

CUSTOMIZED
SOLUTIONS



**The POLYVERTEC® Epoxy
Toolbox**

**The mixture makes the
system**

Schill+Seilacher

struktol®

HERZLICH WILLKOMMEN BEI
SCHILL+SEILACHER

Schill+Seilacher "STRUKTOL" GmbH, Hamburg

REACTIVE POLYMERS

FLAME RETARDANTS

TAILOR MADE EPOXY SYSTEMS

ADDITIVES

- RUBBER + TPE
- LATEX
- POLYURETHANE STABILIZER
- TEXTILES

DEFOAMERS

RELEASE AGENTS



Schill+Seilacher "STRUKTOL" GmbH, Hamburg

- SALES VOLUME CA. 45.000 T
- MACHINES 22 REACTORS
- EMPLOYEES 250
- GLOBAL ACTIVITIES IN 85 COUNTRIES
- DISTRIBUTION PARTNER IN 56 COUNTRIES
- FOCUSED ON CUSTOMIZED PRODUCTS
- CERTIFICATES
DIN EN ISO 9001:2015
DIN EN ISO 14001:2009
DIN EN ISO 50001:2011
IATF 16949 (IN PREPARATION)



DIVISION Reactive Polymers & Flame Retardants

WE DELIVER....

➤ Solutions

- Toughening agents
- Resin systems
- Flame retardants

➤ Tailor-Made products for customers

➤ Technical support and service to customers

The Epoxy-Toolbox

What do we mean with Toolbox? Mix it Baby!

- The system is defined by the **mixture** of the **base** resin and the **hardener**
 - The **resin** defines the **basic parameters**
 - The **hardener** defines the **specific parameters**
- Over **50+ systems** possible
 - Every resin can be combined with our hardener range
- We can **spice it up**
 - Our knowledge in **additives** helps for special needs

The Epoxy-Toolbox

How do we find our perfect Tool? Three questions!

1. What is the Process

- What kind of **process** are we going to use
- Essential for the **resin base** and the viscosity

2. What material parameters do you need?

- Tg, potlife, mechanical
- Most of the parameters are defined by the **hardener**

3. Need some extras?

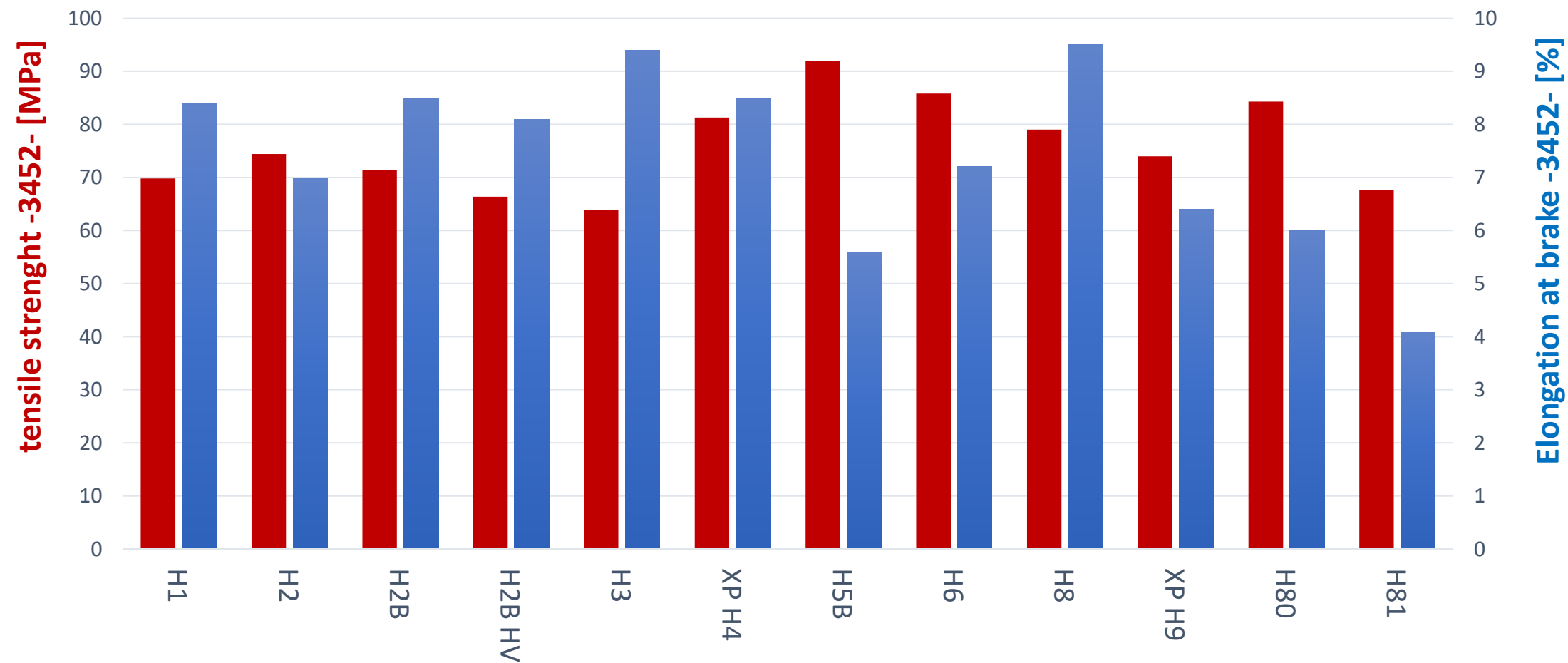
- Flame resistance, toughening, etc... ?
- Our **additives** can help to achieve the extras

