



**Ministry of Environment
of Denmark**

Environmental
Protection Agency

Control of biocides 2021

May 2023

Publisher: The Danish Environmental Protection Agency

Editors:

Christina Østerballe Pedersen, Danish Technological Institute

Eva Jacobsen, Danish Technological Institute

The Danish Environmental Protection Agency publishes reports and papers about research and development projects within the environmental sector, financed by the Agency. The content of this publication do not necessarily represent the official views of the Danish Environmental Protection Agency. By publishing this report, the Danish Environmental Protection Agency expresses that the content represents an important contribution to the related discourse on Danish environmental policy.

Sources must be acknowledged

Contents

Preface	4
Sammenfatning og konklusion	5
Summary and conclusion	6
1. Control of biocides 2021	7
1.1 The planned control campaign 2021	7
1.2 Ad hoc rodenticides	7
1.3 Ad hoc disinfection/sanitizer products	7
1.4 Analysis	7
2. Control campaign 2021	8
2.1 Collected products	8
2.2 Tolerances of active substance concentration	8
2.3 Analysis	8
2.3.1 Analysis of active substances	8
2.3.2 Analysis of co-formulant	10
2.3.3 Measuring density	10
2.4 Results and conclusions	10
2.4.1 Insecticides	10
2.4.2 Rodenticides	11
3. Ad hoc rodenticide samples	12
3.1 Collected products	12
3.2 Analysis	12
3.3 Results and conclusion	12
4. Disinfection/sanitizer products	13
4.1 Collected products and samples	13
4.2 Tolerances of active substances	13
4.3 Analysis	13
4.3.1 Determination of the active substances ethanol and isopropanol	13
4.3.2 Determination of density	13
4.3.3 Determination of pH	14
4.4 Results and conclusion	14
5. Other ad hoc samples	16
5.1 Collected samples	16
5.2 Analysis	16
5.3 Results and conclusion	16
References	17
Appendix 1	18
Biocide products collected for the planned control campaign 2021	18

Preface

This report describes the analytical chemical control of biocides on the Danish market, which was carried out in 2021 by the Danish Chemical Inspection Service of the Danish Environmental Protection Agency. The control is part of the “Danish Political Agreement on new joint chemicals initiatives 2018-2021”. Samples of selected types of biocides on the Danish market were collected and analysed to verify whether or not the content of active substances in the biocides complies with the the labelled content and the information given to the Danish Environmental Protection Agency. Additionally, a range og products and samples were collected for ad hoc analysis.

Sammenfatning og konklusion

Denne rapport beskriver den analytisk kemiske kontrol af biocidprodukter på det danske marked, der er udført af Miljøstyrelsens Kemikalieinspektion i 2021 (Ref. 1).

Den planlagte kontrolkampagne dækkede 4 aktivstoffer i forskellige kombinationer i 13 biocidprodukter. De indsamlede produkter er listet i tabellen nedenfor. Produkterne blev analyseret for at verificere, om indholdet af de respektive aktivstoffer var i overensstemmelse med det deklarerede indhold. Grænsen for en accepteret afvigelse i indholdet af et aktivstof i forhold til det deklarerede indhold er fastsat i bekendtgørelsen om bekæmpelsesmidler nr. 2281 af 29/12/2020 (gældende bekendtgørelse nr. 1569 af 19/12/2022, Ref. 2). Det målte indhold af aktivstoffer var i overensstemmelse med det deklarerede indhold i 8 ud af 13 produkter, idet resultatet var indenfor tolerancen.

Oversigt over analyserede produkter og aktivstoffer i den planlagte kontrolkampagne.

Aktivstof	Antal analyserede produkter	Antal indenfor tolerance	Antal udenfor tolerance
Brodifacoum	1	1	
Difethialon	2	2	
Pyrethrin I & II	6	2	4
Pyrethrin I & II og permethrin	2	1	1
Permethrin	2	2	
Total	13	8	5

Desuden blev der indsamlet en række produkter og prøver til ad hoc-analyse:

- Seks produkter til desinfektion af enten hænder eller overflader blev udtaget af Toldstyrelsen (Ref. 3). Det totale alkoholindhold var >60%w/w i 4 ud af 6 produkter. Ethanol blev påvist og kvantificeret i 5 ud af 6 analyserede produkter, med indhold i området 52-70%w/w. Isopropanol blev påvist og kvantificeret i 3 ud af 6 analyserede produkter, med indhold i området 0,14-70%w/w.
- Fire prøver blev indsamlet, hvor der var mistanke om uautoriseret anvendelse af rodenticider. Der blev påvist rodenticide aktivstoffer i alle 4 prøver.
- Et produkt indeholdende aktivstoffet didecyldimethylammonium chlorid (DDAC) blev udtaget til analyse. Det målte indhold af DDAC var i overensstemmelse med det deklarerede indhold, idet resultatet var indenfor tolerancen.

