

A close-up photograph of a bundle of copper strands, likely part of a cable, is shown in the background. The strands are tightly packed and have a bright, metallic sheen. The image is partially obscured by a dark blue diagonal stripe that runs from the top right towards the bottom left.

**LEVACO CHEMICALS**  
Competence in Chemistry

# **SUPERABSORBENT POLYMERS**

SAP for the Cable Industry

# CONTENT

■	Superabsorbent Polymers for the Cable Industry (SAP)	Page 2
■	Direct Incorporation into Cables	Page 3
■	Cable Filling Compounds	Page 3
■	Water Swellable Tapes	Page 3
■	Product Overview Powder SAP	Page 4
■	Liquid SAP for Yarn	Page 5
■	Product Overview Liquid SAP	Page 6

## Our service for you:

Your need for protection, absorbency, swelling capacity will be evaluated together with our team of experts.

We advise you on the optimal combination of superabsorbers and other components.

We individually test the functionality of our products on your fibers or tapes at **LEVACO** for the optimal protection of your cables.



## SUPERABSORBENT POLYMERS FOR CABLE INDUSTRY (SAP)

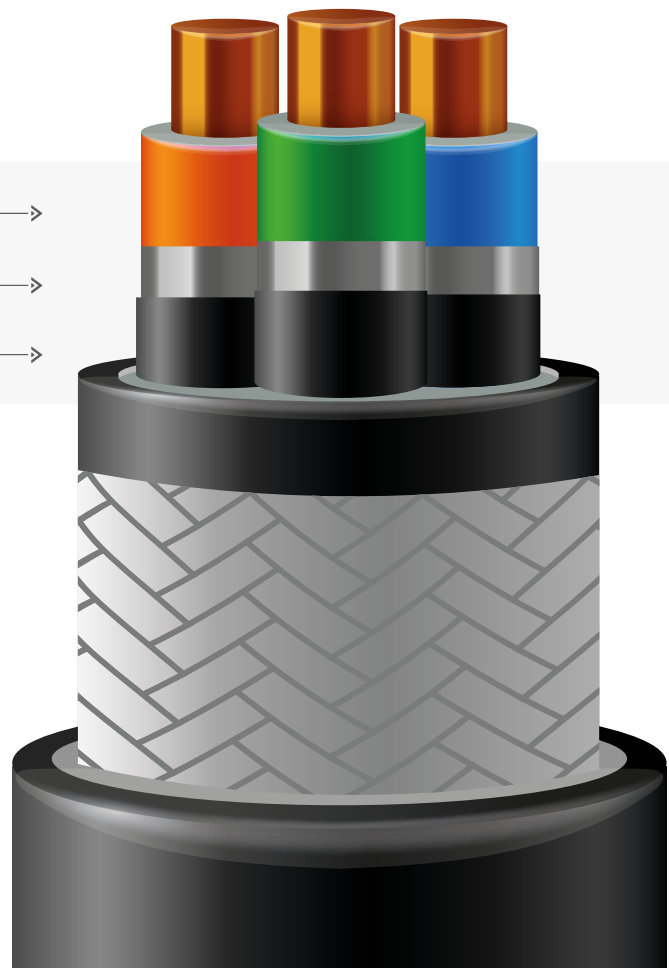
The cable industry faces the challenge that defective cables can result in costly repairs, especially for complex installations.

LEVACO's superabsorbers quickly and reliably protect the conductor/strand inside the cable in case of water ingress, if the cable sheath is damaged, and maintain the functionality of the cable. In the event of damage and water penetration, our products quickly absorb the water, thereby expand and seal cavities along the cable to prevent further water intrusion.

For the cable industry and its suppliers, LEVACO offers a wide range of **water-swellable, water-absorbing** and **water-blocking polymers**, so-called "superabsorbent polymers" (SAPs). Nowadays, these SAPs are incorporated in almost all types of cables, such as high-voltage cables, communication or fiber optic cables.

The product range includes polymers for direct incorporation into the cable, for cable filling compounds, SAP for water-swellable tapes as well as SAP for the coating of water-swellable fibers - for optimum protection of cables.

- Loose cable with fibers and jelly —————>
- Water-blocking tape —————>
- Water-swellable yarns —————>



*Typical cross-section of a high voltage cable*

# SUPERABSORBENT POLYMERS – POWDER

## FOR CABLE INDUSTRY (SAP)

### SAP FOR DIRECT INCORPORATION INTO CABLES

The DEFOSORB® CA 50 powder can be applied directly into the cable, especially in high-voltage cables. The dosage depends on the cable structure and the desired water sealing.

