



The global approach

Europe

Restrictions
Solutions

Applications

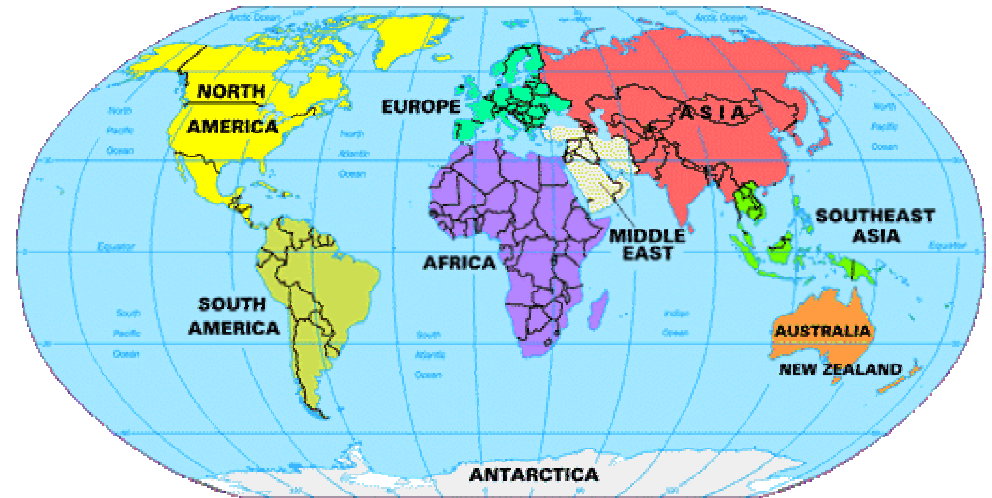
Recycling
and Future

Questions



- Polyurea
- one world
- one technology
- many differences

let's take
the global
approach





Europe

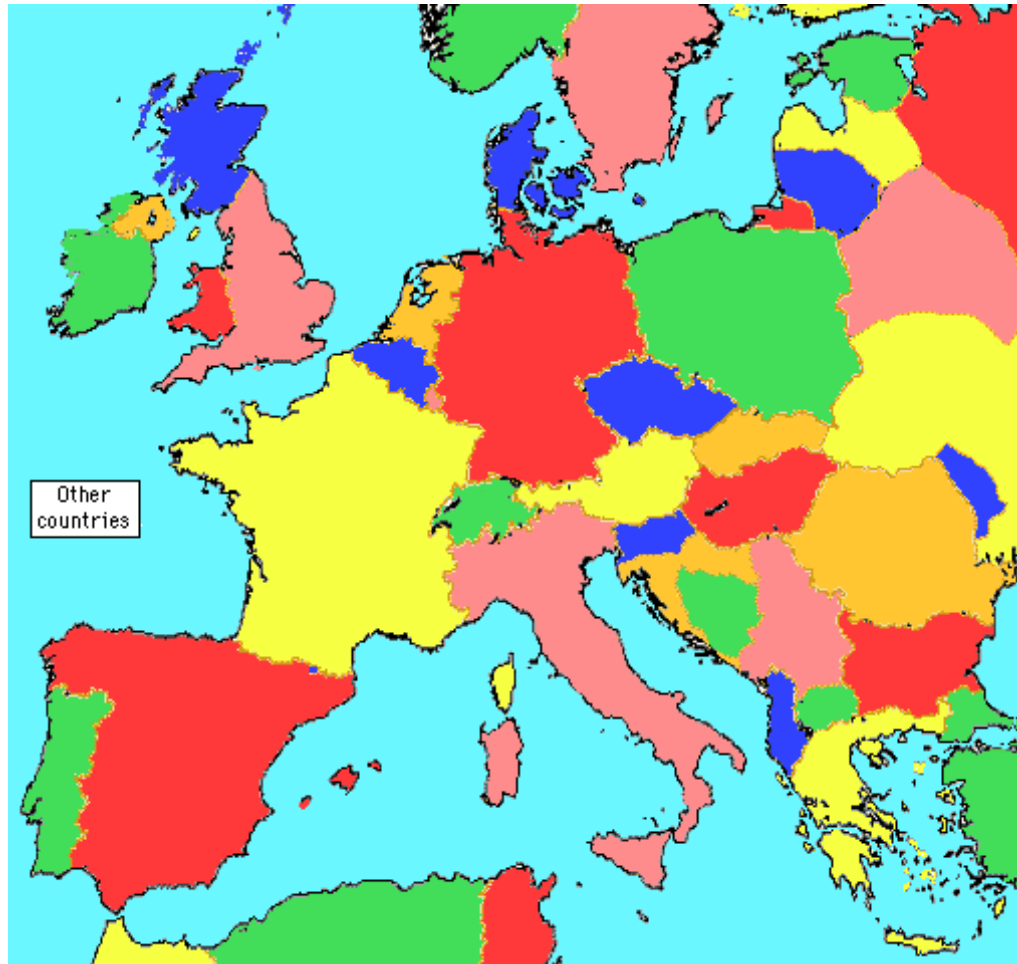
Europe

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Recycling
and Future

Questions



- Europe
- 706 Mio. people
- 70 languages
- 54 nations

- EU
- 15 of 54



Polyurea in Europe

Europe

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Questions

- Compared to the consumption of Polyurea Spray in the USA and Asia,



- Europe is one decade behind

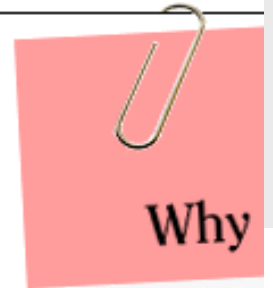


- why that ?





Restrictions in Europe



Europe

Restrictions
Solutions

