Biocide market: Trends for 2021+

"A team with our customers"

- Taylor made developments / customized recommendations
- Several types of packaging
- Private Label
- 250+ formulations & specialty chemicals

- Worldwide presence
- International network and distribution
- Great connections to raw material suppliers

- Specialists with 30+ years experience
- Anticipation to regulations
- Own microbiology and analytical labs
- More than 30 global registered patents

ABOUT US – Industries/Markets

TECHNICAL BIOCIDES

- **Paints & Coatings**
- **Adhesives, incl. Resins**
- **Construction (Concrete admixtures)**
- Metalworking fluids
- Lubricants
- **Water treatment**
- Household & Industrial cleaning
- Textile & Leather
- Cosmetics
- Pulp & Paper

OILFIELD & FUEL TREATMENT

- Upstream phase
- Midstream phase
- Downstream phase

SPECIALITY CHEMICALS

- **Defoamer**
- **Pigments**
- **Cellulose ethers**
- **Dispersion powder**

SYSTEM CLEANERS

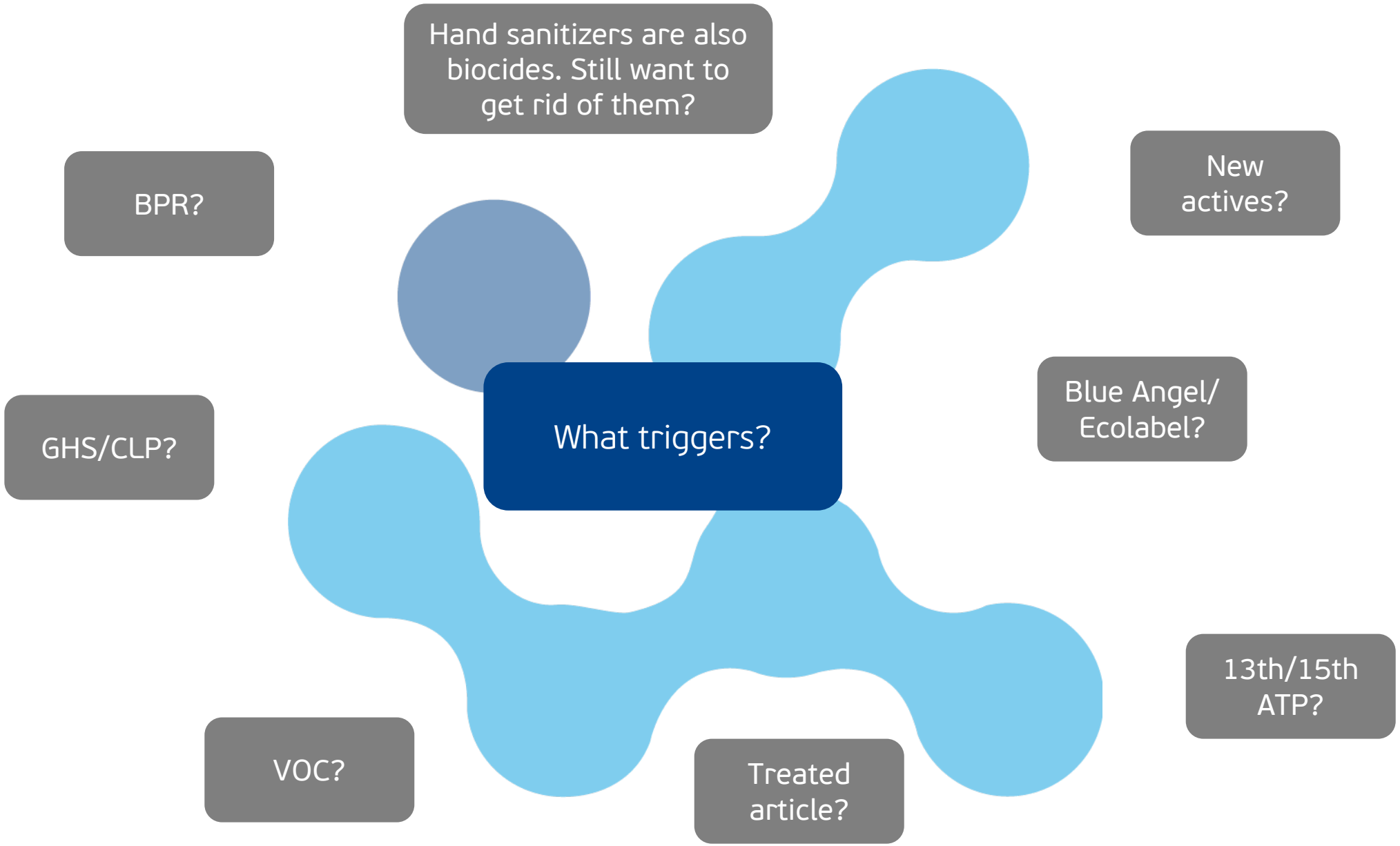
- **Biocidal cleaners**
- **Biocide-free cleaners**
- **Disinfectants**

