

# Welcome

## General House-Keeping



Audio Muted and Camera Switched Off



Questions & Answers (Q&A Enabled)



Recording and Presentation Deck will be shared via email

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# BASF Intermediates Division – Specialty Amines

## About Us

- Baxxodur® – Epoxy Curing Agent
- Lupragen® – PU Catalysts
- Metal Working Fluids
- Pharma Ingredients
- Agriculture
- Over 100 unique products

## Agenda

About BASF Intermediates

Tech Spotlight:  
Baxxodur® EC 151

Live Q&A

## Speaker



### **Dr. Yannick Matt**

**2018 – 2021:** PhD in Chemistry

**2021 – today:** Lab Team Leader,  
Polycondensation & Addition  
Specialties

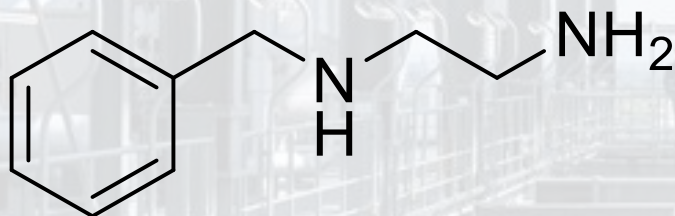
**2024 – today:** Lab Team Leader,  
Chemical Intermediates  
Application Laboratory



We create chemistry

# Intermediates Tech Spotlight

## Cold Curing Epoxy: Baxxodur<sup>®</sup> EC 151



We create chemistry

# Market Trends in Flooring and Coating

## Current Trends

- Driven by regulatory pressure
- Low VOC
- Non-Toxic Amines
- Replace toxic reactive diluents

## Requirements

- Carbamate free surface
- Fast curing times at low temperature
- Fulfill technical regulations
  - ▶ DE – WHG
  - ▶ US – OSHA/EPA
  - ▶ EU – Construction products regulation
    - Concrete crack bridging
    - Chemical resistance

# Baxxodur<sup>®</sup> EC 151: A patent protected curing agent

## Patent Situation

### Patent protection for increased freedom to use

- Baxxodur<sup>®</sup> EC 151 is a co-development with SIKA
- Extensive application patent portfolio by SIKA

### Each customer of BASF is free to use Baxxodur<sup>®</sup> EC 151 under patents on a “whitelist”\*

- Any BASF customer obtains a non-prosecution declaration for these “white-listed” IP rights.