- strict, comprehensive regulations
- government approvals for many applications (roads, bridges, roofing...)
- strong lobby for established materials, aggressively defending their homelands causing the use of old technologies in today's new constructions
- the use of proven better technologies is simply forbidden





Restrictions in Europe

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- That is the background for the current developments of Polyurea in Europe
- today's activity: in less regulated or non-regulated applications



- better properties and easier handling in many niche applications
- long term perspective, accepting the regulations



Interest vs. Regulation ?

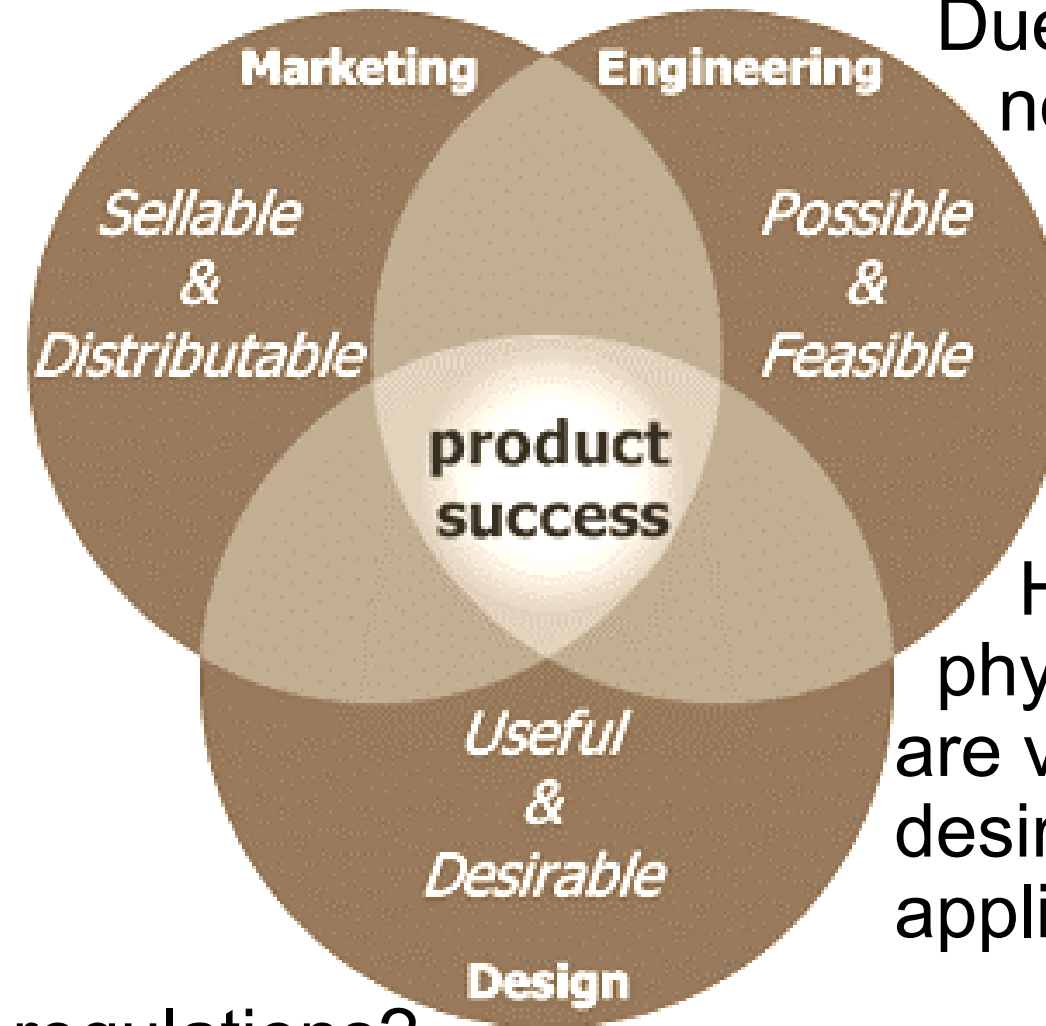
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regulations?

