



PAPER SOLUTIONS
your competent partner
for paper processing

PROCESS CHEMICALS

For paper industry

CONTENT

■	LEVACO for paper processing	page 2
■	Defoamer	page 3
■	Flocculants	page 5
■	Industrial cleaners	page 6
■	Process auxiliaries	page 7
■	Synthetic dry strengtheners	page 8
■	Fixing agents	page 8
■	Volume booster	page 8
■	Industrial applications	page 9
■	Product overview	page 10



LEVACO FOR PAPER PROCESSING

The interaction of chemical and mechanical automated processes in paper production must work - a complex process of recycling, cleaning of pulp and water circuits, and high-speed machine production.

LEVACO's **PAPER SOLUTIONS** team (formerly part of **DEFOTEC Entschäumer Vertriebs-GmbH**) aims to optimize and save costs in paper or board production with its detailed specialized knowledge.

You benefit from our extensive experience in the use of chemical additives in all areas of the paper industry.

Examples are:

- Reduction of odor emissions in the production of paperboard and board,
- Prevention of lime deposits and bacterial buildup in the production of graphic papers,
- Combating foam formation in tissue paper and pulp production,
- Increasing strength for specialty and technical papers,
- Use of flocculants in water and wastewater circuits.

Meeting your demands for professional customer service, quality and reliability is just as much a matter of course for us as sustainability and environmental orientation. We accompany you from the first laboratory test with our additives to their regular use and subsequent optimization. This is also where our self-developed and market-established process technologies are used, such as our **DEFOTEST dH PLUS** online measuring instruments for pH-value, water hardness, and organic acids.

By sanitizing the water systems with **DEFOKALK® 450 FD**, process aids and water can be cut. It also reduces the COD and calcium load to the wastewater treatment plant and retains valuable fillers in the paper.



DEFOAMER

Dynamic processes in the paper industry require high quality defoamers and deaerators. As one of the leading suppliers of defoamers, LEVACO can refer to more than 20 years of expertise in this business. Due to new in-house developments, defoamers of excellent quality have been successfully launched on the market in recent years. Thanks to our on-site product synthesis facility in Leverkusen, we are able to produce chemically tailored raw products that are precisely formulated for specific processes. **DEFOSPUM®** products are designed to meet the requirements of paper machines as well as those of downstream wastewater and sewage treatments. By preventing the formation of foam and air, the **DEFOSPUM®** product range supports each step of the papermaking process.

Only through effective defoaming and deaeration can the paper machine achieve its full potential through optimum operation of the aggregates. Foaming can also have undesirable effects in downstream wastewater and sewage treatments. In this case it is often necessary to achieve a precise balance between the defoaming effect and the deaerating effect. **LEVACO** offers a wide range of suitable products for this purpose.

PRODUCT	APPLICATION	Board paper Packaging paper	Graphic paper Printer paper	Tissue Cellulose	Specialty paper Technical paper	Wastewater and Sewage treatment
DEFOSPUM® PWW 90	Defoamer	X	X	X	X	X
DEFOSPUM® PWW 74	Defoamer	X	X	X	X	X
DEFOSPUM® PHT 110	Defoamer	X	X		X	
DEFOSPUM® S 664	Defoamer			X		

DEFOSPUM® PWW 90

- Emulsion of fatty alcohols, without silicone and mineral oil components for application on the paper machine and in wastewater treatment plants
- Very effective in a wide pH and temperature range
- Biodegradable and approved according to FDA and BfR XXXVI recommendation

Appearance: white emulsion / viscosity (mPas): 250

DEFOSPUM® PWW 74

- Emulsion of fatty alcohols, without silicone and mineral oil components for application on the paper machine and in wastewater treatment plants
- Very effective in a wide pH and temperature range
- Biodegradable and approved according to FDA and BfR XXXVI recommendation

Appearance: colorless liquid / viscosity (mPas): 200-600

DEFOSPUM® PHT 110

- Aqueous preparation of polyether polyols in combination with natural fatty acids
- Excellent suitability as defoamer and deaerator for the entire water circuit in the paper industry
- Excellent long-term effect without influencing the medium to be foamed in

