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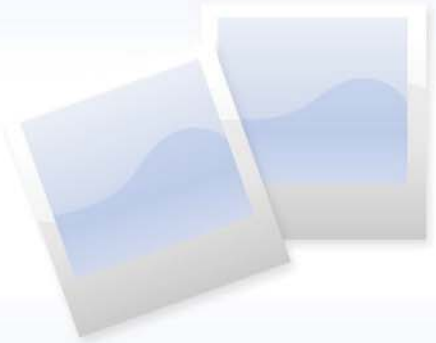
Science For A Better Life

PAS(t) = Future

Joan Miquel García, Bayer MaterialScience

Ramspec; Modena, 02 Ottobre 2014



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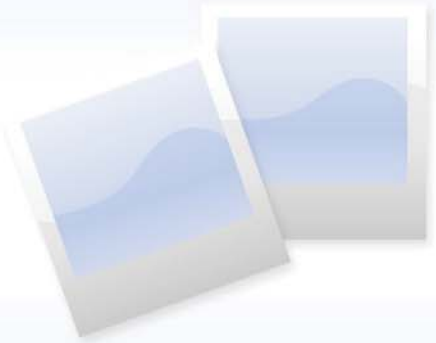
Introduction

- Chemistry
- Examples
- Summary



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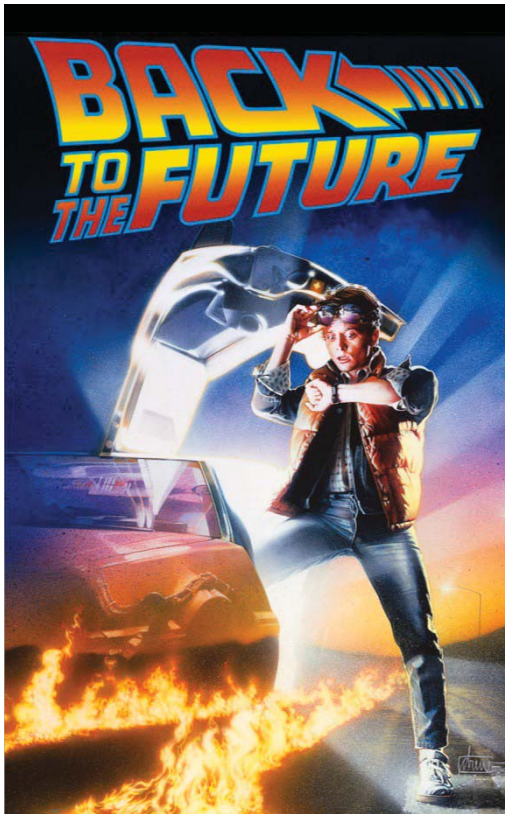
Introduction

How does the future look like?



Introduction

How does the future look like for coatings?

- Reducing the impact from our industrial activities is a must
- Competitiveness asks for added value
- So, we have some hints:
  - Highest productivity
  - Highest performance
  - Lowest environmental impact

…

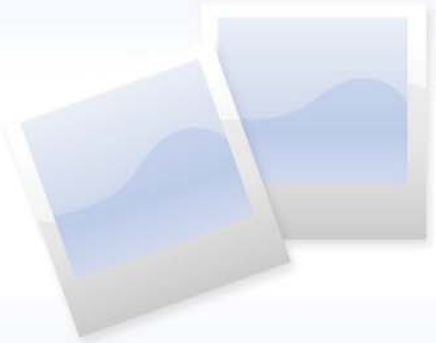
- PAS(t) = Future!!!

Introduction

What makes the Polyaspartic technology especial?

- Fast curing, improved productivity
- Low viscous, color and UV stable
- Adjustable cure speed, 2 min ↔ 40 min
- Very low to near zero VOC , 80 – 99.x % solid content
- Film build from 100 → 1000 µm
- Hard and durable films
- Excellent chemical and abrasion resistance
- Compatible with different substrates (PU, EP, ++)