Due to limitations not all products are allowed or registered to be sold or distributed.

However, their physical properties are very useful, desirable and the application is feasible.
... It is a dilemma



Polyurea Applications

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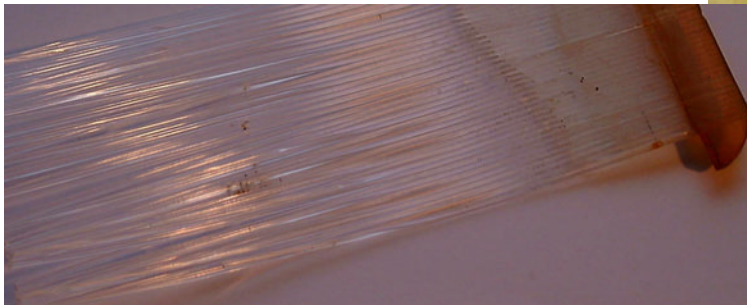
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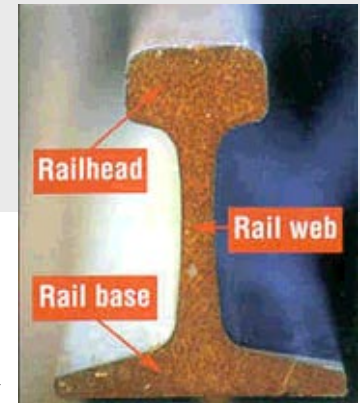
flame retardancy due to high aromatic amine content, maintaining high elasticity

