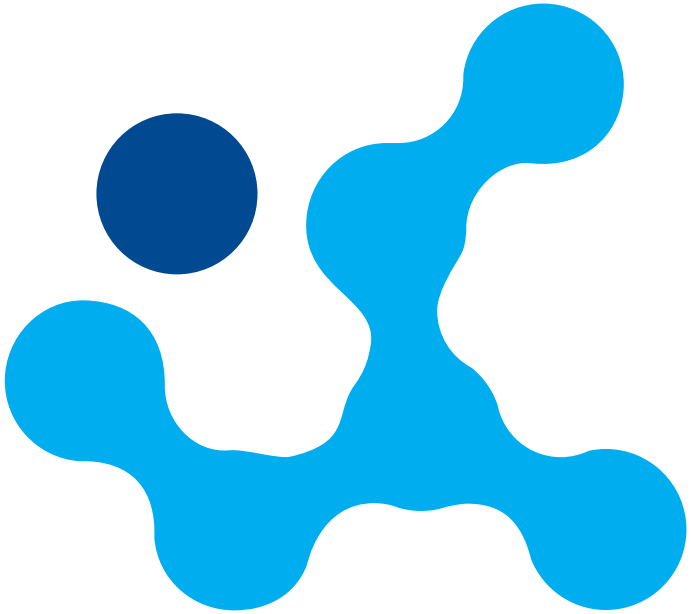
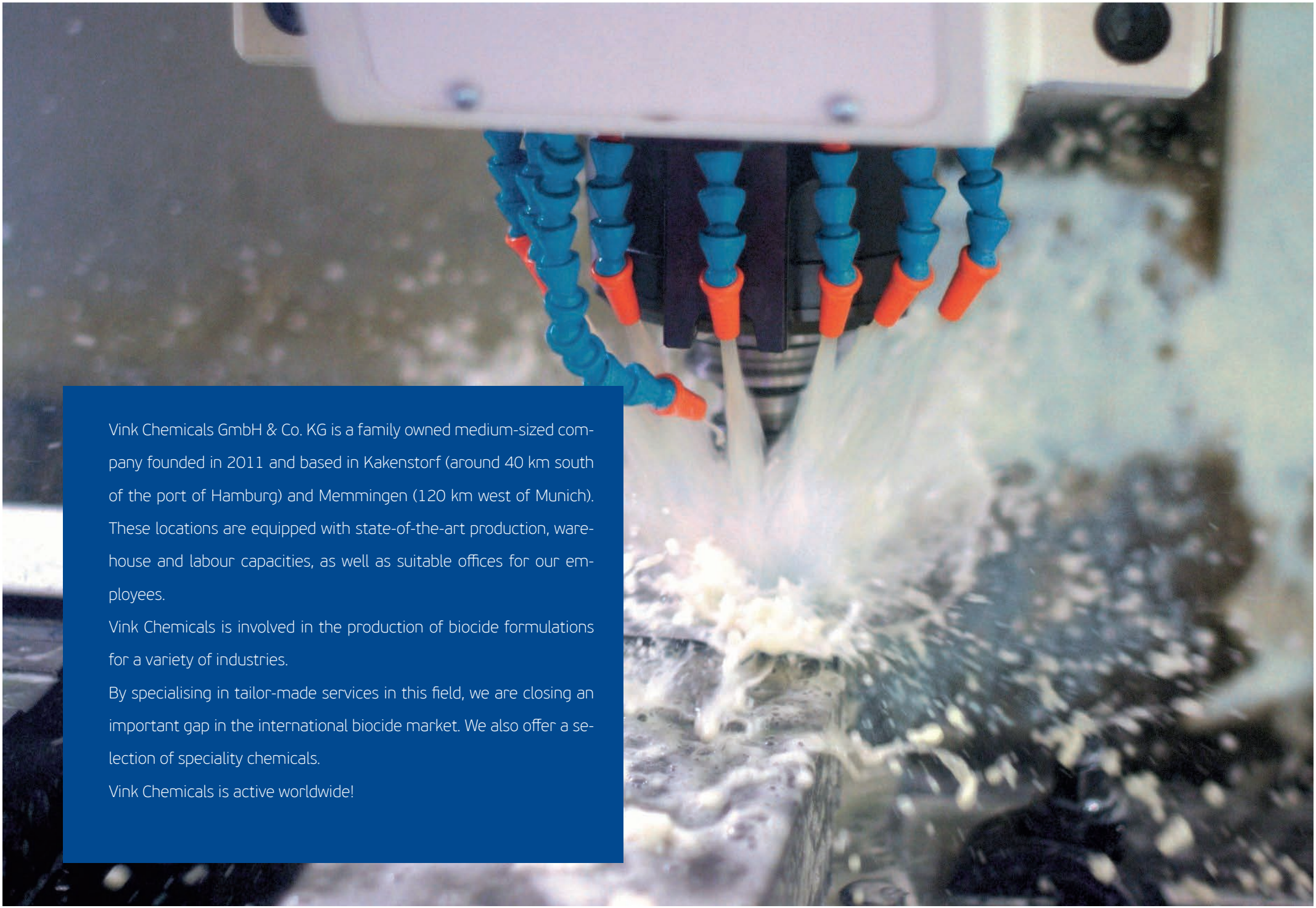