Introduction



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Introduction

Chemistry

- Examples
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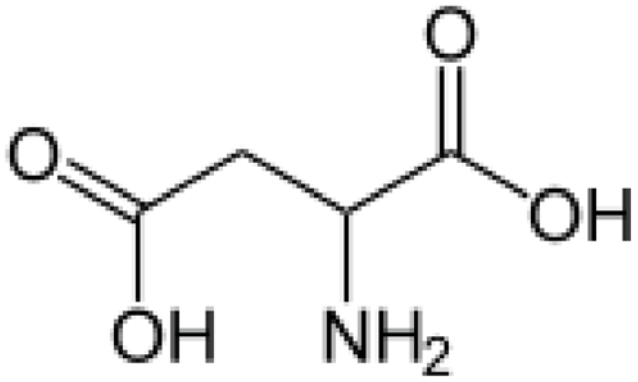
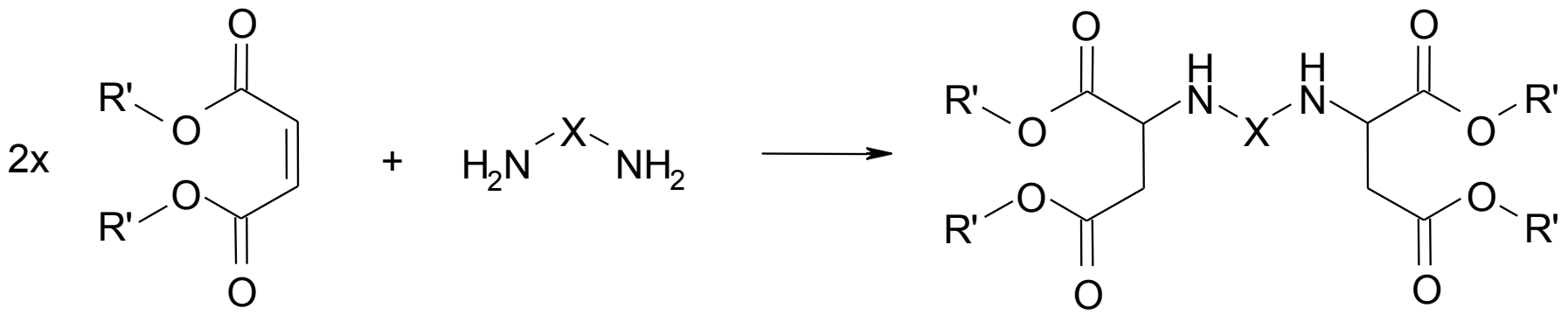
Chemistry

The term ‚aspartic' is a generic term derived from the aspartic acid



Aspartic acid (2-aminobutanedioic acid)

Chemistry

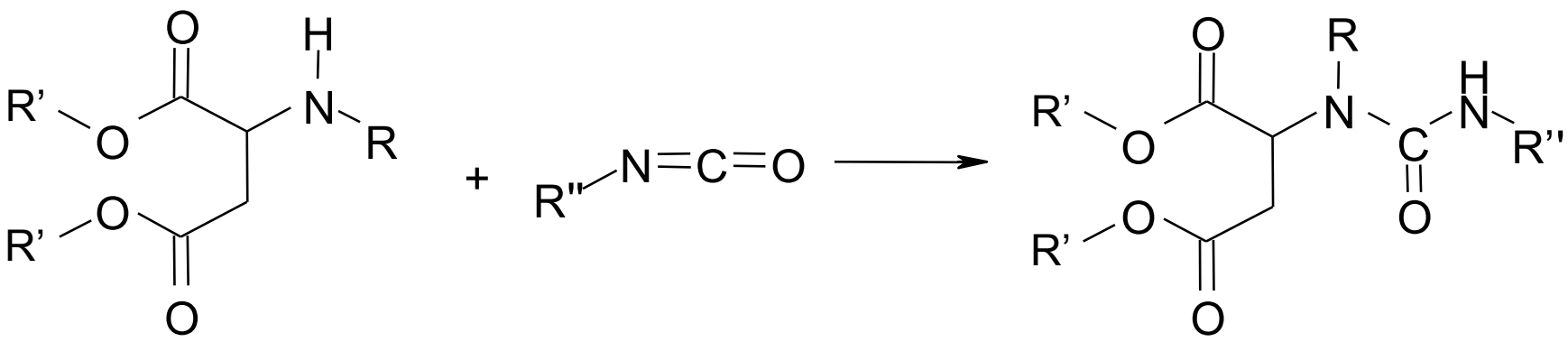


Maleic acid diester

Diamine

'Aspartic'

Chemistry



Aspartic Acid Ester

‚Desmophen NH'

