LEVACO CHEMICALS

FIBRE SOLUTIONS
with passion for your fibre

SUPERABSORBENT POLYMERS

SAP for the Cable Industry

CONTENT

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 fibres or tapes at LEVACO for the optimal protection of your cables.

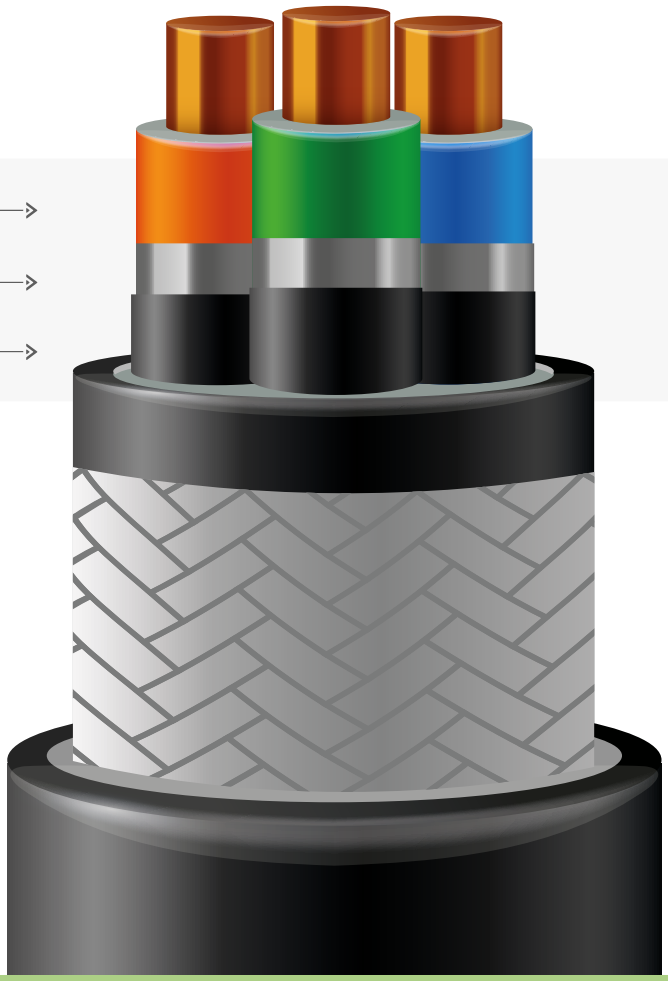
SUPERABSORBENT POLYMERS
FOR CABLE INDUSTRY (SAP)

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 "superabsorbents" (SAP). Nowadays, these SAP are incorporated in almost all types of cables, such as high-voltage cables, communication or optic fiber 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.



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 loose into the cable, especially in high-voltage cables, during the manufacturing process. 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-swellable 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	• Highly effective protection for high voltage cables against water ingress • Significantly improves the water blocking properties of cable filling compounds
DEFOSORB® CL 360	SAP for the production of water-swellable tapes	• Wide PSD from 63-315µ • Well balanced swelling speed and height
DEFOSORB® CL 24	SAP for the production of water-swellable tapes	• Coarse PSD from 150 to 500µ • High total absorption (swelling height), but reduced swelling speed
DEFOSORB® CL 63-250	SAP for the production of water-swellable tapes	• Tight PSD from 100-250µ • Well balanced and cost-effective
DEFOSORB® CL 600	SAP for the production of water-swellable tapes	• PSD from 63-250µ • Fast swelling, highest performance

SUPERABSORBENT POLYMERS – LIQUID
FOR CABLE INDUSTRY (SAP)

LIQUID SAP FOR YARN

To impart swelling properties to filament yarns, made of e. g. PET, Aramid or glass fibre, 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

On the other hand, water-based SAP can be used as a precursor and crosslinked to a three-dimensional superabsorbent polymer - DEFOPOL DB 5069. This product does not contain any solvents and could be diluted with water for application. When applied to the yarn, this product unfolds (after heating and cross-linking at 180°C) the structure of a superabsorbent polymer.

The advantages of this method are the following:

- Reactive, water-based SAP coating for swellable yarns
- Contains no solvents or oil phases
- Dilutable with water
- Allows extremely high absorption quantities
- High swelling speeds

PRODUCT	APPLICATION	APPLICATION ADVANTAGES
DEFOPOL MX 60	Liquid SAP for the coating of water-swellable yarns	• Provides yarns with high swelling- and water-blocking properties • Easy handling
DEFOPOL MX 90	Biobased Liquid SAP for the coating of water-swellable yarns	• Provides yarns with high swelling- and water-blocking properties • Easy handling • Based on a biodegradable oil phase
DEFOPOL MX 98	Liquid SAP for the coating of water-swellable glass fibres	• Provides yarns with high swelling- and water-blocking properties • Particularly suitable for glass fibres, smooth fibre processing
DEFOPOL DB 5069	Water-based coating for the production of highly swellable yarns	• Coating must be dried and crosslinked at 180°C / 60 sec. • Allows extremely high absorption quantities • High swelling speeds

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