in-house applications





Polyurea and Railroad



Europe

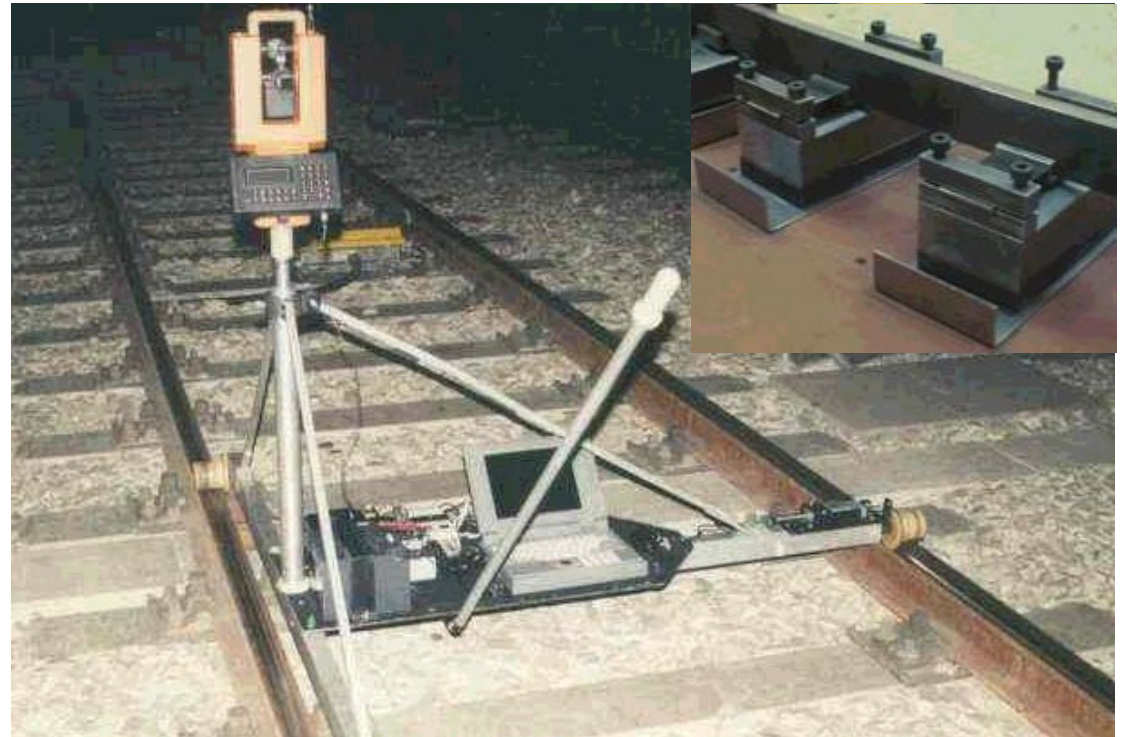
high impact applications, e.g. as a cushion for rail tracks or directly as rail track mount providing shock and sound absorption.

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Polyurea and Military

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Military applications...



Polyurea and Piping

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Just imagine...
Repairing any pipe older
than 30 years...

... protective coatings

... increasing the
potential attack on the
substrate by today's
more potent cleaning
agents ...



The making of ...

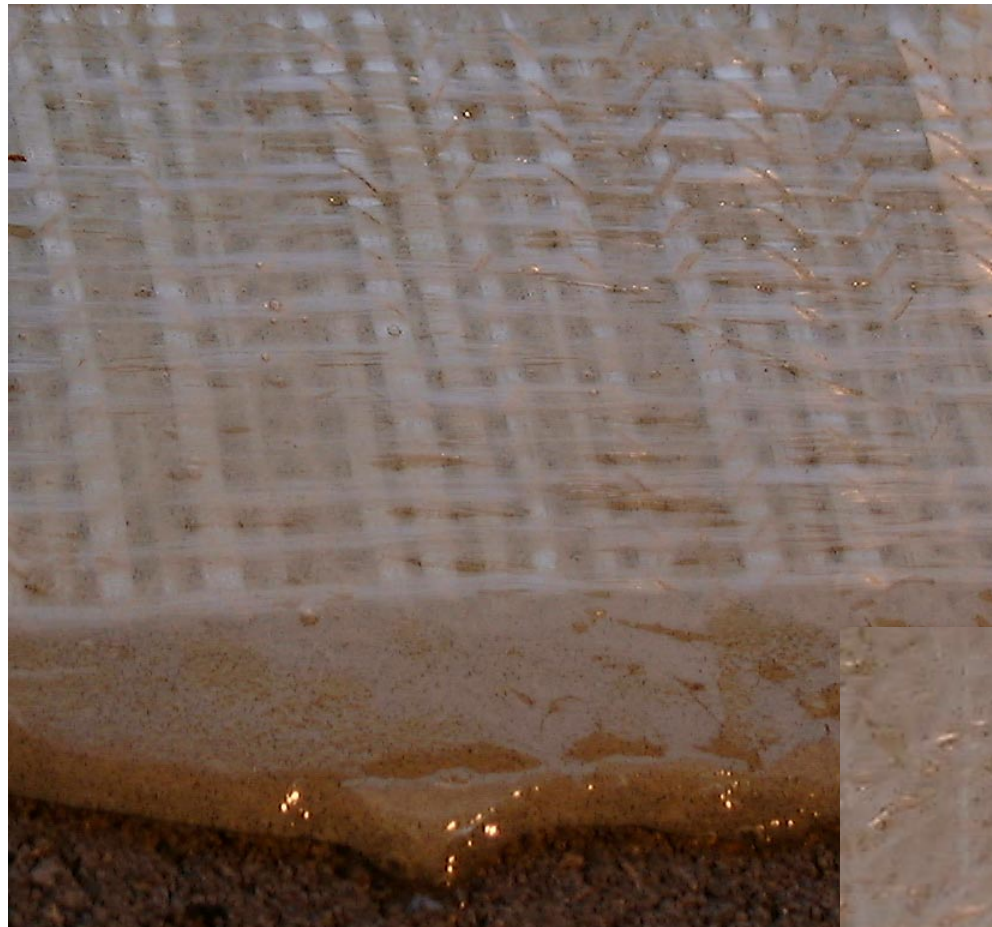
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impregnate
glass fibre
mats, apply
after these have
reached an
initial dimension
stability ...