\* further patents by third parties and Sika might exist

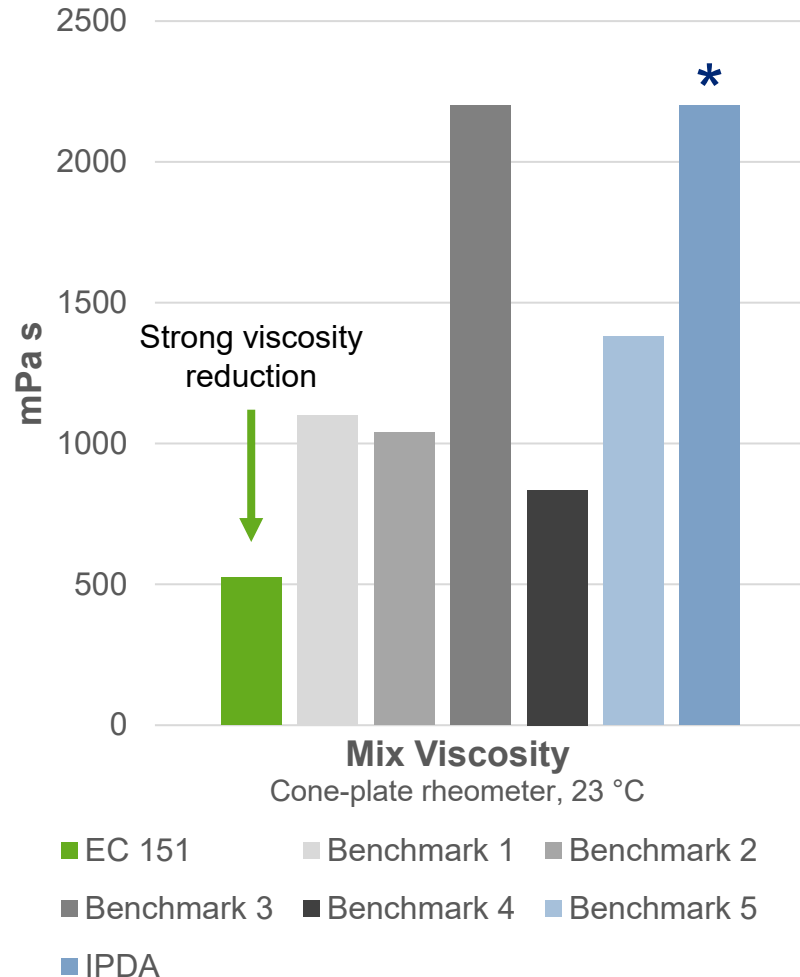
## Product Characteristics

- **Low mix viscosities** – low VOC & highly filled formulations possible
- **Low carbamation** – excellent surface quality without the need for adductation

- **Long pot life but fast cold cure** – good handling & efficient application processes
- **Excellent stiffness & toughness** – robust surfaces possible

# Baxxodur® EC 151: Sustainable formulations

## Mix viscosity & pot life



- Binary test systems: BADGE resin + hardener
- Very low mix viscosity (~500 mPa s with BADGE)
- Sustainability by...
  - ▶ Reduction/elimination of solvents: Low odor, (ultra) low VOC
  - ▶ Reduction/elimination of reactive diluents: Regulatory benefit
  - ▶ High solids formulations
  - ▶ Formulation simplification
- Long pot life, fast curing
  - ▶ Time until 6 Pa s ~215 min @10 °C  
~190 min @23 °C

# Baxxodur® EC 151: Superior surfaces

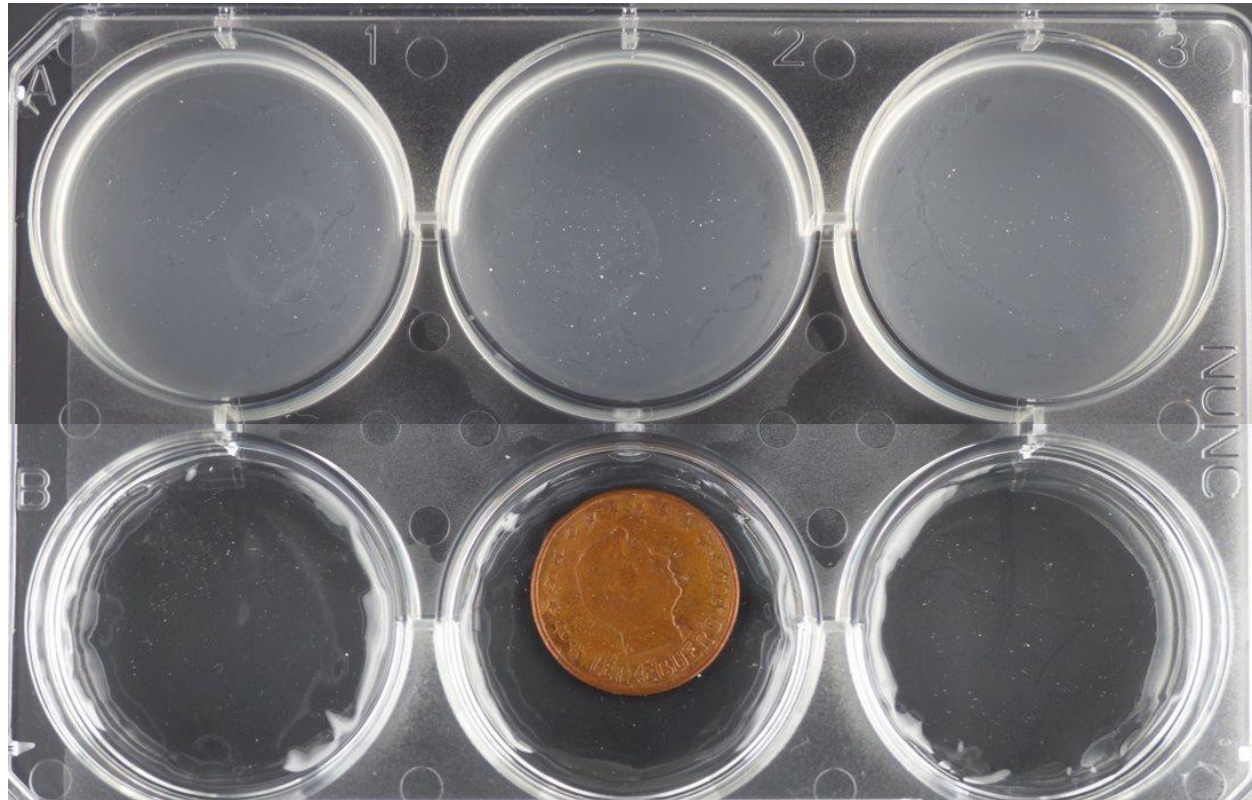
**Baxxodur® EC 151 shows a very low carbamation tendency**

