

# Nature engineered for tomorrow



**solid\_plant®**

**Hemplizit® –  
The biobased filler for rubber compounds**



# Hemplizit®



## Get to know Hemplizit®:

A biobased functional filler made from industrial hemp shives, designed for use in rubber formulations. Substitution potential for up to 50% of carbon black or silica - depending on the polymer matrix.

## Hemplizit® Product Lines

### HPE

#### High PerformanceE:

Built for applications that require consistent excellence

10–50 µm

### SPE

#### Standard PerformanceE:

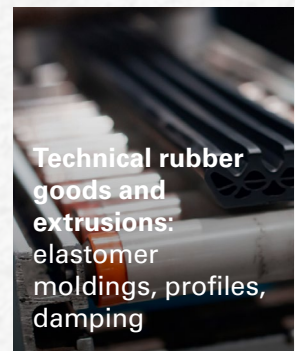
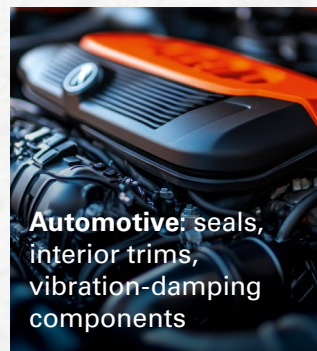
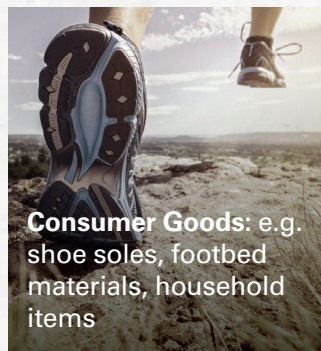
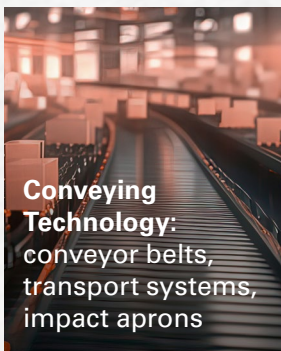
All-rounder with reliable performance across a wide range of applications

50–80 µm

## Chemical structure and function

- › **Hemicellulose** actively interacts with crosslinking agents and provides additional reactive sites for chemical crosslinking in the vulcanisation process
- › **Cellulose** acts as a reinforcing fibre structure that increases the mechanical stability of the compound
- › **Hydroxyl (-OH) and carboxyl (-COOH) groups** enable hydrogen bonding and chemical reactivity, improve compatibility with rubber matrices through silanization or covalent bonding, and thereby enhance dispersion, adhesion, and performance in polymer compounds.

## Applications



... and many more applications in rubber



## Technical properties

### Lower density

0.98 g/cm<sup>3</sup> vs. 1.8 g/cm<sup>3</sup> for carbon black – enabling significant weight savings



### Excellent disperseability

Ensures uniform distribution in compounds, ideal for rubber formulations



### Mechanically active

Helps enhance tensile strength and elasticity across various elastomer types



### Thermally stable, UV-resistant, non hygroscopic

Ideal for outdoor use and long-term performance



Property	Carbon Black	Silica	Hemplizit® HPE 50	Hemplizit® HPE 30	Evaluation
Shore A	+	+	+	++	Equivalent to better
Tensile Strength	++	+	+	++	Stable
Elongation at Break	+	+	+	++	Optimized
Processing	–	+	++	++	Very good dispersibility
SBR	++	–	++	++	Improved abrasion performance
NR	+	++	+	+	Optimized
EPDM	+	–	++	++	Better extrusion behaviour
NBR	++	–	++	++	Stable
LCA	–	–	++	++	Significantly better (plant-based origin)

## Long-Term and Processing Properties

### Stability over time

No embrittlement or chemical degradation – even during extended storage



### High compatibility

Compatible with common additives, process oils, and plasticizers



### Thermal resistance

Temperature-stable up to 220 °C, depending on matrix and formulation



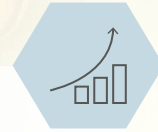
### Processing advantage

No silanization required – direct integration into existing compounds



# Good to know...

## Why Hemplizit® matters now



- › Increasing demand for more sustainable solutions in the industry
- › Drive to reduce overall carbon footprint
- › Need to replace fossil-based, energy-intensive, and environmentally critical raw materials
- › New economic incentives for low-carbon alternatives
- › Regional raw material
- › Fills the gap for circularity

## Hemp as a renewable resource



- › Fast-growing, requires minimal water and pesticides
- › Binds CO<sub>2</sub> during growth
- › Naturally purifies soil by absorbing and binding pollutants
- › Supports regeneration of contaminated land

## Hemplizit® at a glance – compared to conventional fillers



### Fossil Free

100% natural material based on industrial hemp

### CO<sub>2</sub>-reducing

Absorbs more CO<sub>2</sub> in growth than emitted during processing (Life Cycle Assessment available)

### Biodegradable

Environmentally friendly in disposal and abrasion – no microplastics, no persistent residue

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