Summary and conclusion

This report describes the analytical chemical control of biocide products carried out in 2021 by the Danish Chemical Inspection Service (Ref. 1).

The planned control campaign covered 4 active substances in different combinations in 13 biocide products. The collected products are listed in the table below. The products were analysed to verify whether the content of the active substances in the products in question complies with the declared content. The tolerance of an accepted deviation in the content of an active substance compared to the declared content and product specification is determined in the Danish Statutory Order on Pesticides No. 2281 of 29/12/2020 (applicable Danish Statutory Order 1569 of 19/12/2022) (Ref. 2).

The measured content of active substances complied with the declared content in 8 out of 13 of the selected products as the results were within the range of tolerance.

Overview of analysed products and active substances in the control campaign.

Active substance	No. of analysed products	No. within tolerance	No. outside tolerance
Brodifacoum	1	1	
Difethialone	2	2	
Pyrethrin I & II	6	2	4
Pyrethrin I & II and permethrin	2	1	1
Permethrin	2	2	
Total	13	8	5

Additionally, a range of products and samples were collected for ad hoc analysis:

- Six products for disinfection/sanitizer of hands or surfaces were collected by The Danish Custom Service (Ref. 3). The total alcohol content was >60%w/w in 4 out of 6 products. Ethanol was detected and quantified in 5 out of 6 analysed products with concentrations ranging from 52-70%w/w. Isopropanol was detected and quantified in 3 out of 6 analysed products with concentrations ranging from 0.14-70%w/w.
- Four ad hoc samples suspected of being rodenticides used without authorization, were submitted for analysis. Rodenticides were identified in all samples.
- One product containing the active substance didecyldimethylammonium chloride (DDAC) was collected for analysis. The measured content of active substances complied with the declared content as the result was within the range of tolerance.

1. Control of biocides 2021

The control of biocides 2021 was divided into three main activities:

- The planned control campaign
- The routine ad hoc control of rodenticides applied without permit
- Ad hoc control of hand and surface disinfection/sanitizer products

Additionally, one algicide product was collected ad hoc for control.

1.1 The planned control campaign 2021

The Danish planned control campaign conducted in 2021, covered 4 active substances in different combinations in 13 biocide products. The active substances were selected according to the amount of active substance sold in previous years as well as to when the active substances recently were included in the control campaign, and finally based on availability on the market. All products were collected by the Danish Chemical Inspection Service of the Danish Environmental Protection Agency during the period from April to June 2021. The product samples were collected either from wholesale dealers/importers or at retailer outlets. A summary of the selected active substances is given in TABLE 1.

TABLE 1. Outline of selected active substances in the 2021 control campaign.

Area of application	Active substance	CAS no.
Insecticide	Permethrin	52645-53-1
	Pyrethrin I & II	8003-34-7
Rodenticide	Brodifacoum	56073-10-0
	Difethialone	10465-34-1

1.2 Ad hoc rodenticides

According to Statutory Order no. 1686 of 18/12/2018 (applicable Danish Statutory Order 2307 of 06/12/2021) (Ref. 4), the application of anticoagulant rodenticides is restricted to authorized exterminators only. Upon suspicion of unauthorized use of rodenticides, samples were collected, primarily by the municipalities, and submitted for analysis of anticoagulant rodenticides.

1.3 Ad hoc disinfection/sanitizer products

Additionally, ad hoc control was carried out on hand and surface disinfection/sanitizer products collected at the Danish border by The Danish Customs Agency. The collected products were analysed to verify that the content of active substances was sufficient to ensure adequate efficacy (Ref. 5) and to identify problematic/prohibited substances.