- Nice, smooth and glossy surfaces
- No need for formation of adducts

**Baxxodur® EC 151 provides good chemical resistance & low yellowing**

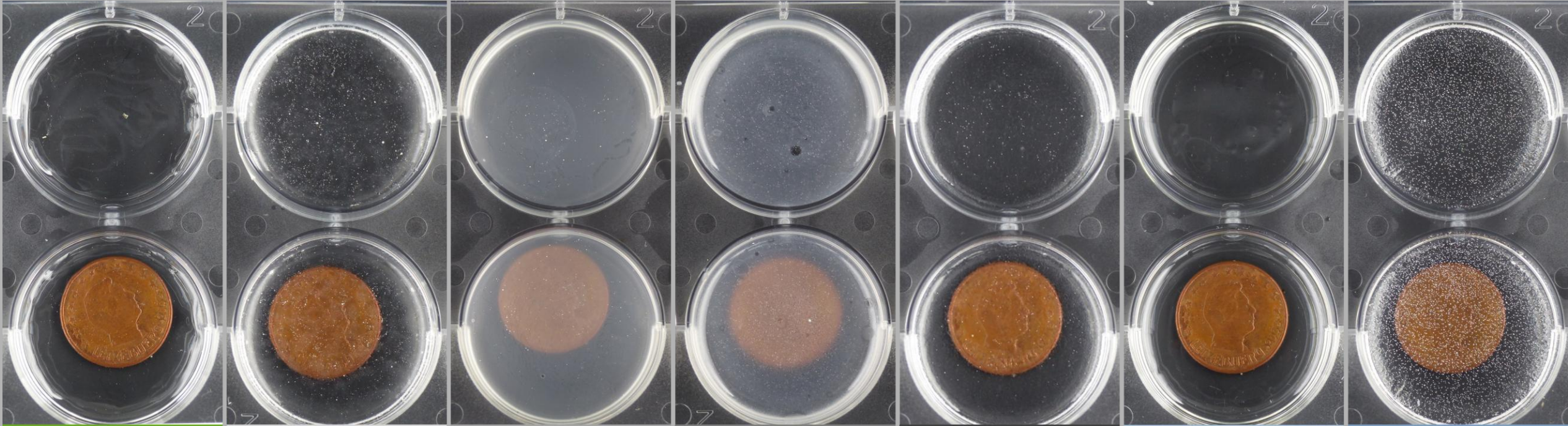
Competitive,  
non-adducted cold  
cure hardener