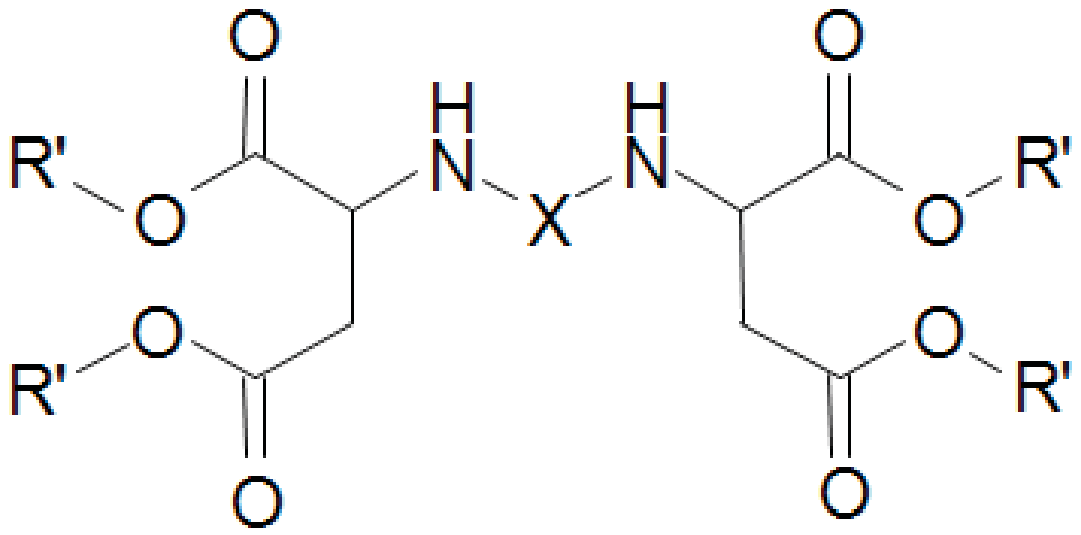
Aliphatic Isocyanate

‚Desmodur N'

Urea Structure

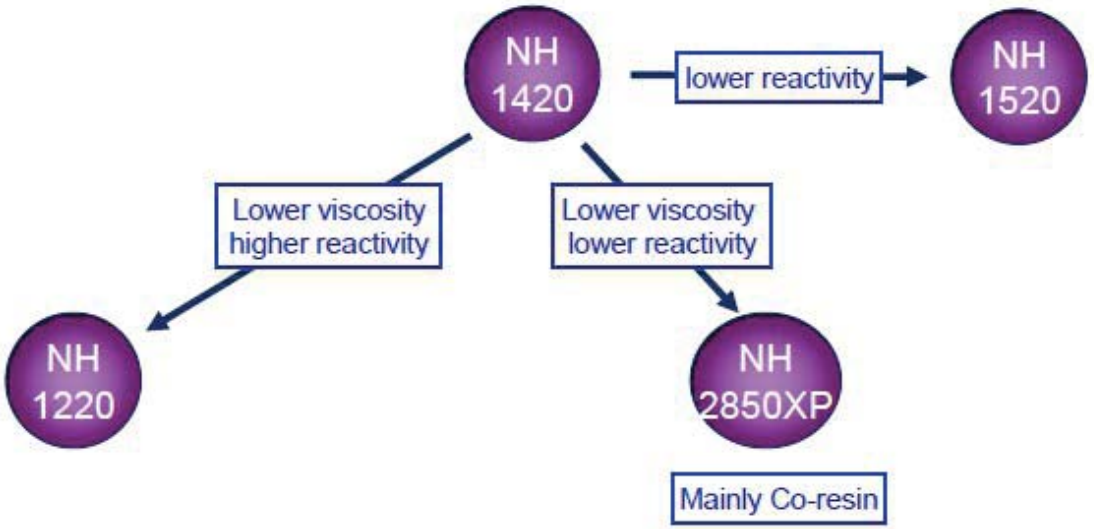
‚Polyaspartics'

Chemistry



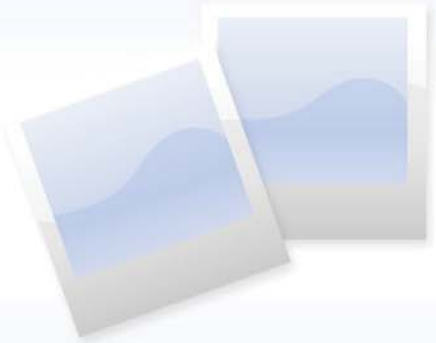
Polyaspartate Structure (generic)