#### The advantages of the direct incorporation into cables:

- One-step process
- Complies with WTP ("Water Penetration Test") standards, e.g. FOTP-82
- No contamination with germs possible

### CABLE FILLING COMPOUNDS (CFC OR JELLY)

For optimum protection of the cable against water ingress, cable fillers are applied either between the core wrap and the outer protective jacket (Cable Flood) or directly onto the cable core (Cable Filler). LEVACO combines the superabsorbent DEFOSORB® CA 50 with other components like wetting agents for proven complete and much faster absorption of water.

#### The advantages of cable filling compounds with DEFOSORB® CA 50:

- Jelly with DEFOSORB® CA 50 performs by far more efficient in terms of the water-blocking-ability.
- Handling is easier and safer as there is no dust occurring while applying into the cable.
- In combination with a wetting agent in the jelly-composition, an enormous absorption speed can be achieved, so that the penetration of water into the cable is stopped immediately.

### WATER SWELLABLE TAPES

Polymers with a high swelling rate can be incorporated into water-swellaable tapes. For the production of these tapes, PET nonwoven, a stiffening binder, carbon black and a fixing binder are used together with a superabsorbent of the DEFOSORB® CL range for different requirements.

#### The advantages of DEFOSORB® CL range:

- Available with different PSD
- Balancing swelling speed and swelling height
- Wide range from cost-effective to high performance

PRODUCT	APPLICATION	APPLICATION ADVANTAGES
DEFOSORB® CA 50	SAP for direct integration into cables and additive for the production of cable filling compounds	<ul style="list-style-type: none"> <li>• Highly effective protection for high voltage cables against water ingress</li> <li>• Significantly improves the water blocking properties of cable filling compounds</li> <li>• Meets the standard “Water Penetration Test”</li> </ul>
DEFOSORB® CL 600	SAP for the production of water-blocking swelling tapes	<ul style="list-style-type: none"> <li>• Highest water-absorbing properties in portfolio, high swelling speed</li> </ul>
DEFOSORB® CL 63-250	SAP for cable applications with high and quick swelling properties	<ul style="list-style-type: none"> <li>• Well balanced and cost-effective</li> </ul>



# SUPERABSORBENT POLYMERS – LIQUID

## FOR CABLE INDUSTRY (SAP)

### LIQUID SAP FOR YARNS AND FIBERS

To impart swelling properties to filament yarns, made of e. g. PET, Aramid or glass fiber, liquid SAP have to be used. These liquid SAP are emulsion polymers based on either hydrocarbons or esteroils. They achieve different absorption capacities - depending on the requirements. The absorption capacity depends on the type and DTEX of the yarn and the applied amount of the respective superabsorbent from our DEFOPOL MX range.

**The advantages of coating yarns and fibers with the liquid superabsorbents from the DEFOPOL series are obvious:**

- Protection of the cable by absorbing the penetrating water
- Easy facilitation of processing and winding
- Reduction or complete prevention of deposits on machine parts
- These improvements enable cost-cutting potentials by reducing maintenance work



<b>PRODUCT</b>	<b>APPLICATION</b>	<b>APPLICATION ADVANTAGES</b>
DEFOPOL MX 60	Liquid SAP for the coating of water-swelling yarns and fibers	<ul style="list-style-type: none"> <li>• Provides yarns with high swelling- and water-blocking properties</li> <li>• Easy handling compared to DEFOPOL MX 75 due to lower solution viscosity</li> </ul>
DEFOPOL MX 75	Liquid SAP for the coating of water-swelling yarns and fibers	<ul style="list-style-type: none"> <li>• Provides yarns with high swelling- and water-blocking properties</li> </ul>
DEFOPOL MX 90	Biobased liquid SAP for the coating of water-swelling yarns	<ul style="list-style-type: none"> <li>• Based on a biodegradable oil phase</li> <li>• Free from acrylamide</li> </ul>
DEFOPOL MX 98	Liquid SAP for the coating of water-swelling glass fibers	<ul style="list-style-type: none"> <li>• Especially designed for fiber optic cables</li> <li>• Low product and solution viscosity for easier handling</li> </ul>



**LEVACO Chemicals GmbH**

Chempark Leverkusen  
Kaiser-Wilhelm-Allee  
51368 Leverkusen  
Germany

+49 214 - 86927-0

[info@levaco.com](mailto:info@levaco.com)  
[www.levaco.com](http://www.levaco.com)