Baxxodur® EC 151



Samples stored at 15 °C, 50% r.h. for 24 h

# Baxxodur® EC 151: Superior surfaces



EC 151

Benchmark 1

Benchmark 2

Benchmark 3

Benchmark 4

Benchmark 5

IPDA

Prone to Yellowing

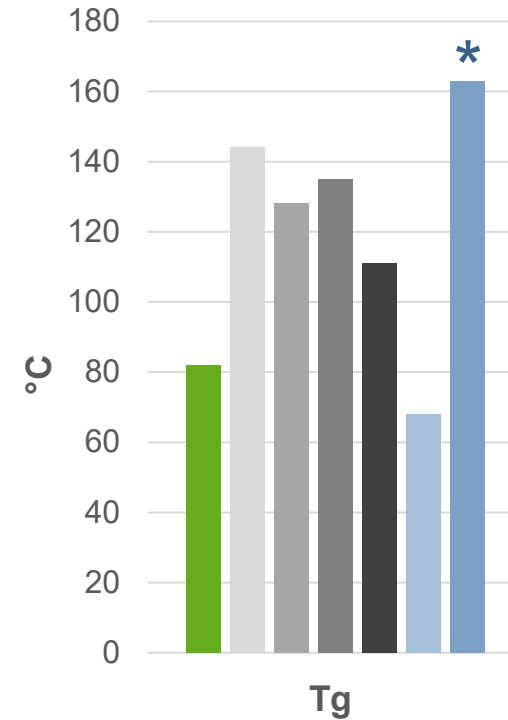
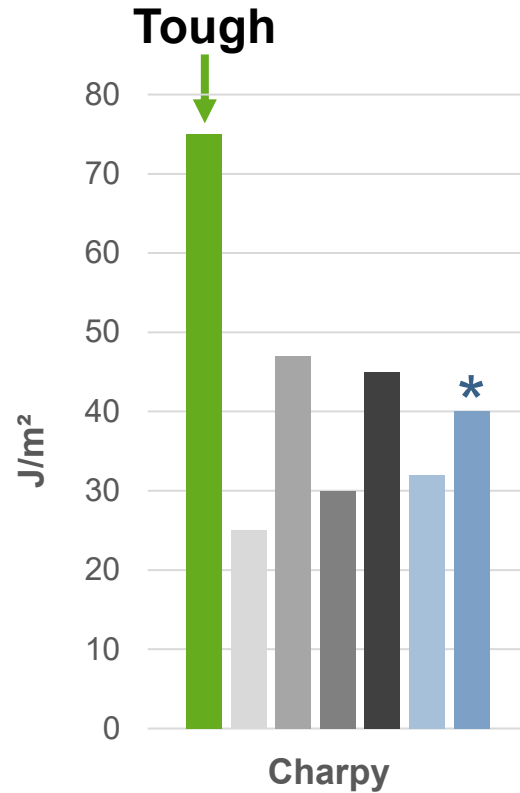
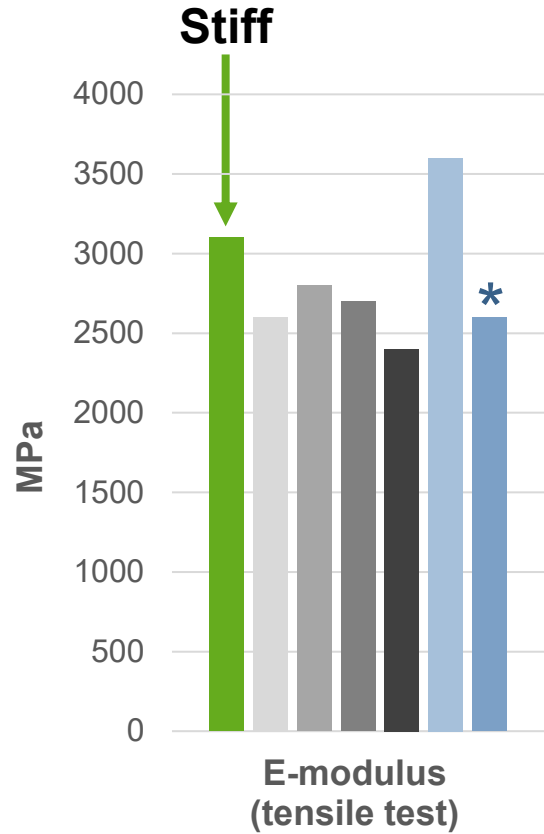
# Baxxodur<sup>®</sup> EC 151: Chemical Resistance