1.4 Analysis

The analyses of the products and samples were performed by Danish Technological Institute, Laboratory for Chemistry and Microbiology. DTI is a self-owned and not-for-profit Institute (Ref. 6). The Laboratory for Chemistry and Microbiology is accredited by DANAK (Danish Accreditation and Metrology Fund), registration no. 90, according to DS/EN ISO/IEC 17025:2017 (Ref. 7).

2. Control campaign 2021

2.1 Collected products

A total of 13 biocide products, 9 insecticides and 3 rodenticides, were collected. The insecticides contained permethrin and/or pyrethrin I&II. Additionally, two of the insecticides contained the co-formulant piperonyl butoxide. The rodenticides contained brodifacoum or difethialone. TABLE 3 states the previous years the active substances were selected for control.

2.2 Tolerances of active substance concentration

The results of the chemical analyses were compared with the specification of the product and the declared content on the label supplied by the authorisation holder. The Danish Statutory Order on Pesticides No. 2281 of 29/12/2020 (applicable Danish Statutory Order 1569 of 19/12/2022) specifies the general tolerance of deviation from the declared content of active substances (Ref. 2). These tolerances are listed in TABLE 2.

TABLE 2. The tolerance of deviation from the declared content of active substance.

Content of active substances in g/kg or g/L at 20°C	Tolerance of deviation
Up to 25	± 15% homogeneous formulation
	± 25% non-homogeneous formulation
More than 25 up to 100	± 10%
More than 100 up to 250	± 6%
More than 250 up to 500	± 5%
More than 500	± 25 g/kg or ± 25 g/L

2.3 Analysis

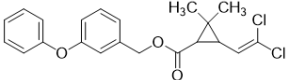
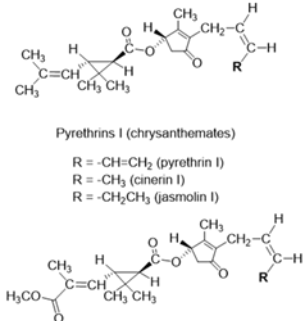
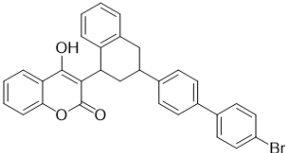
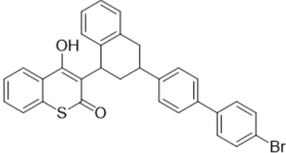
2.3.1 Analysis of active substances

As far as possible, the chemical analyses were performed as at least four freshly prepared samples of each product. If the average result is outside the tolerance interval, then the analysis is repeated with a minimum of four new and freshly prepared samples.

The methods were validated with regard to linearity, specificity, accuracy and control tests at two levels. The chemical analyses for validation were performed as at least eight freshly prepared samples of the product. The analyses were distributed over at least two days for each product formulation. The mean value of the analyses and the SD (standard deviation) were calculated for each day and for all eight results. Recovery was determined by adding a known amount of the relevant active substance to a minimum of five samples of each product. The mean recovery and standard deviation were calculated.

For accredited analyses the expanded uncertainty UE (k=2) of each product was calculated on the basis of the spread of the analysis results, the recovery, and the purity of the reference standard. The expanded analysis uncertainty is used to determine a 95% confidence interval for the analysis result. The expanded uncertainty varies from 5-23% depending on the analytical method, the product formulaion and the available reference standards. TABLE 3 outlines the analytical method applied for each active substance.

TABLE 3. Biocides in the 2021 control campaign.

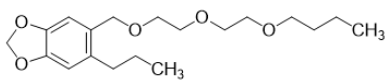
Name	CAS no.	Year selected for control	Analytical method			Molecular structure (Ref. 8)
			Principle	DTI method	Accreditation	
Permethrin	52645-53-1	2018, 2014, 2008	HPLC-DAD	OA-879	Yes	
Pyrethrin I & II	8003-34-7	2019, 2018, 2017	HPLC-DAD	OA-879	No	 <p>Pyrethrins I (chrysanthemates) R = -CH=CH₂ (pyrethrin I) R = -CH₃ (cinerin I) R = -CH₂CH₃ (jasmolin I)</p> <p>Pyrethrins II (pyrethrates) R = -CH=CH₂ (pyrethrin II) R = -CH₃ (cinerin II) R = -CH₂CH₃ (jasmolin II)</p>
Brodifacoum	56073-10-0	2013, 2002	HPLC-DAD	OA-859	Yes	CIPAC 370 (Ref.9) 
Difethialone	10465-34-1	2010, 2002	HPLC-DAD / LC-MS*		No	CIPAC 370 (Ref.9) 