Chemistry



Desmophen®	Type	Supply form	Equivalent weight	Viscosity [mPas]	Gel Time
NH 1520	Aspartic	100%	290	1200	8 h
NH 1420	Aspartic	100%	279	1000	1 h
NH 1220	Aspartic	100%	230	≤ 100	< 5 min
NH 2850 XP	Aspartic	100%	290	100	1.5 h

Desmodur®	Supply form	Viscosity @ 23°C [mPas]	NCO content [%]
N 3900			
N 3600			
N 3800			



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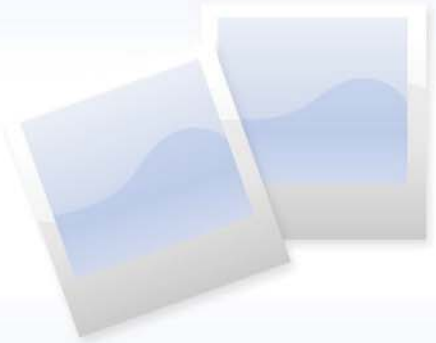
- Introduction
- Chemistry
- **Examples**
- Summary



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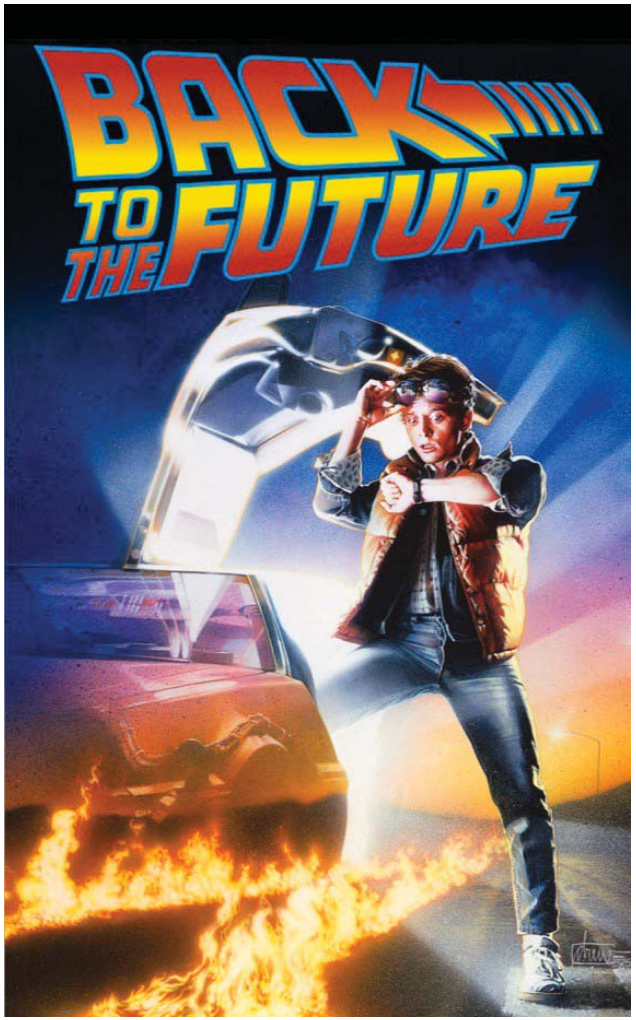
Introduction

Chemistry

- **Example 1: Individual's garage**
- Summary

Example 2
Individual's garage

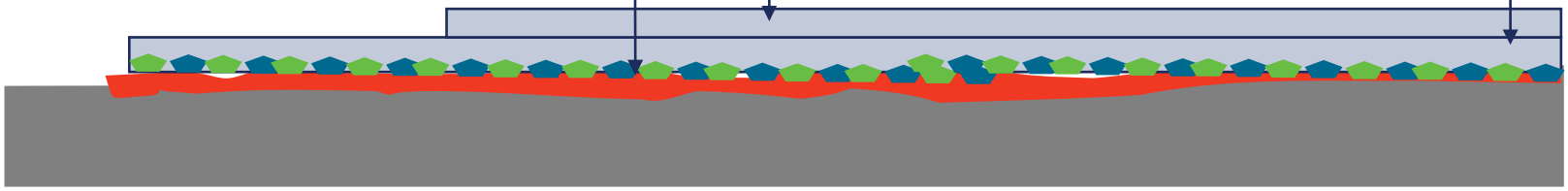


Example 2
Individual's garage

Garage coating system

Conventional system:
1. primer with chips => 1 day
2. 1st sealer => 1 day
3. 2nd sealer => 1 day
3. Curing => 1 day
in total 4 days