- ShoreD development of thermosets after chemical/solvent exposure
- Storage duration 1 day / 7 days and reconditioning (23 °C, 50 r.h.) for 1 hour / 24 hours
- Good chemical resistance – confirmed by development partner & epoxy experts

Solvent	Exposure	Reconditioning		ShoreD		Exposure	Reconditioning		ShoreD	
		1 h	24 h	80	83		1 h	24 h	81	84
Reference		1 h	24 h	80	83		1 h	24 h	81	84
Acetophenone	1 day	1 h	24 h	63	60	7 days	1 h	24 h	40	48
Ethyl acetate	1 day	1 h	24 h	50	53	7 days	1 h	24 h	-	-
Acetic Acid 10%	1 day	1 h	24 h	78	80	7 days	1 h	24 h	82	82
Acetic Acid 50%	1 day	1 h	24 h	67	63	7 days	1 h	24 h	46	47
NaOH 20%	1 day	1 h	24 h	82	82	7 days	1 h	24 h	78	87
H <sub>2</sub> SO <sub>4</sub> 20%	1 day	1h	24 h	79	79	7 days	1h	24 h	80	83

Test conditions loosely adapted from DIBt

# Baxxodur<sup>®</sup> EC 151: Unique robustness



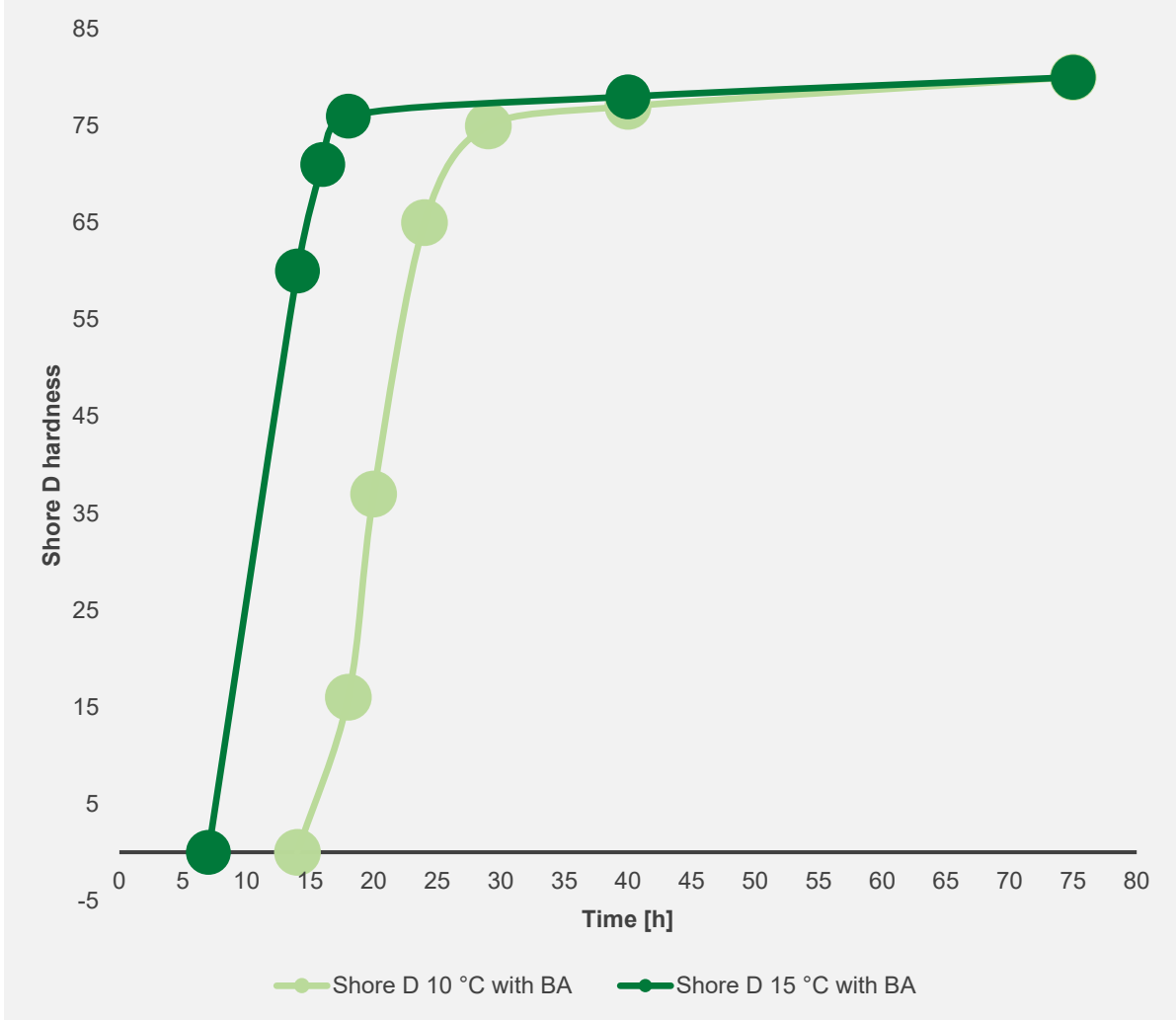
■ EC151  
■ Benchmark 1  
■ Benchmark 2  
■ Benchmark 3  
■ Benchmark 4  
■ Benchmark 5  
■ IPDA