*Analytical method depends on product formulation

2.3.2 Analysis of co-formulant

The co-formulant piperonyl butoxide was analysed in 2 samples containing pyrethrin I+II as active substance. An analytical scheme equivalent to the one described in section 2.3.1 for the analysis of active substances was applied to the co-formulant. Piperonyl butoxide was analysed by reversed phase high-performance liquid chromatography combined with diode array detection, (HPLC-DAD) according to DTI's method OA-879.

TABLE 4. Co-formulant analysed in the 2021 control campaign.

Name	CAS no.	Molecular structure (Ref. 8)
Piperonyl butoxide	51-03-6	

2.3.3 Measuring density

The density of all liquid products was measured, and the results were used to determine the content in g/L of the active substance in the product. The density was determined according to DTI's analysis method UA-312. The method is based on CIPAC MT 3 (Ref. 10) and is accredited. The density of the product is determined as the average of a triple determination carried out by measuring with a Densito 30 PX densitometer.

2.4 Results and conclusions

The results of the performed analyses are listed in the following tables. RSD% is the percentage relative reproducibility of the determinations of the product.

2.4.1 Insecticides

The results of the active substance analyses of the insecticides are summarized in TABLE 5 and TABLE 6. The concentration of active substances complies with the declared content and with applicable Danish law in 5 out of the 10 products. For one of the product, does the analytical uncertainties of the analysis of active substance mean that it is not possible to definitive state that the product does not comply with Danish law.

The measured content of piperonyl butoxide is comparable to the specified content. Because co-formulants are not subject to the regulation applying to the active substances, the results cannot be evaluated as comply/non-comply.

TABLE 5. Analysis results (g/kg) in insecticides.

DTI sample no.	Active Substance	Label claim g/kg	Tolerance interval g/kg	Analysis result g/kg	RSD %	Comply/ Non-comply
972663-2	Permethrin	5.40	4.05-6.75	5.42	0.7	Comply
972663-4	Pyrethrin I & II	1.74	1.31-2.18	1.76	1.4	Comply
972663-7	Pyrethrin I & II	2.1	1.8 - 2.4	2.6	0.8	Non-comply
972663-12	Permethrin	10	7.5-12.5	10.7	1.1	Comply
972663-13	Permethrin	15	12.8-17.3	15.9	0.4	Comply
	Pyrethrin I & II	5	4.25-5.75	4.70	0.4	Comply

TABLE 6. Analysis results (g/L) in insecticides.

DTI sample no.	Active Substance	Label claim g/L	Tolerance interval g/L	Analysis result g/L	RSD %	Comply/ Non-comply
972663-1	Pyrethrin I & II	2.4	2.01-2.73	1.72	1.6	Non-comply
	Permethrin	7.8	6.6-9.0	7.62	3.4	Comply
	Piperonyl butoxide*	11.9	10.1-13.6	11.1	1.1	-
972663-3	Pyrethrin I & II	2.5	2.13-2.88	1.71	0.7	Non-comply
972663-5	Pyrethrin I & II	2.5	2.13-2.88	1.37	1.9	Non-comply
972663-6	Pyrethrin I & II	4.0	3.40-4.60	4.34	0.9	Comply
972663-8	Pyrethrin I & II	30	27.0-33.0	25.4	1.6	**
	Piperonyl butoxide*	135	131.4370803	131	2.1	-

*Co-formulant, tolerances not relevant and comply/non-comply can not be assessed.

** Due to the measurement uncertainty of the analysis result it cannot be definitively stated that the product dose not comply with Danish law.

2.4.2 Rodenticides

The results of the active substance analyses for the rodenticides are summarized in TABLE 7. The concentration of active substances complies with the declared content and with applicable Danish law in all products.

TABLE 7. Analysis results (g/kg) in rodenticides.