Biocides for Metalworking Fluids

Optimal protection for your products and plant

VINK CHEMICALS



Vink Chemicals GmbH & Co. KG is a family owned medium-sized company founded in 2011 and based in Kakenstorf (around 40 km south of the port of Hamburg) and Memmingen (120 km west of Munich). These locations are equipped with state-of-the-art production, warehouse and labour capacities, as well as suitable offices for our employees.

Vink Chemicals is involved in the production of biocide formulations for a variety of industries.

By specialising in tailor-made services in this field, we are closing an important gap in the international biocide market. We also offer a selection of speciality chemicals.

Vink Chemicals is active worldwide!

All-in-one-Service

Vink Chemicals designs your individual service package

Technical advice is an integral part of our customer service. Vink Chemicals offers you a complete, individually tailored package for optimum preservation – from the identification of the microbial contamination to a concept for your plant hygiene.

We support you with microbiological tests and laboratory services, technical and regulatory advice, logistics support, raw material procurement, research and development and many other services related to biocides and operational hygiene.

In particular, our expertise in toxicology and eco-toxicology as well as all aspects of the correct, efficient and economical use of biocides will help you to realise a tailor-made cleaning and preservation concept for your application.

We supply you individual biocide formulations based on proprietary active substances CMIT/MIT, MIT, MBO, TMAD, HPT and BIT and others, raw materials and specialty chemicals worldwide in all required quantities and in standard container sizes.

Microorganisms

A threat to your products and plant

Water-based metalworking fluids are used in operations like drilling, turning, milling, sawing, grinding, etc. where the water-based coolants offer microorganisms an attractive environment to grow. Microbial contamination and subsequent spread of bacteria, yeasts and moulds can therefore hardly be avoided. As a result of their high growth potential, microbes can multiply within a few hours from 100 to 10,000,000 organisms per ml.

The presence of microbial contamination alters the composition of the coolant, changing its technical properties. Very frequently, the decrease of the number of emulsifiers, expensive manufacturing failures and quality problems are reported. Microorganisms excrete metabolites that decrease the pH value and cause unpleasant odours.

Uninhibited growth can lead to the formation of biofilms in the system. These can grow to a thickness of several centimetres and result in blockages of pumps and filtration units.

The signs of microbial contamination:

- decrease in pH value
- corrosion
- blockage of pipes and filters
- odour formation
- oil separation
- foam formation
- sudden occurrence of skin irritation

Pseudomonas fluorescens

Biofilm formation on system cover which is a high recontamination source for fresh coolants

Extreme mould formation in contaminated system. In this case complete system sanitation with biocidal system cleaner and mechanical cleaning is crucial.