■ EC151  
■ Benchmark 1  
■ Benchmark 2  
■ Benchmark 3  
■ Benchmark 4  
■ Benchmark 5  
■ IPDA

■ EC151  
■ Benchmark 1  
■ Benchmark 2  
■ Benchmark 3  
■ Benchmark 4  
■ Benchmark 5  
■ IPDA

- Unique set of mechanical properties
  - ▶ Very stiff and tough at the same time
  - ▶ Both based on tensile test and compression test data
  
- Glass transition temperature high enough for many applications

# Baxxodur<sup>®</sup> EC 151: Shore D hardness development

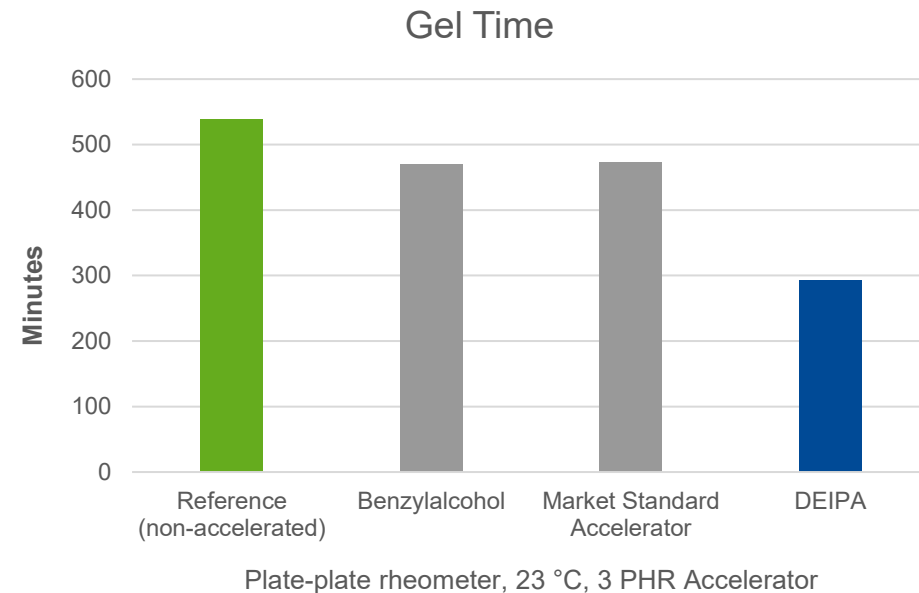
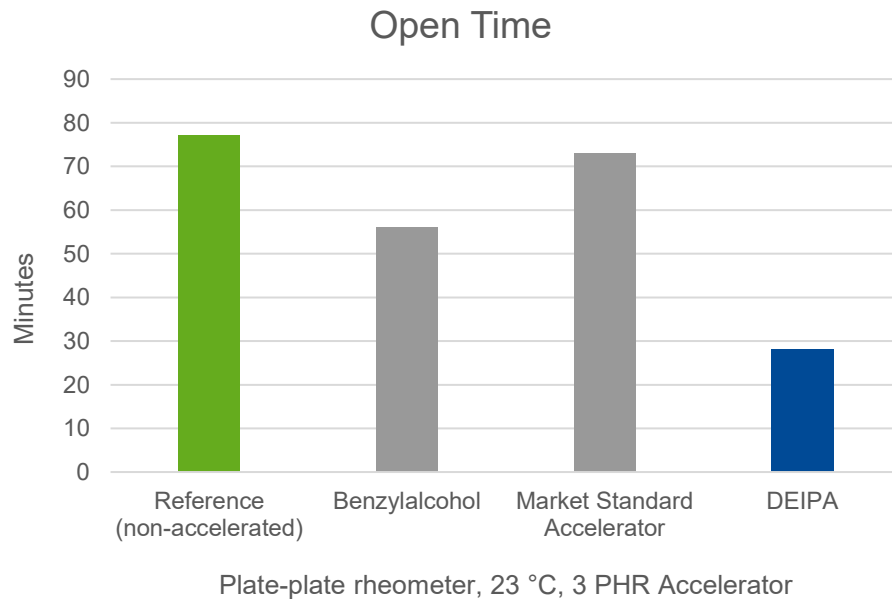