The Epoxy-Toolbox-Matrix (shortened)

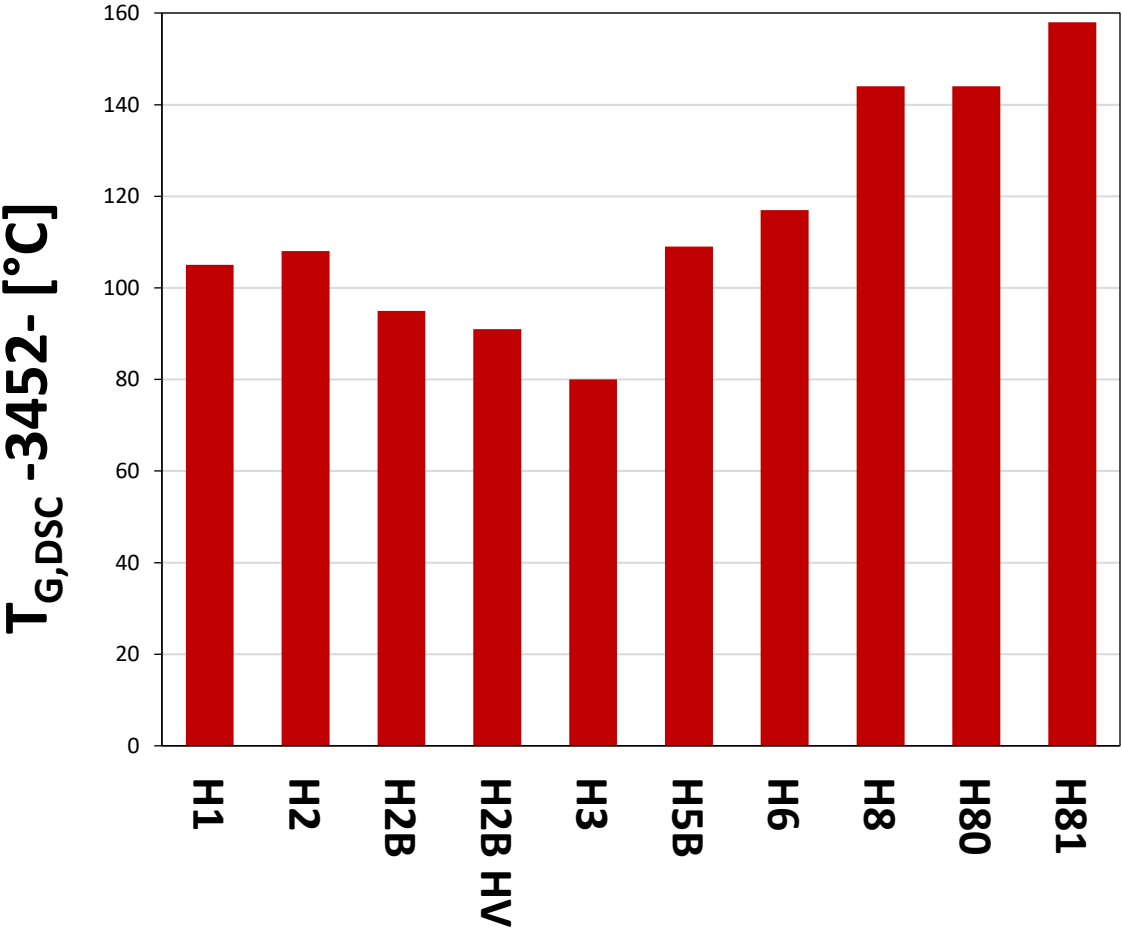
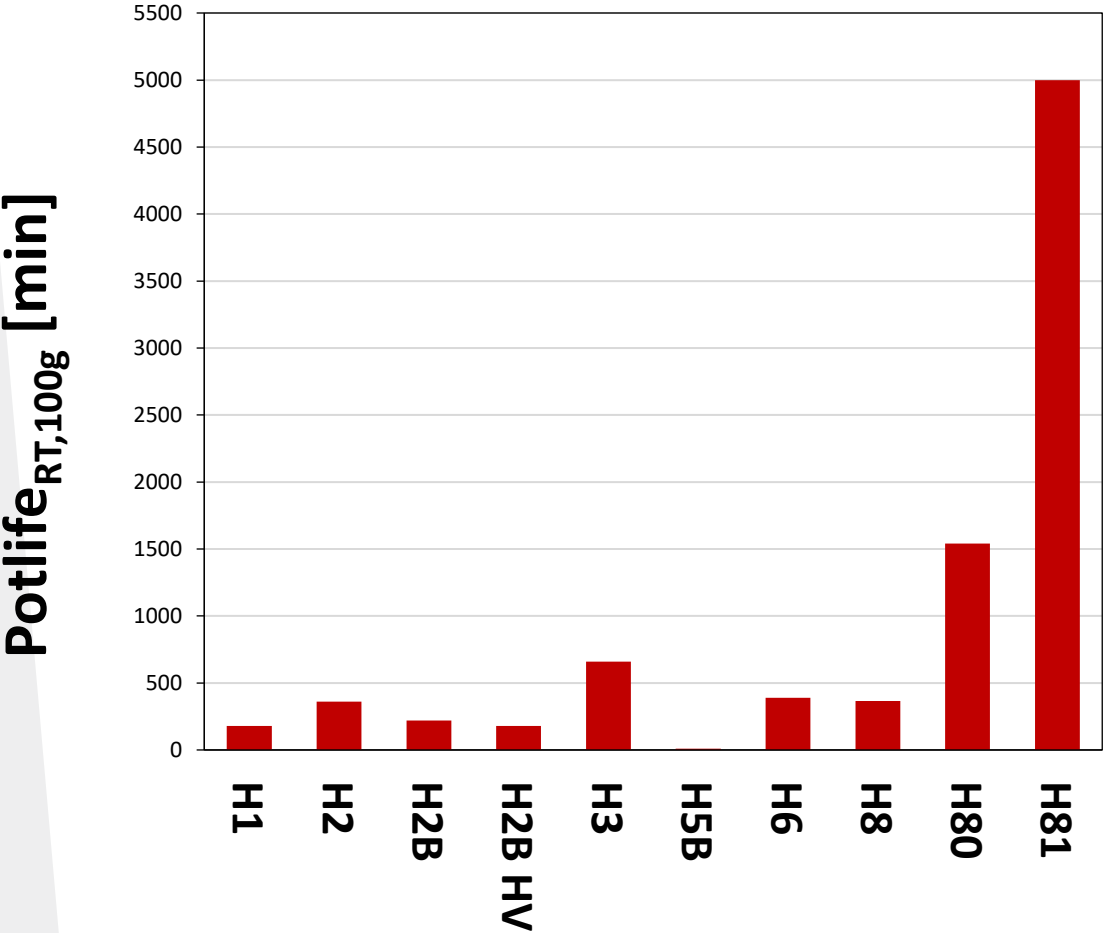
Misch- $\eta_{25^\circ\text{C}}$ -3452-		310	650	250	600	1000	400	430	500	690	430	1650	5000
	Polyverte	H2B	H2B _{HV}	H3	H4	H5B	H7	H8	H8B	H9	H80	H81	DICY
850	3451												
2100	3452												
650	3455												
480	3421												
50000	3424												
100000	3400-1												