within 10 minutes





... inlays

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The pre-curing allows good adhesion on moist substrates. This is obtainable by using non-hybrid, catalyst-free systems



Polyurea and Asphalt



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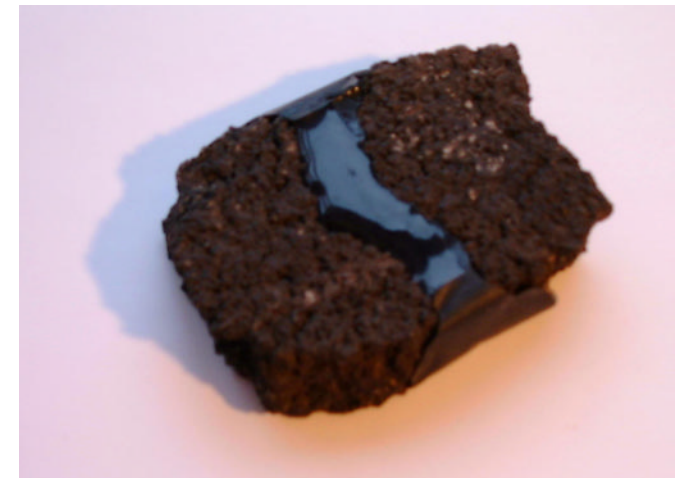
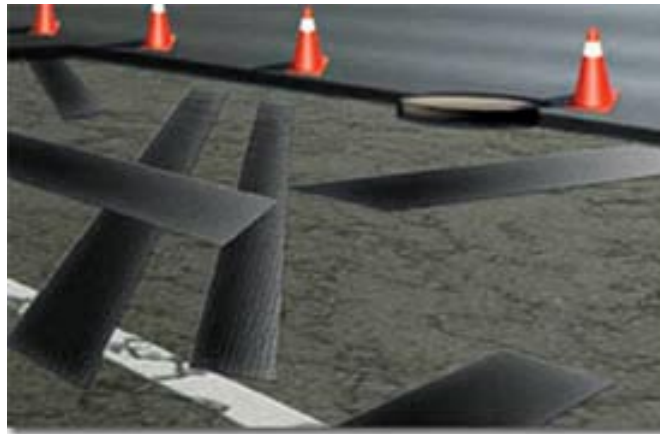
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Questions

