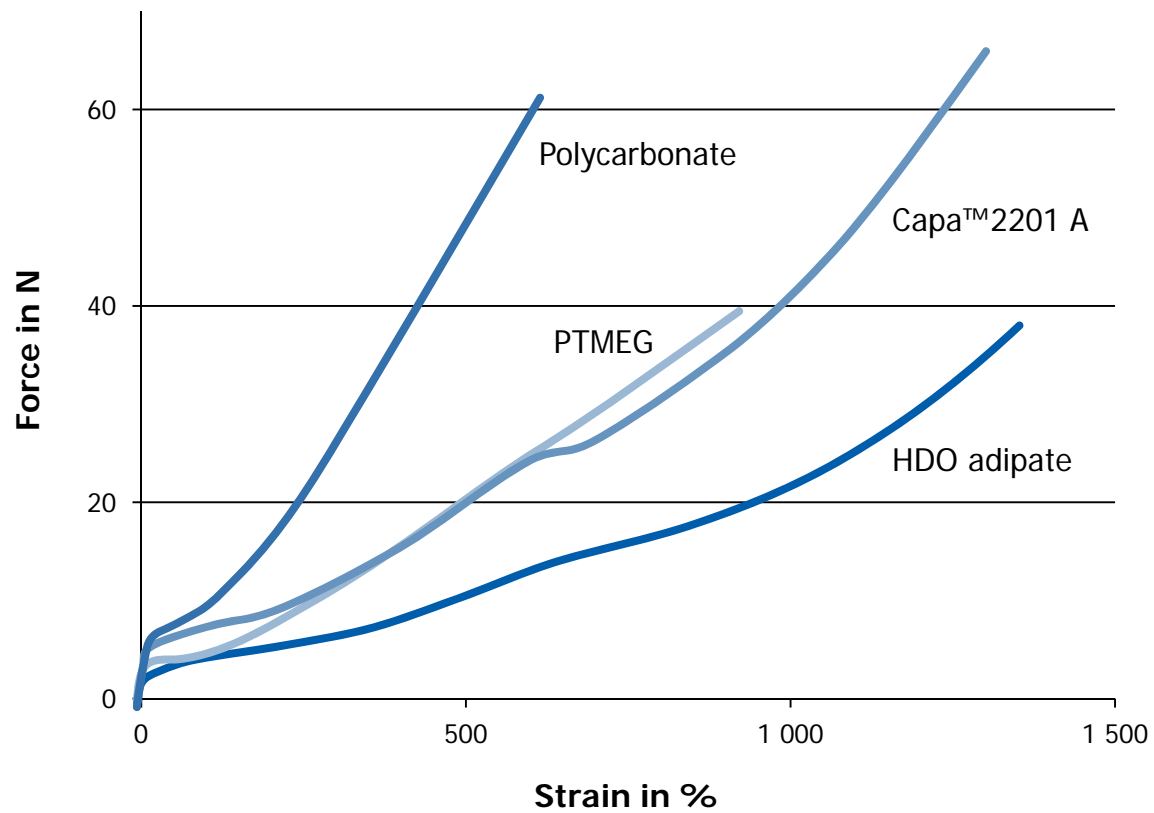
## Leather finishes

- ➔ Improve surface appearance
- ➔ Resistance to abrasion and light



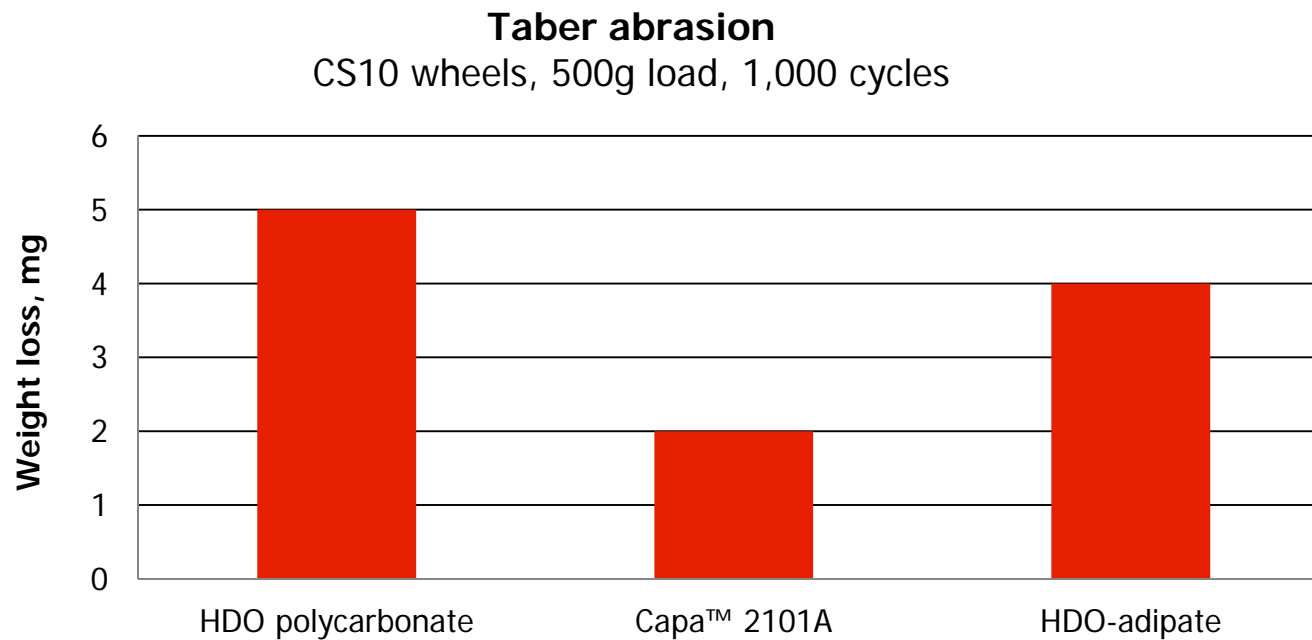