Appearance: viscous liquid / viscosity (mPas): 100

DEFOSPUM® S 664

- Liquid made from natural fats, fatty acids, alcohols, and emulsifiers, silicone-free
- Very good suitability over a wide pH range in paper production (pulp and size press), in pulp production, and wastewater treatment in biological and mechanical wastewater treatment plants
- It is characterized by food grade approvals

Appearance: dark brown, turbid liquid / viscosity (mPas): 70



FLOCCULANTS

Flocculants are used wherever solid-liquid separation is required. The polymers used accelerate or improve the sedimentation or flotation of suspended solids. Flocculants are used in the paper industry to improve dehydration and retention, as well as in the purification of industrial and municipal wastewater in sewage treatment plants. Today, highly effective flocculants consist of water-soluble polyelectrolytes based on polyacrylamide. **LEVACO** offers a complete range of polymeric flocculants with different charge strengths and molecular weights. They are available in various forms (granules, emulsions, oil-free dispersions) and can be supplied in different packaging sizes, depending on requirements and application.

DEFOFLOC® CL SERIES

- Cationic liquid flocculant based on an emulsion of a polyacrylamide
- It is mainly used as a retention agent and dewatering accelerator on paper machines and in wastewater treatment plants

Appearance: white granules

DEFOFLOC® CP SERIES

- Medium to high molecular weight polyelectrolyte based on a cationic acrylamide derivative
- Especially suitable as retention agent and dewatering accelerator at the paper machine and at wastewater treatment plants

Appearance: white granules

PRODUCT	APPLICATION	Board paper Packaging paper	Graphic paper Printer paper	Tissue Cellulose	Specialty paper Technical paper	Wastewater and Sewage treatment
DEFOFLOC® CL series	Flocculant	X	X	X	X	X
DEFOFLOC® CP series	Flocculant	X	X	X	X	X



INDUSTRIAL CLEANERS

Deposits in paper machines affect the production process of paper and board, sometimes severely. These deposits occur across the entire production cycle and often loosen once they have reached a certain mass, resulting in paper tears. But even smaller deposits reduce the quality of the final product by causing holes or stains in the paper. The special cleaners available in our **DEFOCLEAN®** range clean the entire machine cycle and remove deposits and contaminants. These special formulations make it possible to run higher quality paper and avoid tears, holes and stains.

DEFOCLEAN® 222 MOD 1

- Special formulation of cleaning agents and emulsifiers
- Approved with water hazard class 1
- Due to its hydrophobic character, it also removes existing dirt and adhesions

Appearance: viscous yellow liquid

DEFOCLEAN® OT SERIES

- Special formulation of detergents and emulsifiers
- Ideal as a cleaning agent and odor control agent in the entire machine circuit
- Due to its hydrophobic character, it also removes existing dirt and adhesions

Appearance: thin, milky-white emulsion

PRODUCT	APPLICATION	Board paper Packaging paper	Graphic paper Printer paper	Tissue Cellulose	Specialty paper Technical paper	Wastewater and Sewage treatment
DEFOCLEAN® 222 MOD 1	Industrial cleaner	X	X	X	X	X
DEFOCLEAN® OT Series	Industrial cleaners	X	X		X	

PROCESS AUXILIARIES

Waters are not all alike. In many industries, water is the most important component of the entire production process and is subject to high quality requirements. With its **DEFOKALK®** product, **LEVACO** offers the possibility of optimizing production processes by increasing the pH value and reducing costs at the same time.

Our experience in the paper industry has shown that the biological load is effectively reduced, resulting in less deposits in the machine circuit and thus higher availability of the paper machine. **DEFOKALK®** also specifically reduces water hardness, allowing other chemical additives to work more effectively. Odor emissions are also significantly reduced by binding organic acids. Wastewater treatment plants also benefit from the use of **DEFOKALK®** through improved control of anaerobic and aerobic water treatment processes.

DEFOKALK® 450 FD

- Highly efficient product based on calcium hydroxide in suspension form for complete sanitation of the water cycle
- Regulates pH and reduces water hardness and organic acids in a fast reaction time
- Strengths of the paper are increased and the effectiveness of other auxiliaries used is improved

Appearance: milky-white suspension / active ingredient (%): 45

PRODUKT	APPLIKATION	Board paper Packaging paper	Graphic paper Printer paper	Tissue Cellulose	Specialty paper Technical paper	Wastewater and Sewage treatment
DEFOKALK® 450 FD	Process auxiliaries	X	X		X	X
DEFOBOND AL 6606	Synthetic dry strengtheners	X			X	
DEFOFIX MCA 50	Fixing agents	X	X		X	
LUCRAMUL® EP VE01	Volume booster	X	X	X	X	

SYNTHETIC DRY STRENGTHENERS

Synthetic dry strengtheners are used in all applications where board and specialty papers need to be extremely strong.