PAS system:
1. primer with chips => 2 hrs
2. 1st sealer => 2 hrs
3. 2nd sealer => 2 hrs
in total 6 hrs



Example 2
Individual's garage

Standard system




DAY 1	DAY 2	DAY 3	DAY 4
Preparation & 1st layer application	2nd layer application	3rd layer application	Curing




Example 2
Individual's garage

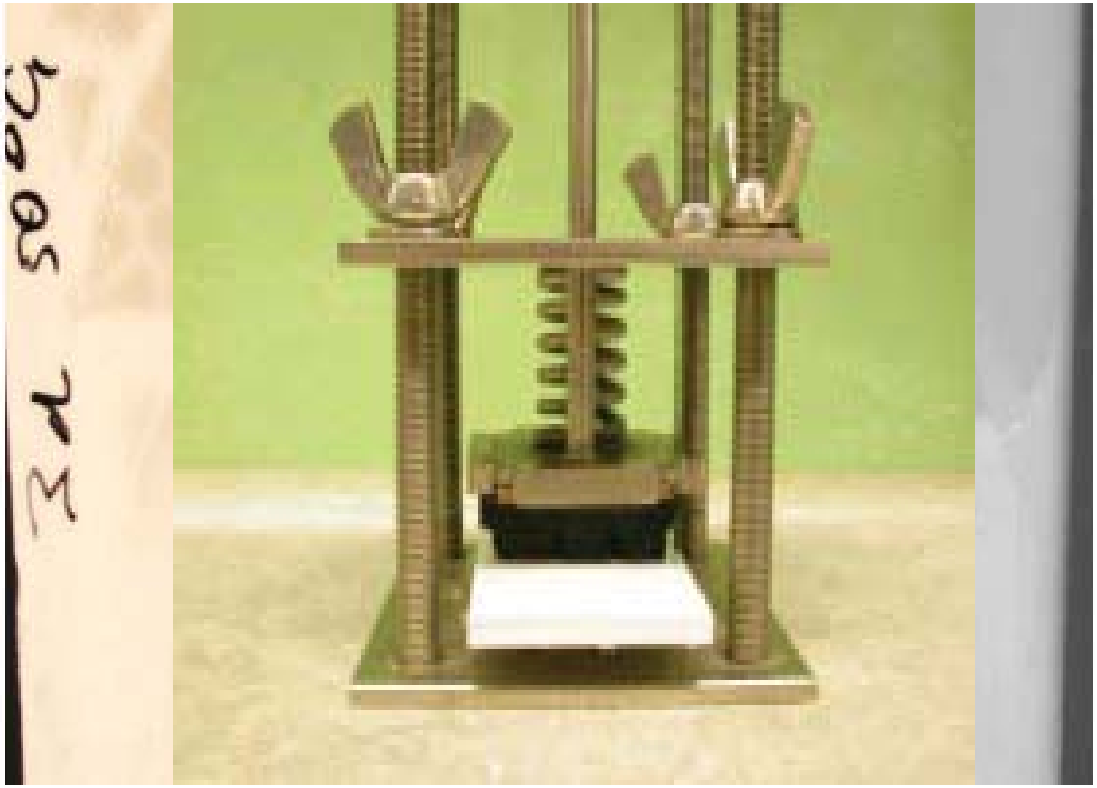
PAS(t)

8h	Preparation & 1st layer
9h	
10h	
11h	2nd layer application
12h	
13h	3rd layer application
14h	
15h	
16h	

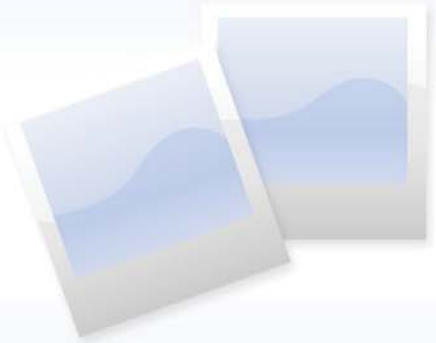
- Near '0' VOC
  - Reduced emissions
  - Reduced inconvenience for end user
- Only 1 day working time
  - Reduced CO2 emissions (application related -66%)
  - Lower inconvenience for end user
- Higher added value
  - Lower price offer possible → Reduced labor costs
  - Higher margin potential
  - Higher sales potential