## Fast hardness build up, temperature dependent

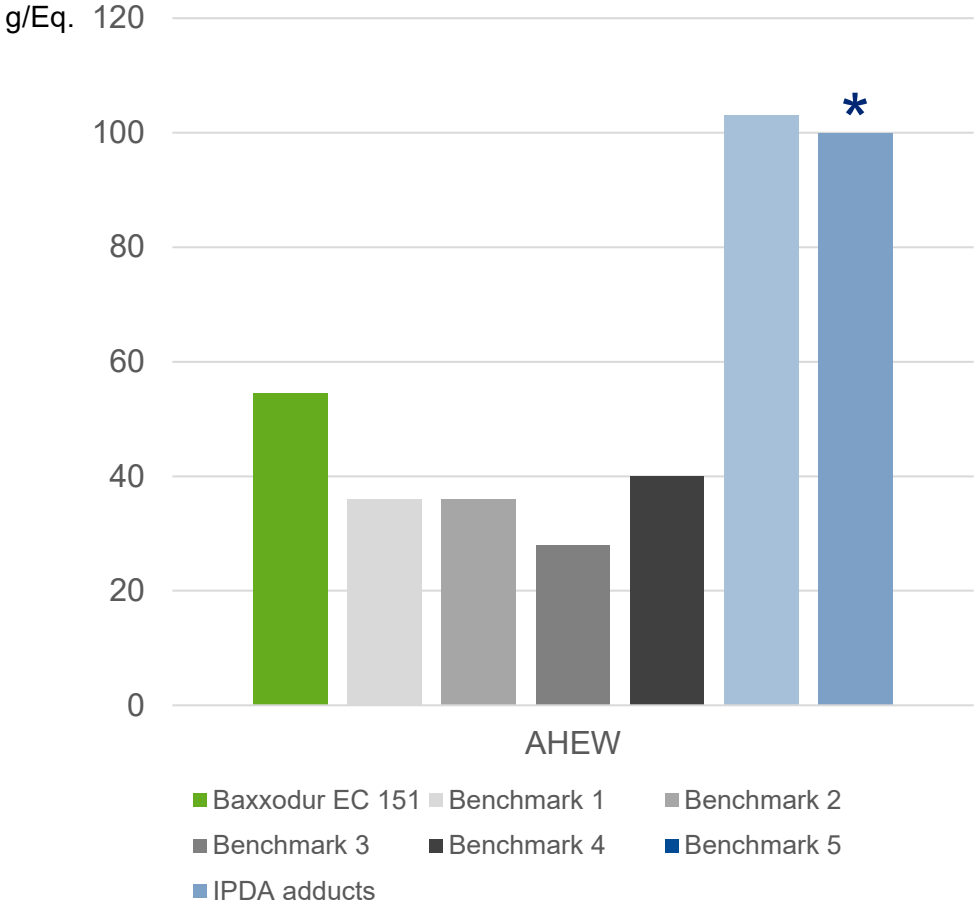
- Curing temperature down to 0 °C
- Slightly slower than competitive cold cure hardeners (Benchmark 1-4)
- Significantly faster than hardeners providing nice surfaces (Benchmark 5, IPDA)