RTM		Spray-Laying		Pultrusion		Prepreg	
Hand-Layup		Wet-Pressing		SMC		High Temperature	
Infusion		Winding		Fast-cure		Mechanical good	
Flexible							

The Epoxy-Toolbox – What are the Hardeners doing!?



The Epoxy-Toolbox – What are the Hardeners doing!?



Objectives in development & production

Values and guiding principles Schill + Seilacher STRUKTOL

- Development of Bio-based new products
- Usage of bio-based raw materials
- Optimization of reaction processes to reduce energy and raw material consumption
- Replacement/avoidance of toxic components



Sustainability & resource conservation

Bio-based unsaturated Polyester Resins

Chemical route of production



Corn

Genetically adapted
Escherichia coli

fermentation

bio based diol

Bio-based raw materials



Molasses

Aspergillus itaconicus
or Aspergillus terreus

fermentation

biobased carboxylic acid

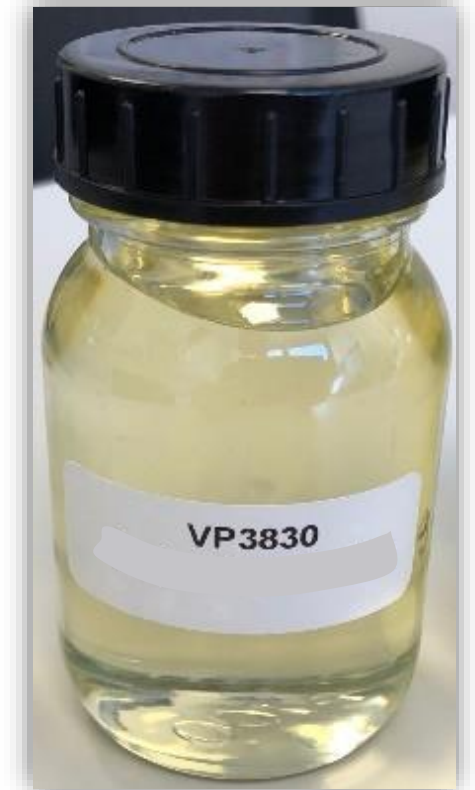
esterification
reaction

POLYVERTEC® 3830

POLYVERTEC® 3830/3832/3834

General properties at a glance

- Polymer (UPR) **>99.9% organic** based on renewable raw materials
- The diluted version is **Styrene Free**
- Same processing properties as petrol based alternatives
- Processing viscosity adjustable between **200 - 5000 mPas**
- **Product family** based on 3830 with different properties
- Material suitable for **processes** such as hand lamination, pultrusion, resin infusion, wet pressing
- Thickening possible for the production of **SMCs**



A scanning electron micrograph (SEM) showing a highly textured, granular surface. The surface is covered with numerous small, dark, circular features, possibly pores or inclusions. Several prominent, irregular cracks and fissures are visible, running across the field of view. The lighting creates strong shadows, emphasizing the three-dimensional nature of the surface features. Overlaid on this image is the word "QUESTIONS?" in a large, white, sans-serif font.

QUESTIONS ?

Contact – Division Reactive Polymers & Flame Retardants

Christopher Gardel
cgardel@struktol.de
+49 151 53524352

Dr. Hauke Lengsfeld
hlengsfeld@struktol.de
+49 40 73362-268