DTI sample no.	Active Substance	Label claim g/kg	Tolerance interval g/kg	Analysis result g/kg	RSD %	Comply/ Non-comply
972663-9	Difethialone	0.025	0.019-0.031	0.024	9.8	Comply
972663-10	Difethialone	0.025	0.019-0.031	0.022	0.3	Comply
972663-11	Brodifacoum	0.050	0.038-0.063	0.041	0.4	Comply

3. Ad hoc rodenticide samples

3.1 Collected products

A total of 4 samples were submitted for analysis of rodenticides. The physical condition of the samples varied from pristine to heavily weathered, and the samples were in some cases mixed with other debris, e.g., soil. The collected samples are listed in TABLE 9.

3.2 Analysis

The ad hoc samples were analysed for eight anticoagulant rodenticides according to DTI's method OA-1108 (TABLE 8). The method relies on screening by liquid chromatography with mass spectrometric detection (LC-MS) to establish the identity of the active substance, followed by reversed phase liquid chromatography with diode array detection (HPLC-DAD) to verify the identity of the active substance and to quantify the content. The HPLC method is modified from CIPAC method 370 brodifacoum (Ref. 9). The quantitative analysis was performed as a double determination when possible, and as single determination when sample material was limited. A single sample was analysed for the non-anticoagulant rodenticide cholecalciferol by HPLC-DAD according to DTI's method OA-908.

TABLE 8. Rodenticides included in screening of ad hoc rodenticides.

Active substance	CAS no.
Bromadiolone	28772-56-7
Difenacoum	56073-07-5
Difethialone	104653-34-1
Brodifacoum	56073-10-0
Flocoumafen	90035-08-8
Chlorophacinone	3691-35-8
Coumatetralyl	5836-29-3
Coumatetralyl	5836-29-3
Cholecalciferol	67-97-0

3.3 Results and conclusion

The results of the analyses of the ad hoc rodenticide samples are listed in TABLE 9. RSD% is the percentage relative reproducibility of the determinations of the product.

Rodenticides were identified in all four samples. In one sample, the anticoagulant rodenticide chlorophacinone was identified but not quantified as the concentration was below the quantification limit of the method.

TABLE 9. Analysis results of rodenticides in ad hoc samples.

EPA no.	DTI no.	Sample type	Identified a.s.	Analysis result g/kg	RSD%
2021-13179	973691-1	Red block	Bromadiolone	0.0055	0.5
2020-20169	994254-1	Red grain	Bromadiolone	0.0031	2.6
2021-28204	997128-1	Red* block	Chlorophacinone	<0.001**	-
2021-28204	997128-2	Balck-grey* block	Cholecalciferol	0.069	-

a.s.: active substance. *The samples are heavily weathered, and the original color of the sample is hard to discern.** Limit of quantification.

4. Disinfection/sanitizer products

4.1 Collected products and samples

A total of 6 ad hoc disinfection/sanitizer products were collected by the Danish Customs Agency. All products were alcohol-based, and the intended application was either to disinfect/sanitize hands or surfaces.

4.2 Tolerances of active substances

Statens Serum Institut (SSI) recommend that alcohol-based hand sanitizer products should contain 70-85% alcohol on a volume-by-volume basis (V/V), corresponding to 63-80% alcohol on a weight-by-weight basis for sufficient efficacy (Ref. 5).

4.3 Analysis

Paragraph 4.3.1 - 4.3.3 summarizes the analytical methods applied.

4.3.1 Determination of the active substances ethanol and isopropanol

An initial screening for nine specific solvents, including ethanol and isopropanol, was performed by gas chromatography with flame ionization detector (GC-FID) according to DTI's method OA-836 (TABLE 10). Ethanol and isopropanol were then quantified by GC-FID using external reference standards. The remaining compounds were reported either as being present (>0.1%w/w) or quantified on a case-by-case basis if present in significant amounts. Quantitative analyses were performed in triplicate.

TABLE 10. Compounds included in DTI's method OA-836.

Compound	CAS no.
Ethanol	64-17-5
Isopropanol	67-63-0
Methanol	67-56-1
tert-Butanol	75-65-0
1-Propanol	71-23-8
2-Butanone	78-93-3
2-Methyl-1-propanol	78-83-1
2-Methyl-2-butanol	75-85-4
4-Methyl-2-pentanone	108-10-1

4.3.2 Determination of density

The density of the liquid formulations was determined according to DTI's analysis method UA-202. The method is based on CIPAC MT 3.2 (Ref. 10), and the density of the product is determined by pycnometer. The analysis was performed in duplicate. Because the analysis is limited by the sample amount it was not performed for products where less than 100 mL liquid was supplied, incl. liquid associated with disinfection wipes. For products where the density was not determined, the measured active substance concentration was only reported as weight-by-weight percentage.