# Tensile test

➔ Capa™ combines high elongation with good tensile strength



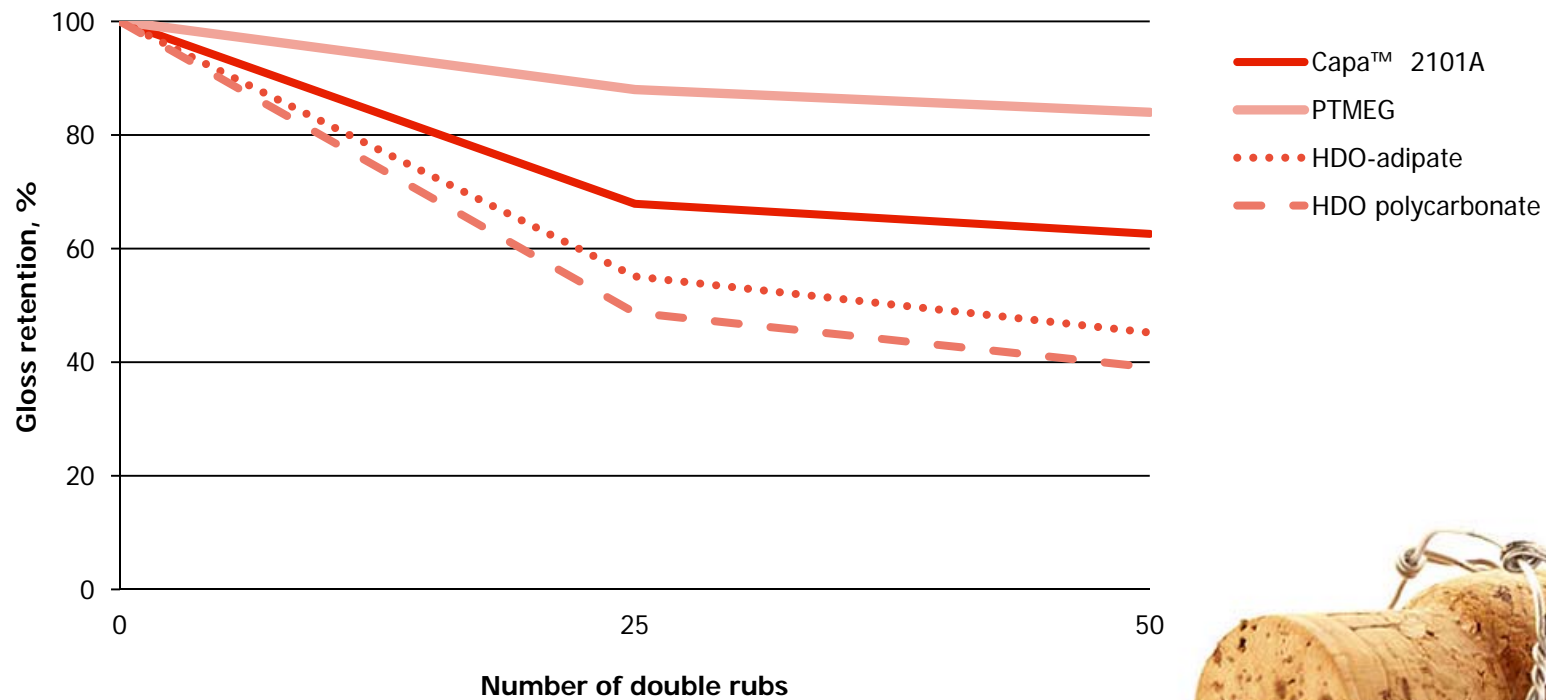
# Abrasion resistance

- ➔ The coatings