VINK CHEMICALS – WORLDWIDE

100+ specialists worldwide

More than 15,000 MT capacity on 2 sites

Own R&D department and labs with over 30 years experience


Hand sanitizers are also biocides. Still want to get rid of them?
BPR?
New actives?
What triggers?
GHS/CLP?
Blue Angel/ Ecolabel?
13th/15th ATP?
VOC?
Treated article?

TECHNICAL BIOCIDES APPLICATIONS & PRODUCT TYPES

PT	PT 13 Working or cutting fluid preservatives	PT 6 Preservatives for products during storage	PT 7 Film preservatives	PT 12 Slimicides	PT 11 Preservatives for liquid-cooling and processing systems	PT 13 & PT 2 Working or cutting fluid preservatives
Application	Metalworking fluids	• Household product and industrial cleaning • Wet wipes (technical) • Paints & Coatings Industry • Adhesive Industries • Construction industry - concrete	Dry Film Preservation	Pulp and paper production	• Processing Systems or cooling systems • Water Treatment	System Cleaner

OUTLOOK 2021+

Starting from March 1, 2022 when the implementation of the 15th adaptation to technical progress (ATP) comes into force Zinc Pyrithione (ZnPt), Octylisothiazolinone (OIT) and Dichloroctylisothiazolinone (DCOIT) will have a new classification and labelling.

In the case of ZnPt, the new classification means that normal public won't be able to access to it, so reduced market for DIY. Furthermore, it will be excluded from Ecolabelling. ZnPt is a potential candidate for elimination due to the reprotoxic criteria. It has definitely an unclear future beyond 2024.

Substance	Now		From 01/03/2022	
	H317	EU H208	H317	EU H208
OIT	≥ 500 ppm	≥ 50 ppm	≥ 15 ppm	≥ 1.5 ppm
DCOIT	≥ 10,000 ppm	≥ 1,000 ppm	≥ 15 ppm	≥ 1.5 ppm
ZnPt	H331: Toxic if inhaled		H330: Fatal if inhaled	
	n/a		If more than 0.3% H360D: May damage the unborn child	
	n/a		H372: Causes damage to organs through prolonged repeated exposure	
	H400: Very toxic to aquatic life M-factor of 100		H400: Very toxic to aquatic life M-factor of 1,000	