Example 2
Individual's garage

Tire marks resistance



Standard system Polyaspartic



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Chemistry

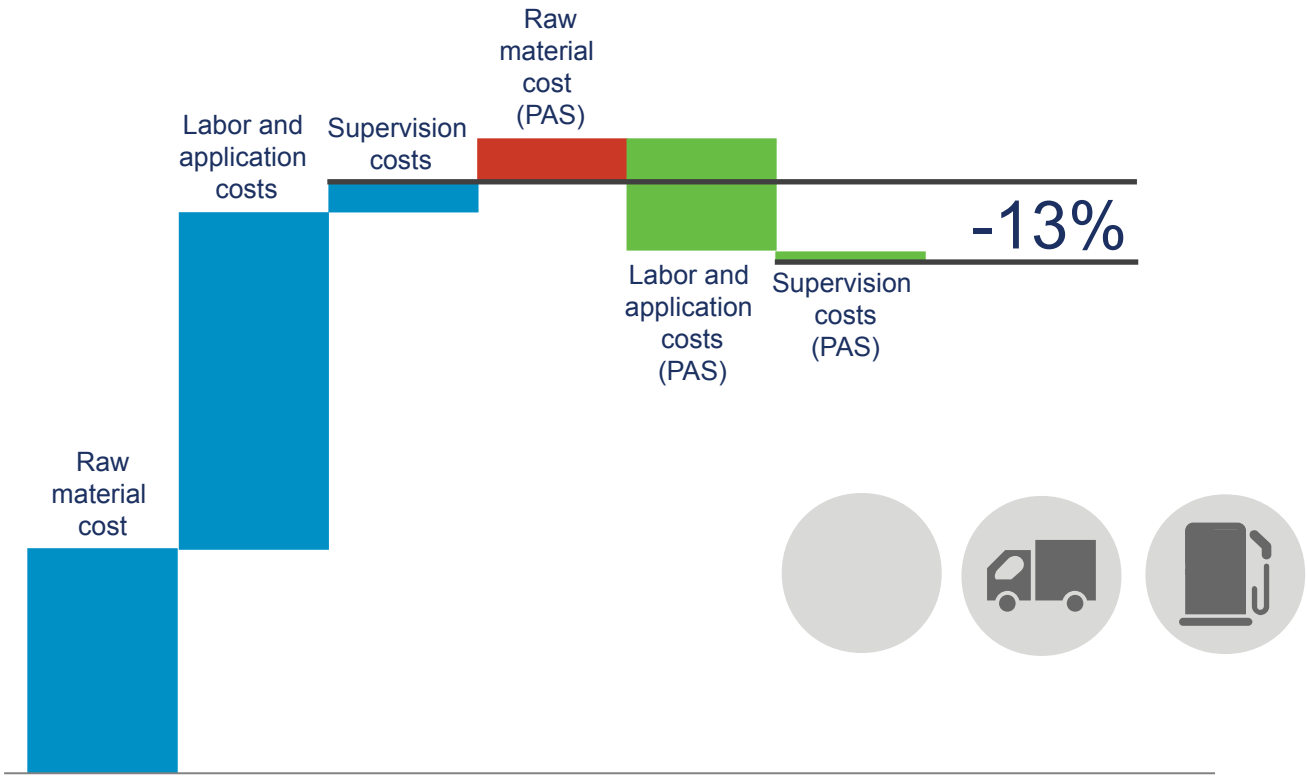
- **Example 2: Industrial flooring**
- Summary