Corrosion caused by microorganisms

Biocides

Customised biocide formulations are more effective

There is a number of factors to consider when choosing a suitable preservative for your product; different ingredients, pH value, material compatibility and legal approvals, to name a few. The large number of possible microorganisms, different packaging and storing conditions, and the enormous diversity of raw materials imposes demands that cannot be covered by just one microbial active used at an acceptable dosage.

With the comprehensive grotan®, parmetol®, grotanol® and Vinkocide™ product line, Vink Chemicals has developed sophisticated multi component preservative systems to sufficiently protect your products.

The optimum combination of selected active substances offers sustainable preservation for all kinds of water-based formulations used in metalworking fluid concentrates and other technical products.

Our biocides act rapidly and effectively, without altering the specific properties of the coolant. The protection against microbiological damage is lasting and resistant to MWF operational temperatures and the effect of organic and inorganic substances.

Our preservatives have good material compatibility and meet international legal requirements; e.g. in the countries of the European Union (EU) our products are supported under the Biocide Product Regulation (BPR) and REACH.

Biocides for Metalworking Fluids

Products for system cleaning & preservation of water-mixed metalworking fluids and technical emulsions

Product	Technical properties			Actives														Biocidal spectrum		
	Max. manufacturing temperature (°C)	pH-range for application	VOC-content acc. Directive 2004\42\EG (%)	Amine-free	Formaldehyde-free	BDA	BIT	BBIT	CMIT/MIT	GDA	HPT	IPBC	MBO	MIT	NaPt	PE	TMAD	Bacteria	Yeasts	Moulds
grotan® OX [2),3)]	80	8 – 11	100										x					x	(x)	(x)
grotan® TK 6 [2),3)]	60	3 – 11	3	x													x	x	(x)	(x)
grotan® WS [3)]	80	8 – 11	0								x							x		
s&m Phenoxyethanol	100	< 12	0	x	x											x		x		
Vinkocide™ BIT 20 G / BIT 20 PG [2)]	90	3 – 13	0	x	x		x											x	x	
Vinkocide™ CMI 1.5 [2)]	50	3 – 8.5	0	x	x				x									x	x	(x)
Vinkocide™ CMI 14 [2)]	50	3 – 8.5	0	x	x				x									x	x	(x)
Vinkocide™ I 20	60	4 – 10	0	x	x							x								x
Vinkocide™ NaPT 40	100	7 – 13	0	x	x										x				x	
grotan® BA 21 [2)]	100	3 – 11	0		x	x	x											x	x	x
grotanol® FF 1 N	60	3 – 12	9		x	x	x								x			x	x	x
grotanol® SR 2	60	5 – 11	54										x		x			x	x	x
grotanol® 3025		3 – 12		x	x				x	x								x	x	x
parmetol® BPX [2)]	80	3 – 11	80		x	x		x								x		x	x	x
parmetol® MBX [2)]	80	3 – 10	0		x	x	x							x				x	x	x
grotan® WS plus [3)]	80	8 – 11	0												x			x	x	x
Vinkocide™ BB WM	80	2 – 12	0	x	x			x											x	x
Vinkocide™ KN [3)]	90	3 – 13	0	x	x		x								x			x	x	x
Vinkocide™ KTL [2)]	80	4 – 10	0	x	x		x							x				x	x	

[1)] Applicable for formulation of system cleaner. For more information, please contact us.

[2)] H317 and GHS07 labelling of end products may be required within the recommended use concentration limits.

[3)] Compliant with TRGS 611.

[4)] Status as of September 2023 given in good faith with the best of our knowledge. The national authorisation status is available upon request.

[5)] The exact use concentration needs to be confirmed case by case.