resistance towards abrasive wear is much improved with Capa™



# Scratch resistance

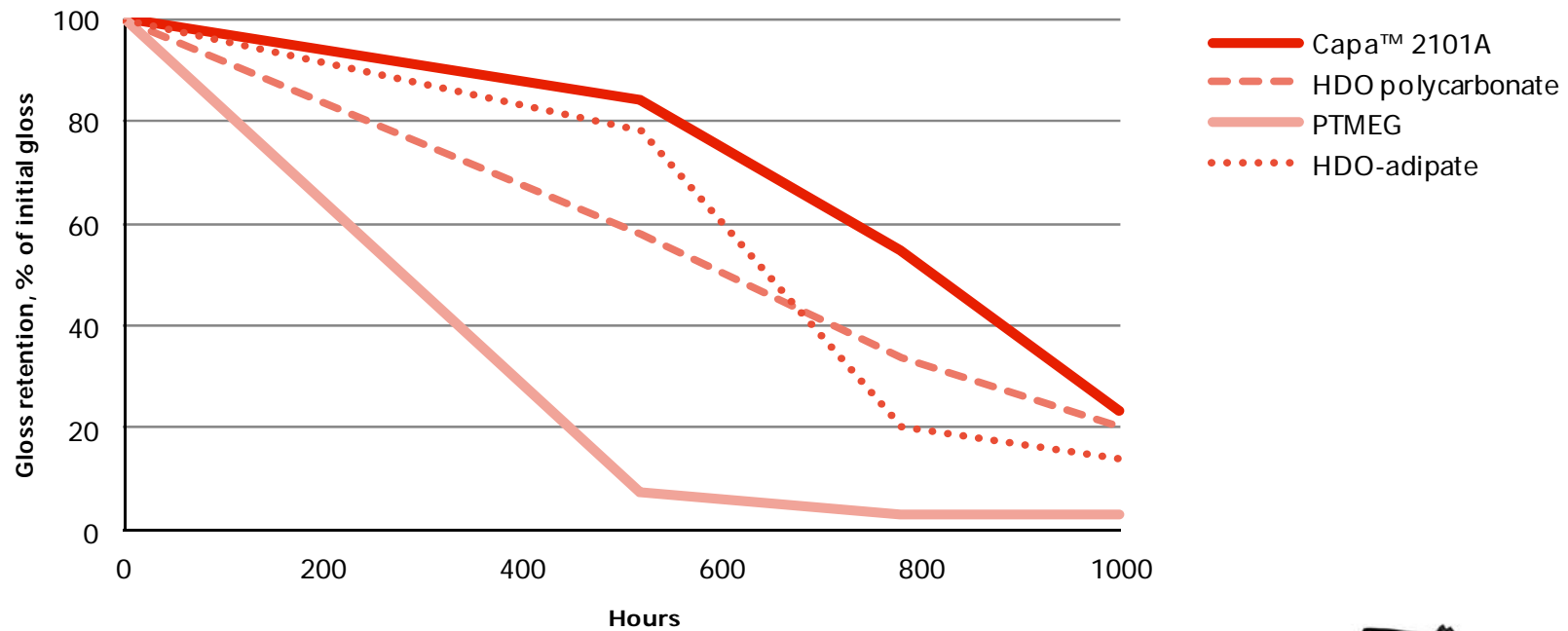
Scotch brite gloss retention 1,000 g/mol