4.3.3 Determination of pH

pH for undiluted samples of the products was determined by potentiometric measurement according to DTI's analysis method UA-310. The method is based on CIPAC MT 75.3 (Ref. 11) and is accredited. The analysis was performed in triplicate.

4.4 Results and conclusion

The results for the products are presented in TABLE 11.

The total alcohol content was >60%w/w in 4 out of 6 analysed products. Ethanol was detected in 5 out of 6 products in concentrations ranging from 52-70%w/w. Isopropanol was detected in 3 out of 6 analysed products. The concentration ranged from 0.14-70%w/w, with IPA being the only active substance in one product. None of the products contained other solvents included in the screening in concentrations >0.1%w/w.

TABLE 11. Desinfection/sanitizer products collected by the Danish Customs Agency

EPA no.	DTI no.	Product name	Type	Use	a.s. as stated on label ¹	Results							
						a.s.	Conc.	Conc.	RSD	Total alcohol		Density	pH
							%w/w	%V/V	%	%w/w	%V/V	g/cm ³	
2021-326	961877-1	Polisan Håndsprit - gel	Gel	Hand	60%w/w EtOH	EtOH	52	59	1.6	61	69	0.889	7.1
						IPA	8.9	10	0.7				
2021-2843	964071-1	EB Håndgel 85%	Gel	Hand	85% EtOH	EtOH	58	-	1.7	58	n/a	n/a	6.9
						IPA	0.14	-	4.9				
2021-3151	965210-1	Alcohol Surface Disinfectant Wipes	Wipes	Surface	70%w/w EtOH	EtOH	70	-	4.5	75	n/a	n/a	9.4
						IPA	4.9	-	1.8				
2021-5712	967130-1	DEX Hand Sanitizer	Gel	Hand	EtOH	EtOH	53	61	3.3	53	61	0.907	6.8
						IPA	<0.1	-	-				
2021-5832	967360-1	2San Hånddesinfektion Gel	Gel	Hand	Alcohol denat.	EtOH	<0.1	-	-	70	77	0.865	9.1
						IPA	70	77	1.7				
2021-18061	977179-1	Håndgel TrygFonden	Gel	Hand	Alcohol	EtOH	68	76	0.4	68	76	0.874	7.3
						IPA	<0.1	-	-				

a.s.: active substance, RSD: relative standard deviation, EtOH: ethanol, IPA: isopropanol, '-': not relevant, n/a: not available because not measured.

¹ Concentrations given in g/kg or g/100 g have been converted to %w/w.

5. Other ad hoc samples

5.1 Collected samples

An additional product was collected ad hoc by the EPA. The product is classified as an algicide and contains the active substance didecyldimethylammonium chloride (DDAC, CAS no. 7173-51-5).

5.2 Analysis

The active substance DDAC was analysed by liquid chromatography with mass spectrometric detection (LC-MS) according to DTI's method OA-1204. The analysis was performed in triplicate. The density of the product was determined according to DTI's method UA-312 (see section 2.3.3).

5.3 Results and conclusion

The result of active substance analysis is given in TABLE 12. The concentration of active substance complies with the declared content and with applicable Danish law.

TABLE 12. Other ad hoc samples 2021.

EPA no.	DTI sample no.	Active Substance	Label claim g/L	Tolerance interval g/kg	Analysis result g/kg	RSD %	Comply/ Non-comply
2019-2729	972663-9	DDAC	5.0	4.3-5.8	5.2	2.2	Comply