Use as: single actives combination products

Listings and approvals of active ingredients [4]											Recommended concentration per application (%) [5]			Product	
TRGS 611	EINECS / ELINCS (Europe)	TSCA (USA)	DSL / NDSL (Canada)	ECL (Korea)	ENCS (Japan)	PICCS (Philippines)	AICS (Australia)	IECSC (China)	NZIoC (New Zealand)	NECI (Taiwan)	MWF concentrate	Water-mixed MWFs / tankside treatment	Metalworking fluid plants, production plants / circulating systems, equipment		
x	x	x	x	x		x	x	x			2.00 – 4.00	0.02 – 0.04	[1]	grotan® OX [2), 3)]	
x	x	x	x	x	x	x	x	x			2.00 – 4.00	0.10 – 0.15	–	grotan® TK 6 [2), 3)]	
x	x	x	x	x		x	x	x			2.00 – 4.00	0.10 – 0.20	[1]	grotan® WS [3)]	
x	x	x			x	x	x	x	x	x	7.00 – 12.00	0.07 – 0.10	–	s&m Phenoxyethanol	
x	x	x	x	x	x	x	x	x	x	x	2.00 – 4.00	0.05 – 0.20	–	Vinkocide™ BIT 20 G / BIT 20 PG [2)]	
x	x	x	x	x	x	x	x	x	x	x	–	0.10 – 0.20	–	Vinkocide™ CMI 1.5 [2)]	
x	x	x	x	x	x	x	x	x	x	x	–	0.01 – 0.02	–	Vinkocide™ CMI 14 [2)]	
x	x	x	x	x	x	x	x	x	x	x	–	0.025 – 0.125	–	Vinkocide™ I 20	
x	x	x	x	x	x	x	x	x	x	x	1.00 – 2.00	0.05 – 0.125	–	Vinkocide™ NaPT 40	
x	x	x	x			x	x	x	x	x	0.40 – 2.00	0.02 – 0.20	–	grotan® BA 21 [2)]	
x	x	x	x			x	x	x	x	x	–	1.00 – 3.00	–	grotanol® FF 1 N	
x	x	x	x	x		x	x	x			–	–	0.25 – 0.75	grotanol® SR 2	
											–	–	0.5 - 2.0	grotanol® 3025	
x	x	x			x	x	x	x	x	x	5.00 – 10.00	0.50 – 1.00	–	parmetol® BPX [2)]	
x	x	x	x	x		x	x	x	x	x	2.00 – 5.00	0.10 – 0.20	–	parmetol® MBX [2)]	
x	x	x	x					x			2.00 – 4.00	0.10 – 0.20	–	grotan® WS plus [3)]	
x	x			x	x	x	x	x	x	x	–	0.0375 – 0.1	–	Vinkocide™ BB WM	
x	x	x	x	x	x	x	x	x	x	x	–	0.10 – 0.20	–	Vinkocide™ KN [3)]	
x	x	x	x	x	x	x	x	x	x	x	2.00 – 5.00	0.20 – 0.40	–	Vinkocide™ KTL [2)]	

MBO = Reaction product of paraformaldehyde and 2-hydroxypropylamine (ratio 3:2)
CMIT / MIT = Mixture of 5-Chloro-2-methyl-2H-isothiazol-3-one and 2-Methyl-2H-isothiazol-3 one
OIT = 2-Octyl-2H-isothiazol-3-one
NaPt = Pyridine-2-thiol 1-oxide, sodium salt
BDA = N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine
BIT = 1,2-benzisothiazol-3(2H)-one
BBIT = 2-Butyl-1,2-benzisothiazol-3(2H)-on
TMAD = Tetrahydro-1,3,4,6-tetrakis(hydroxymethyl)imidazo[4,5-d]imidazole-2,5(1H,3H)-dione
HPT = Reaction products of paraformaldehyde with 2-hydroxypropylamine (ratio 1:1)
MIT = 2-Methyl-2H-isothiazol-3-one
PE = 2-Phenoxyethanol