- asphalt repair
joint sealant for
control cables



good connection / adhesion to asphalt
easy to apply cast polyureas





Polyurea

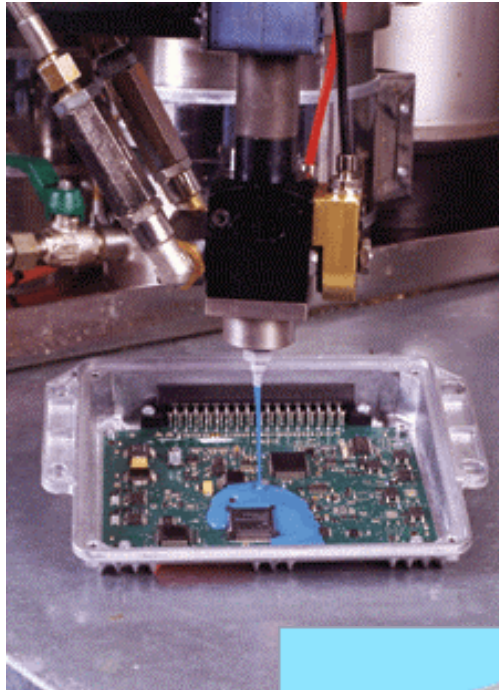
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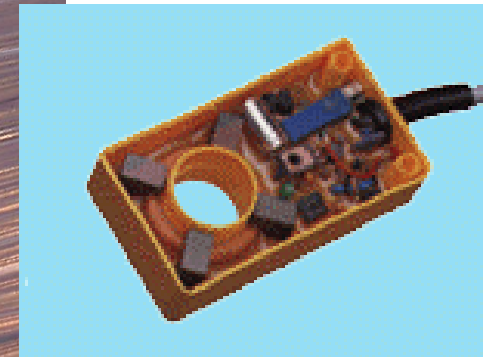
Applications

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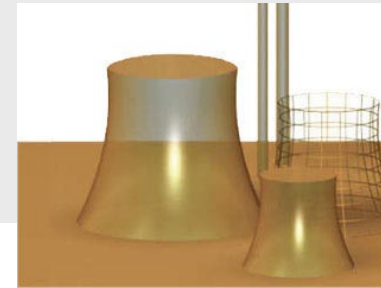


➤ Polyurea sealants of electric and electronic appliances offer protection against mechanical impacts or climate conditions





Polyurea and Smoke



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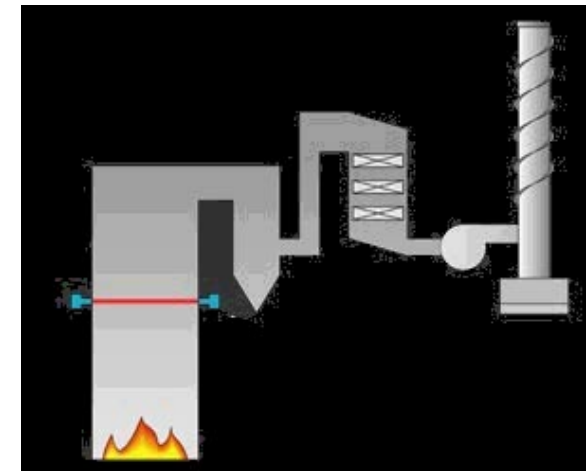
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Questions



- good resistance against gases and aggressive compounds (SO_2) contained therein.
- very high temperature resistance in cast systems due to no air enclosures