# Baxxodur® EC 151: Accelerators

- Performance of EC 151 can be fine-tuned with suitable accelerators
  - ▶ Benzylalcohol: Widely used; balance amount in regard to VOC claims; weak acceleration
  - ▶ Alkanolamines: DEIPA – Diethanolisopropanolamine (low VOC, liquid, non-toxic, odorless)
- Market standard phenolic accelerator showed weak acceleration & low ShoreD values with EC 151



# Baxxodur<sup>®</sup> EC 151: Medium range AHEW




- Medium range AHEW
- Optimum mixing ratio with standard BADGE resin ~ 100 : 30
- Fast curing, no solvents/diluents, no adductation needed
  - ▶ Process and formulation simplification possible

\* IPDA adducts come with a broad set of additives and, thus, properties. Typical AHEWs of IPDA adducts range between 80 and 120 g/eq.

# Baxxodur® EC 151: Additional GHS symbol but not CMR

- Toxicological profile comparable to alternative cold cure hardeners
- Additional GHS symbol (GHS08)
  - ▶ Not CMR
  - ▶ STOT RE 2 (Ingestion, targeted organ: lung)
- Formulation <10% label free\* in EU, Japan & South Korea
  - ▶ Label sensitive applications, still significant improvement of properties
- Formulation <1% label free\* in US & Canada

Curing agent	Hazard numbers	Hazard category	Pictograms
Baxxodur® EC 151	H302 H314 H318 H317 H412 H373	Acute tox., oral (Cat 4) Skin corrosive (Cat 1B) Skin sensitization (Cat 1A) Eye damage (Cat 1) Aquatic tox., chron. (Cat 3) STOT RE 2 (Ingestion, Lung)	

# Baxxodur<sup>®</sup> EC 151: Its unique combination of properties at a glance



## Enabling Sustainability

- **Low mix viscosity**
- **Long open time and long pot life**
- **Low odor, (ultra) low VOC formulations**
- **Regulatory** driven reformulation
- **High solid formulations**
- **No adduct formation** needed
- Increasing **renewable energy** supply at Verbund Site LU allows for low PCF



## Superior surface quality



## Stiff and very tough resins



Fast curing speed at low temperatures („cold cure“)



## High self-leveling properties



Fine-tune curing with suitable accelerators (e.g. DEIPA)

# Baxxodur® EC 151: Availability and Sourcing

## ■ Next campaign planned in 2026

## ■ Packaging

- ▶ IBC
- ▶ Others on request

## ■ Samples

- ▶ 0,5 kg & 5 kg

## ■ Registration

- ▶ EU ✓
- ▶ UK ✓
- ▶ USA ✓
- ▶ India ✓
- ▶ Taiwan ✓
- ▶ Canada (1 t), S. Korea (1 t), Japan (up to 5 t)

## Contact

If you are interested in learning more – please reach out to your BASF Account Manager  
Alternatively, the product is commercially available for sampling and purchase from  
BTC, Gamma Chimica, Grolman, Imhoff & Stahl, OQEMA, Quimidroga and Univar (NA)



# Q&A Time



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# Thank you for your time

Upcoming on Intermediates Academy: **Tech Spotlight**



## **Low VOC Blowing PU Catalyst: Lupragen® N 208**

**Date:** Wednesday, May 27, 2026

**Time:** 3:00 PM - 3:45 PM (CET) / 9:00 AM - 9:45 AM (EST)

**Platform:** Teams Webinar

**Get updates via our Intermediates Academy Website** 





We create chemistry