Vinkocide BB WM

Tailored fungicide for metalworking fluids

The MWF-industry has been facing growing requirements like the reclassification of biocidal active ingredients and consequent lower threshold for the labelling. Consequently, many MWF concentrates have been adjusted to a higher pH level to avoid labelling. Consequently MWF-emulsions are now more alkaline, to prevent microbial growth. Still, biocides are needed, and the existing alternatives (mainly fungicides) may not fit all situations: from discolouration to foam formation, low use concentration and a long-term efficacy. Further the solubility, temperature compatibility and reaction with heavy metals are common challenges.

Vinkocide BB WM was developed to overcome these limitations. It is a novel BBIT formulation, registered for PT 13.

Benefits of Vinkocide BB WM:

- Excellent water-miscibility and self-emulsifying of BBIT (micro emulsion)
- High efficiency against typical fungi and yeast
- Stable at high temperatures and metalworking fluid-relevant pH-levels (> 7)
- Easy dosing at the recommended use-concentration 150 – 1500 ppm (= 37.5ppm - 300 ppm BBIT)
- No formation of BBIT-agglomerates (safe to use do formation of micro emulsion)
- pH in use concentration = 6 - 7.5
- Low foaming tendency (comparable to grotanol FF 1 N)
- No labelling within the recommended use concentrations (> 0.5% = EUH208* EUH210**)
- Applicable in clear solutions (fully synthetic MWF) and emulsions (semi synthetic + mineral oil based MWF)

* Contains BBIT. May produce an allergic reaction | ** Safety data sheet available on request

Vink Chemicals´ Expanded Product Portfolio

Vink Chemicals´ production hyiene concept

Assuring the quality of raw materials, finished products and installation is an essential part of a successful housekeeping. This routine hygiene control program is based on hygiene standards and always include regular testing for microbial growth, for example by using dipslides.

Use Germcount™ combi dipslide as an easy, safe and fast way to complement the efficient use of biocides.

Hygiene Testing	
Germcount™ combi dipslide	10 / Pack

Contact us to know more our production hygiene concept.

A MWF additve from Vink Chemicals´ portfolio

Vinkoflame TOF (trioctyl phosphate) is a halogen-free plasticizer with excellent low temperature flexibility and a flame-retardant for plastics. It is used as an aqueous polymer dispersion and is well tolerated in, among other polymers, EP, NBR, PU, PVC, PUR and NBR. It acts as a binder for pigment paste, an additive for cutting oils, a release agent for metal processing, and as a solvent, e.g., for the production of hydrogen peroxide.

System Cleaner

„Cleaning is the beginning, not the end, of the production cycle“

A good and efficient hygiene concept is a prerequisite of every chemical manufacturer. Doing so minimizes the final cost of the product and helps to ensure that a quality product is manufactured and delivered.

Vink Chemicals has developed the system cleaner Vinkoclean SR 1 (biocide-free) as well as grotanol range (biocidal product), which reliably remove biofilms and microbes, sludges and other contaminants.

Biocidal solutions:

Ensuring reliable product quality also includes a regular cleaning and microbiological sanitation of the production plant, surfaces and apparatus. Vink Chemicals offers under the brand name grotanol® several system cleaners which provide good immediate effects at a low use concentration. They have a broad spectrum of effect against bacteria, yeasts and moulds.

Biocide-free solutions:

Optimal plant hygiene can improve the effectiveness of biocides. That saves money and reduces environmental impact. Hygiene also includes the control of harmful biofilms in production systems. Effective cleaning measures can reduce their growth. For this purpose we offer the system cleaners Vinkoclean SR 1 which can be used alone or in combination with biocidal components, as needed. It is used for regular cleaning of production systems based on materials, operating parameters and the degree of infestation.