- e.g. for smoke gas filters



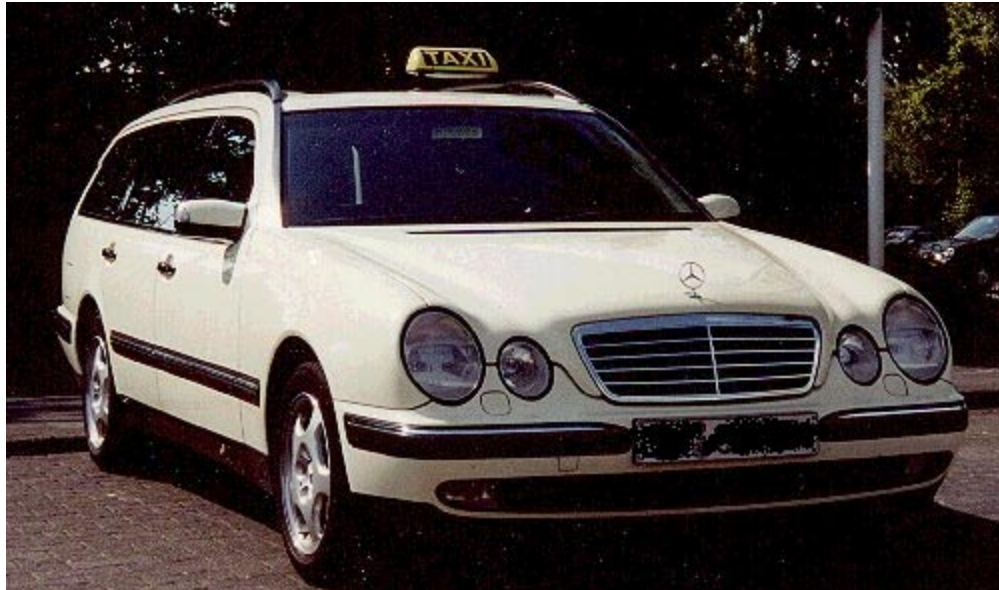


Peelable Polyurea



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- peelable polyurea coatings



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- temporary, protective coatings for transport, decorative, protection during manufacturing processes... adjustable adhesion

Questions



Polyurea Recycling ?

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Recycling Option:

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Restrictions

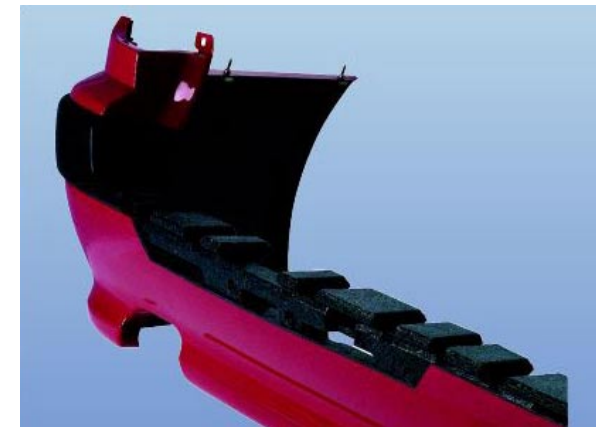
Solutions

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Questions

- Following the task towards 100% recyclability in the automotive industry
- Polyurea and RIM parts can be used and are currently tested to be used as a filler for RIM and urea applications.
- First results show that up to 10 % filler are possible without losing the advanced properties.





The Future: Low Pressure?

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Questions

- Applicators and niche users are afraid of high investments for high pressure machines for applying the fast setting polyurea materials.



- The success and market penetration for slow curing materials applicable by static mixing or low pressure consistently increases.





The Future:

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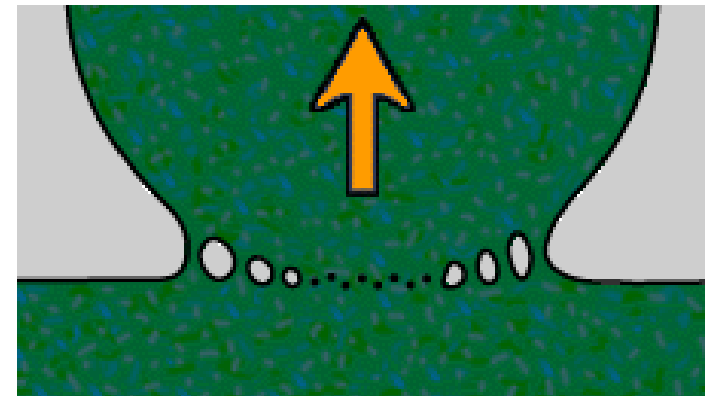
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- In addition, the slower setting / curing polyureas offer better adhesion (whilst the urea reaction is still faster than the humidity reaction with the isocyanate).





Polyurea – A Burning Issue ?

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- phosphorus containing, incorporable amines for strongly improved flame retardancy

Flame





Questions



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This is can only be a rough overview,
For further questions and details,
Please meet us at our exhibit or
Contact us later on !





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