References

1. The Danish Environmental Agency, www.mst.dk, <https://mst.dk/kemi/biocider/> (in Danish) or <https://eng.mst.dk/chemicals/biocides/>
2. Statutory Order on Pesticides No. 2281 of 29/12/2020 (applicable Danish Statutory Order 1569 of 19/12/2022)
3. The Danish Customs Agency, www.toldst.dk (in Danish), <https://www.toldst.dk/english/>
4. Statutory Order no. 1686 of 18/12/2018 Bekendtgørelse om forebyggelse og bekæmpelse af rotter (Statutory Order on prevention and control of rodents) (applicable Danish Statutory Order 2307 of 06/12/2021)
5. Statens Serum Institut, SSI, www.ssi.dk, <https://covid19.ssi.dk/hygiejne/borgere> (Last edited 2021.03.30, in Danish)
6. Danish Technological Institute, Kongsvang Allé 29, DK-8000 Aarhus C, Denmark, www.teknologisk.dk (in Danish), <http://www.dti.dk/>
7. The Danish Accreditation and Metrology Fund – DANAK, www.danak.dk (in Danish), <http://english.danak.dk/>
8. The e-Pesticide Manual, Eighteenth Edition, online version, 2021. British Crop Protection Council, United Kingdom
9. CIPAC method Brodifacoum 370, <http://www.cipac.org/>
10. CIPAC MT 3 Specific gravity, density, and weight per milliliter. <http://www.cipac.org/>
11. CIPAC MT 75.3 Determination of pH values, www.cipac.org

Appendix 1

Biocide products collected for the planned control campaign 2021

TABLE 13. Fungicide products.

DTI sample no.	Active substance(s)	Reg. no.	Name of product	Authorization holder
972663-1	Pyrethrin I & II, Permethrin & Piperonyl butoxide	730-10	Trinol Insektmiddel 810	Trinol A/S
972663-2	Permethrin	831-18	Ameisen-Mittel	Detia Freyberg GmbH
972663-3	Pyrethrin I & II	364-10	Myrefri Spray	W. Neudorff GmbH KG
972663-4	Pyrethrin I & II	364-31	Myrefri Kvik Pulver	W. Neudorff GmbH KG
972663-5	Pyrethrin I & II	364-75	Myrefri Kvik Spray	W. Neudorff GmbH KG
972663-6	Pyrethrin I & II	364-19	Flurefri Spray	W. Neudorff GmbH KG
972663-7	Pyrethrin I & II	364-30	Hvepsefri	W. Neudorff GmbH KG
972663-8	Pyrethrin I & II, Permethrin, & Piperonyl butoxide	18-499	AquaPy	Bayer A/S
972663-12	Permethrin	730-30	Loppex	Trinol A/S
972663-13	Permethrin & Pyrethrin I & II	730-11	Perma Forte B	Trinol A/S

Control of Biocides 2021

English

The analytical chemical authority control of biocide products on the Danish market that was carried out in 2021 by the Danish Environmental Protection Agency (Danish EPA), Chemical Inspection Service, is described in this report.

As part of the planned control campagne, a total of 13 biocide products were collected on the Danish market and analysed to verify whether the content of the active substances in the products in question complies with the labelled content.

Additionally, a range of ad hoc samples were collected for control:

Six alcohol-based hand and surface disinfection/sanitizer products were collected at the Danish border by the Danish Customs Agency. The collected products were analysed to verify that the content of active substances was sufficient to ensure adequate efficacy. The total alcohol content was >60%w/w in 4 out of 6 analysed products.

Four ad hoc samples were collected as they were suspected of containing rodenticides applied without permit. Rodenticides were identified in all samples.

Danish

Den analytisk kemiske kontrol af biocidprodukter på det danske marked, der er udført i 2021 af den danske Miljøstyrelses Kemikalieinspektion, er beskrevet i denne rapport.

Som en del af den planlagte kontrolkampagne, blev 13 biocidprodukter udtaget på det danske marked og analyseret for at verificere, om indholdet af de respektive aktivstoffer er i overensstemmelse med det deklarerede indhold.

Herudover blev en række produkter og prøver udtaget ad hoc til kontrol:

Seks alkoholbaserede hånd- og overfladedesinfektionsmidler blev udtaget ved den danske grænse af Toldstyrelsen. De indsamlede produkter blev analyseret for at bekræfte, at indholdet af biocid aktivstof var højt nok til at sikre tilstrækkelig effekt. Det totale alkoholindhold var >60%w/w i 4 ud af 6 analyserede produkter.

Fire ad hoc-prøver af rottemidler udlagt uden tilladelse blev indsamlet. Der blev fundet rodenticide aktivstoffer i alle prøver.



The Danish Environmental
Protection Agency
Tolderlundsvej 5
DK - 5000 Odense C

www.mst.dk