Its outstanding cleaning performance removes dirt, bacterial slime, moulds and yeast colonies. Containers and lines are also effectively cleaned at inaccessible locations. When correctly selected and implemented, system cleaners minimise the germ load that is present in production processes for paints and coatings. This basis enables the efficient use of the necessary biocidal formulations for product preservation.

Production Hygiene

Vink Chemicals system cleaning solutions

Biocidal System Cleaners / Machine Cleaners

grotanol® SR 2

Active ingredients
- MBO
- Sodium salt (NaPt)

Benefits
- High concentrated and free of water
- Broad, balanced efficacy against bacteria, yeasts and moulds
- Excellent cleaning and micro-bicidal efficacy
- Low foaming
- Fulfils the requirements of the EN 1275
- BPR-application*: PT 2 + PT 13

Technical properties
- Maximum manufacturing temperature: 60 °C
- Max. pH-value of end product: < 11
- Shelf life: 24 months

grotanol® FF 1 N

Active ingredients
- BIT
- BDA
- Sodium salt (NaPt)

Benefits
- Smart combination of actives
- Broad, balanced efficacy against bacteria, yeasts and moulds
- Excellent cleaning and microbicidal efficacy
- Low foaming
- Free of AOX and formaldehyde
- BPR-application*: PT 13

Technical properties
- Maximum manufacturing temperature: 60 °C
- Max. pH-value of end product: < 12
- Shelf life: 18 months

grotanol® 3025

Active ingredients
- Glutaral
- CMIT/MIT

Benefits
- Water based combination of actives
- Excellent bactericidal efficacy (incl. sulphate-reducing bacteria)
- Good head space protection
- Eminently suitable for disinfection and sanitation of contaminated plants
- Free of VOC and formaldehyde releasers
- BPR-application*: PT 2

Technical properties
- Maximum manufacturing temperature: 50 °C
- Max. pH-value of application: < 8.5
- Shelf life: 36 months

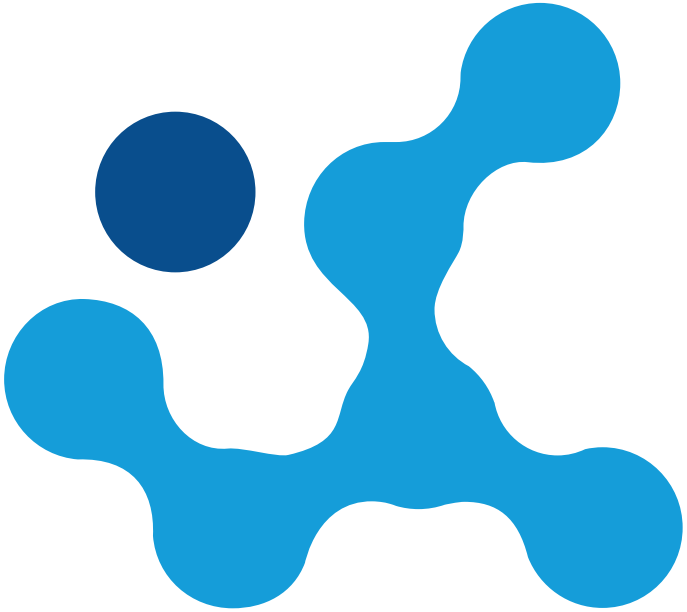
Biocide-free System Cleaners

Vinkoclean SR 1

Active ingredients
- Alkaline

Benefits
- All-in-one cleaner with a broad range of applications
- Good cleaning efficacy
- Economic usage
- Only short interruption of production
- Easy to rinse off
- Contain bio dispersants

Technical properties
- Maximum manufacturing temperature: Room temperature
- Max. pH-value of end product: n.n.
- Shelf life: 18 months



Solutions to Safeguard your Products

Vink Chemicals GmbH & Co. KG

Eichenhöhe 29,

21255 Kakenstorf, Germany

Tel.: +49-4186-88797- 0

Fax: +49-4186-88797-10

e-mail: sales@vink-chemicals.com

www.vink-chemicals.com