DEFOBOND AL 6606

- Medium to high molecular weight, low anionic polyelectrolyte based on an acrylamide derivative
- Mode of action is based on a charge exchange between the electrical charges along the polymeric chain present in aqueous solution and the surface charges of the suspended solid particles

Appearance: colorless to slightly yellowish liquid

FIXING AGENTS

Fixing agents support the effectiveness of flocculants by removing anionic trash from the system.

DEFOFIX MCA 50

- Highly cationic, cross-linked fixing agent
- Stands out as a highly effective primary flocculant and meets the requirements of the XXXVI. recommendation of the BfR

Appearance: clear to slightly turbid liquid

VOLUME BOOSTER

Volume boosters are used to increase the volume of paper in a precise and targeted manner.

LUCRAMUL® EP VE01

- Ethoxylated fatty acid
- Increasing the specific volume of cardboard, board paper and other paper
- Expansion of the fiber structure by influencing the fiber-fiber bond
- Simple dosing in the wet end of the paper machine

Appearance: clear to slightly cloudy liquid

INDUSTRIAL APPLICATIONS

BOARD PAPER AND PACKAGING PAPER

During the production of paper and cardboard for packaging, odor nuisances are increasingly arising in the vicinity of the paper mill. The reasons for this are bacterial reactions in the production process, which generate organic acids, among other things. LEVACO PAPER SOLUTIONS offers optimized products for odor neutralization as well as for other challenges such as foaming, water hardness regulation, retention as well as cleaning of paper machines.

GRAPHIC PAPER AND PRINTER PAPER

The production of graphic papers is subject to the conflicting requirements of gloss, opacity, whiteness, surface quality, and printability. We focus on optimizing processes and end products through the use of our chemicals such as process auxiliaries, defoamers, and other polymer additives, such as to improve retention.

TISSUE AND CELLULOSE

The wood-, water- and energy-intensive processes used in manufacturing must be in harmony with environmental and consumer demands. The chemicals required in these processes must meet these requirements. You will find the appropriate products for this in our portfolio, e.g. for disturbing foam formation.

SPECIALTY AND TECHNICAL PAPER

Decor papers, thermal papers and filter papers are just a few examples of this type of paper. And each faces different demands, such as strength, processability, recyclability and quality in use. We offer an expandable product range for the production of these different papers.

WASTEWATER AND SEWAGE TREATMENT

Besides the treatment of recycled water, the wastewater from a paper mill is also subject to a purification process. One of the main criteria for forwarding to municipal sewage treatment plants is the chemical oxygen demand (COD), which is caused by residues of process chemicals and additives. Our flocculants and defoamers act as system cleaners in this process.

PRODUCT OVERVIEW

PRODUCT	APPLICATION	Board paper Packaging paper	Graphic paper Printer paper	Tissue Cellulose	Specialty paper Technical paper	Wastewater and Sewage treatment
DEFOSPUM® PWW 90	Defoamer	X	X	X	X	X
DEFOSPUM® PWW 74	Defoamer	X	X	X	X	X
DEFOSPUM® PHT 110	Defoamer	X	X		X	
DEFOSPUM® S 664	Defoamer			X		
DEFOFLOC® CL series	Flocculants	X	X	X	X	X
DEFOFLOC® CP series	Flocculants	X	X	X	X	X
DEFOCLEAN® 222 MOD 1	Industrial cleaner	X	X	X	X	
DEFOCLEAN® OT series	Industrial cleaners	X	X		X	
DEFOKALK® 450 FD	Process auxiliaries	X	X		X	X
DEFOBOND AL 6606	Synthetic dry strengtheners	X			X	
DEFOFIX MCA 50	Fixing agents	X	X		X	
LUCRAMUL® EP VE01	Volume booster	X	X	X	X	





LEVACO Chemicals Group
global presence - local expertise
with worldwide sales offices
www.levaco.com