LABELLING LIMITS - STATUS QUO

Substance	H317	EU H208	EU Ecolabel Indoor and outdoor paints and varnishes	Blue Angel Label In-can Preservation
CMIT/MIT (3:1) , MIT	≥ 15 ppm	≥ 1.5 ppm	15 ppm/Iso total < 500 ppm IN-CAN Total < 600 ppm	< 15 ppm
BIT	≥ 500 ppm	≥ 50 ppm	< 500 ppm IN-CAN Total < 600 ppm	10 ppm indoor; < 200ppm in 'low emission coatings'
*OIT	≥ 500 ppm	≥ 50 ppm	< 500 ppm IN-CAN Total < 600 ppm	< 2ppm (indoor)
*DCOIT	≥ 10,000 ppm	≥ 1,000 ppm	Dry film total < 0.1% Indoor Dry film total < 0.71% outdoor	< 2ppm (indoor)
IPBC	≥ 10,000 ppm	≥ 1,000 ppm	1,000 ppm indoor 6,500 ppm outdoor	< 80 ppm
Sodium Pyrithione	≥ 10,000 ppm	≥ 1,000 ppm	IN-CAN Total < 600 ppm	< 200 ppm
Bronopol	Non skin sensitizing	Non skin sensitizing	< 10 ppm Free FA IN-CAN Total < 600 ppm	< 200 ppm
*Zinc Pyrithione	Non Skin sensitizing	Non Skin sensitizing	500 ppm IN-CAN Total < 600 ppm	200 ppm

*Re-classification from 2022

FOCUS FOR FUTURE: PRODUCTION HYGIENE | OPTIMIZE USE OF BIOCIDES

Hygiene concepts for various industries to eradicate primary contaminations through fast decontamination of spoiled materials and equipment:

Biocidal system cleaner	Non-biocidal system cleaner
Products based on formaldehyde releasers, CMIT/MIT, Glutaraldehyde, BDA, BIT, NaPT or Phenoxyethanol.	Products designed to completely remove biofilms. Periodically used, it will prevent possible contamination because of left overs, dead microorganisms and cross contamination. Formulated with alkaline and/or acidic detergents (surfactants).

FOCUS FOR FUTURE: PRODUCTION HYGIENE | OPTIMIZE USE OF BIOCIDES

The solution for a good preservation is not only to load with more or stronger biocides, but an optimal combination of good cleaning and the right biocide. We support our customers with an individual plant hygiene evaluation service:

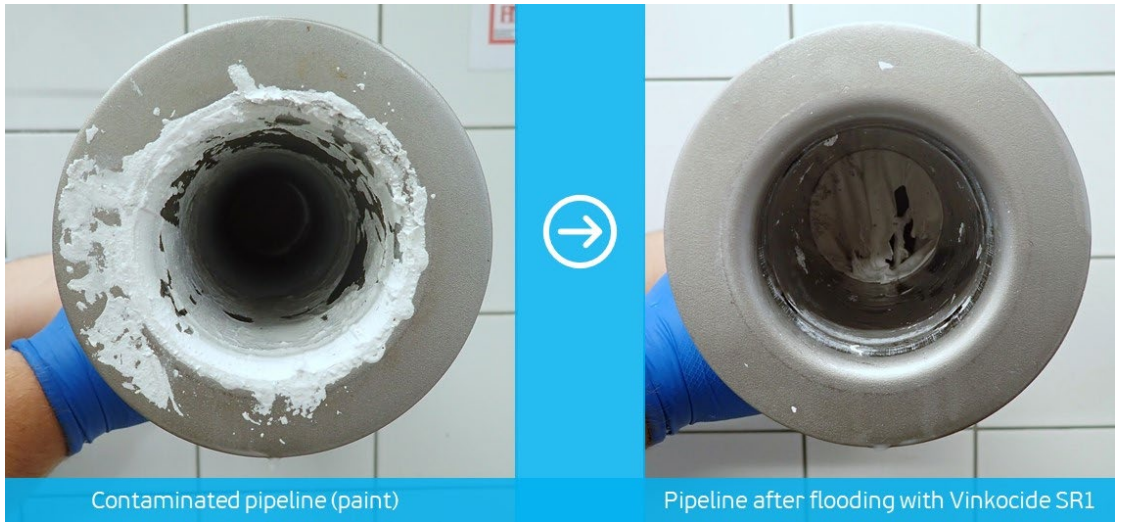
Plant hygiene audits, on-site as well as digital (Cyber-Audits) with a dedicated professional team