# UV-B resistance

## UV-B resistance



Cycle: succession of 4 hour periods of UV-B exposure at 60°C each followed by 4 hour periods of condensation at 40°C

# Leather finishes – CTC

- ➔ Selected leather: Full grain leather (cow) /furniture or automotive
- ➔ Auxiliary products in top coat formulation:
  - PUD with Capa™ 2201A
  - Matting agent, pigment, wetting agent
  - Crosslinked with Easaqua X Wat 4
- ➔ Evaluations:
  - Abrasion resistance
  - Cleaning test
  - Dye transfer
  - Light stability
  - Fat rub resistance

## **Notation**

5 – Very good result

4 – Good

3 – Average

2 – Mediocre

1 – Poor

# Fastness to rubbing

## VESLIC Machine (ISO 11640)

CTC recommendation for automotive leather:

- ➔ No degradation of surface after 500 wet cycles and 1,000 dry cycles

Description	Cycles	Notation
Dry	1,000	5
Wet	1,000	5
After ageing, dry	1,000	5
After ageing, wet	1,000	5



- ➔ CTC comment: Well above the recommended standards for automotive leathers

Ageing: One week in climate chamber (60°C / 95% humidity)

# Abrasion resistance

## MARTINDALE machine (ISO 17076-2)

CTC recommendation for automotive leather:

➔ 25,000 dry cycles, 12,500 wet cycles

Description	Cycles	Notation
Dry	25,000	5
Wet	12,500	5
After ageing, dry	25,000	5
After ageing, wet	12,500	4

➔ CTC comment: Well above the recommended standards for automotive leathers

Ageing: One week in climate chamber (60°C / 95% humidity)

# Cleaning & Dye transfer

Cleaning: Artificial sweat + black & brown pigments (24 hours)



- ➔ CTC comment: **Very good results**  
Dirt does not penetrate & cleaning is very easy.

Dye transfer: Contact with black polyester fabric (24 hours)



- ➔ CTC comment: **Good results**  
Few leathers get a better grade.

# Light stability & Fat rub resistance

Test	Description	Notation
Light fastness	72 hours Xenotest	5 (very good result)
Fat rub resistance	1,000 cycles veslic machine	5 (very good result)

➔ Fat rub also made after ageing with the same extremely good result



# Conclusions

## Capa™ polyols in PUDs offer

- ➔ High flexibility
- ➔ Very good wet and dry rub resistance
- ➔ Very good outdoor durability.

Resulting in a leather finish  
that looks good and last long



**Thank you for your attention!**

Please visit us in Hall 7A, Stand no. 623