Example 1
Industrial flooring application

L.A. Dodgers stadium

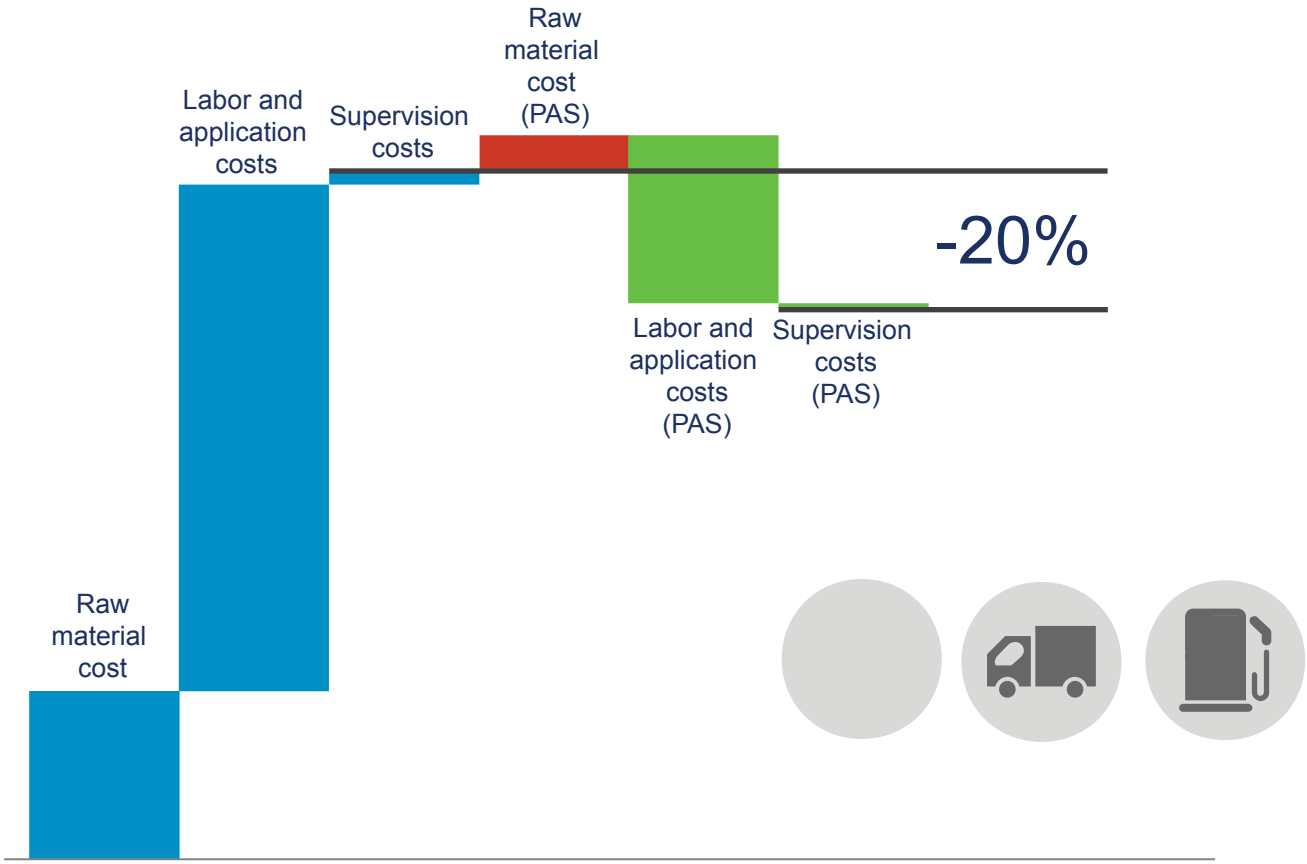
Example 1
Industrial flooring application

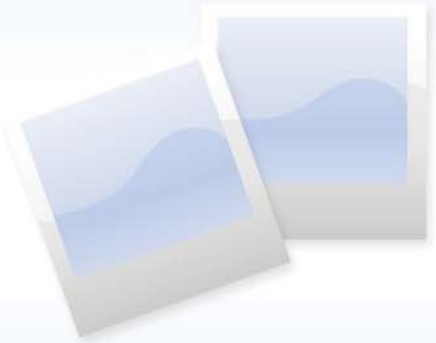
Costs calculation
v1: low labor & application costs



Example 1
Industrial flooring application

Costs calculation
v2: higher labor & application costs





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  - **Summary**

Summary

We want you to time travel with us.

The PAS technology allows you to produce coatings with:

- Highest performance
- Highest productivity = Reduced working time
  → Added value for the customer
  → Lower process costs
- Lowest environmental impact
  → Near '0' VOC emissions
  → Reduced CO2 process related emissions

PAS(t) = Future

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Science For A Better Life

¡¡¡Grazie!!!

juanmiguel.garcia@bayer.com

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