Biocidal system cleaner

Non-biocidal system cleaner

Optimizing the use of biocides

Choice of right preservation concept



FOCUS FOR FUTURE: PRODUCTION HYGIENE | OPTIMIZE USE OF BIOCIDES

THE CHOICE OF SYSTEM CLEANER

Product		grotanol® SR 2	grotanol® FF 1N	grotanol® 3025	Vinkoclean® SR1	Vinkoclean® SR3
Active ingredients	BIT		■			
	BDA		■			
	Na-Py	■	■			
	MBO	■				
	Glutaral			■		
	CMI/MI			■		
	Biocide-free				■	■
Supported BPR* actives	PT 2	■	■	■		

BIOCIDE-SOLUTIONS FOR THE FUTURE

Depending on your standards and type of customers for labelling requirements, and taken into consideration the characteristic of your products (pH, temperature, matrix, etc), we will help you to choose the right biocide:

Options for PT 6	Options for PT 7
• BIT • CMIT/MIT • CMIT/MIT + BIT • CMIT/MIT + Bronopol • CMIT/MIT + TMAD • CMIT/MIT + TMAD + BIT • CMIT/MIT + EDDM • BIT + BDA • BIT + MIT • BIT + NaPt • BIT + Bronopol • BIT + MIT + Bronopol • Phenoxyethanol	• OIT • Carbendazim + Diuron • Carbendazim + Diuron + OIT • Terbutryn + ZnPt • IPBC • IPBC + OIT • DCOIT

WHAT ARE OUR SOLUTIONS? | SOME EXAMPLES

Products	BIT	CMIT/ MIT	MIT	BND	NaPt	ZnPt	BDA	TMAD
Vinkocide BIT family	X							
Vinkocide CMI family		X						
Vinkocide CMIK family	X	X						
Vinkocide CMIB family		X		X				
Vinkocide CMIF-N family		X						X
Vinkocide KTL / KTL 55	X		X					
Vinkocide KTLB	X		X	X				
Vinkocide KTLN	X		X		X			
Vinkocide KN	X				X			
Vinkocide ZK 10	X					X		
Grotan BA 21	X						X	
parmetol MBX	X		X				X	
parmetol SBX	X				X		X	

CONCLUSION

Markets and industries are triggered by legislation. For Vink Chemicals, this is not a showstopper, but an opportunity to develop and offer products based on our extensive know-how and innovative ideas.

To manage the future of biocides, we will guide you proactively to...

- ...be prepared for the upcoming regulations through taking into consideration...
- ...the performance and compatibility of the preservatives and...
- ...by maintaining a good production hygiene.

Q&A – FROM AUDIENCE & VINK

- Difference NaPT vs Zpt ?
  Due to its high water solubility, Sodium pyrithione is hardly compatible with PT7 end uses and is better suited for wet-state preservation. Zinc pyrithione can be used for both.
  To an efficacy point of view in PT6 end-uses, both actives are almost on a similar performance level. They have to be stabilized in a proper way to prevent discolorations in presence of metallic ions.
  From a regulatory point of view, the toxicities of both actives are nicely different. Zinc pyrithione will become a reprotoxic substance on March 2022 whereas the latest RAC opinion show no intention to label sodium pyrithione as reprotoxic. Even the aquatic acute toxicity is proposed for a different level with a M factor of 100 vs. 1000 for zinc pyrithione.

- Carbedazim to be banned ?
  Carbendazim has been approved as an active substance for PT7 and PT10. Despite of its mutagenicity and its reprotoxicity, no unsafe use for professionals and amateurs end-users has been identified. However, the risk assessment for the substance reveals that the outdoor use of carbendazim containing paints pose an unacceptable risk to the environment. This will have to be taken into consideration for formulated products to lower the environmental risk.
  The 17 ATP draft confirms the Mutagenicity and the Reprotoxicity of the active but also adds a skin sensitization 1 criteria. Acute and chronic M factors are set to 10 for both.

- Labelling Zpt <300ppm ?
  From 250 ppm, Zinc pyrithione triggers the H400 phrase if no other ingredient contributes. The substance triggers no labelling below 250 ppm.

YOUR TEAM

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A Team with our Customers