

## **Biocidal Products Committee (BPC)**

Opinion on the Union authorisation of the biocidal product family:

**BPF\_Iodine\_VET**

ECHA/BPC/219/2019

Adopted

27 February 2019



## Opinion of the Biocidal Products Committee

### on the Union authorisation of BPF\_Iodine\_VET

In accordance with Article 44(3) of Regulation (EU) No 528/2012 of the European Parliament and of the Council 22 May 2012 concerning the making available on the market and use of biocidal products, the Biocidal Products Committee (BPC) has adopted this opinion on the Union authorisation of:

**Name of the biocidal product family:** BPF\_Iodine\_VET

**Authorisation holder:** Applied Biocide GmbH

**Active substance common name:** Iodine, including polyvinylpyrrolidone iodine

**Product type:** 3

This document presents the opinion adopted by the BPC, having regard to the conclusions of the evaluating Competent Authority (eCA).

### Process for the adoption of BPC opinions

Following the submission of an application on 7 August 2015, recorded in R4BP3 under case number BC-XJ019074-33, the evaluating Competent Authority submitted a draft product assessment report (PAR) containing the conclusions of its evaluation and the draft Summary of Product Characteristics (SPC) to ECHA on 22 August 2018. In order to review the draft PAR, the conclusions of the eCA and the draft SPC, the Agency organised consultations via the BPC (BPC-29) and its Working Groups (WG VII 2018). Revisions agreed upon were presented and the draft PAR and the draft SPC were finalised accordingly.

## **Adoption of the BPC opinion**

### **Rapporteur: Austria**

The BPC opinion on the Union authorisation of the biocidal product family was reached on 27 February 2019.

The BPC opinion was adopted by consensus. The opinion is published on the ECHA website.

## Detailed BPC opinion and background

### 1. Overall conclusion

The biocidal product family is eligible for Union authorisation in accordance with Article 42(1) of Regulation (EU) No 528/2012 and falls within the scope of the Regulation (EU) No 528/2012 as defined in Article 3(s).

The biocidal product family may be expected to fulfil the conditions laid down in Article 19(6) of Regulation (EU) No 528/2012 and therefore may be authorised. The detailed grounds for the overall conclusion are described in the PAR.

The BPC agreed on the draft SPC of BPF\_Iodine\_VET referred to in Article 22(2) of Regulation (EU) No 528/2012.

### 2. BPC Opinion

#### 2.1 BPC Conclusions of the evaluation

##### a) Summary of the evaluation and conclusions of the risk assessment

The sections below are a concise summary of the evaluation and conclusions of the assessment of the biocidal product family.

##### General

The biocidal product family BPF\_Iodine\_VET consists of products containing 0.1% to 3.0% of the active substance iodine for disinfection of teats of milk producing animals as well as for animal house disinfection.

The biocidal product family consists of 8 meta SPCs, each containing 1 up to 2 products. The structuring of the BPF into meta SPCs was based on:

- Similarity of composition. For meta SPC 4, 5 and 6 grouping of selected co-formulants has been used to avoid further splitting of meta SPCs.
- The hazard and precautionary statements.

Classification:

##### **meta SPC 1 and 4:**

H290: May be corrosive to metals

##### **meta SPC 2, 3 and 5:**

H290: May be corrosive to metals

H412: Harmful to aquatic life with long-lasting effects

##### **meta SPC 6:**

H290: May be corrosive to metals

H302: Harmful if swallowed

H314: Causes severe skin burns and eye damage

H318: Causes serious eye damage

H373: May cause damage to organs through prolonged or repeated exposure (thyroid gland)

H412: Harmful to aquatic life with long-lasting effects

**meta SPC 7:**

H290: May be corrosive to metals

H302: Harmful if swallowed

H314: Causes severe skin burns and eye damage

H318: Causes serious eye damage

H373: May cause damage to organs through prolonged or repeated exposure (thyroid gland)

H411: Toxic to aquatic life with long lasting effects

**meta SPC 8:**

H290: May be corrosive to metals

H314: Causes severe skin burns and eye damage

H318: Causes serious eye damage

H373: May cause damage to organs (thyroid gland) through prolonged or repeated exposure.

H412: Harmful to aquatic life with long-lasting effects

- Application method (teat dipping, teat spraying, animal house spraying)

- Target organism (meta SPC 1-5: bacteria, yeasts; meta SPC 6-8: bacteria, yeasts, viruses)

Meta SPCs 6,7,8 contain the following substances of concern (all due to their classification for certain human health endpoints): phosphoric acid 75%; poly(oxy-1,2-ethandiyl).alpha.-tridecyl-.omega.-hydroxy-, branched; and isotridecanol, ethoxylated 90%.

The following uses have been assessed:

meta SPC 1-3: Veterinary hygiene - animal husbandry - teat disinfectant - professional - indoors - spraying

- Use 1: Spraying: Manual and automated non-medical disinfection of teats with a ready-to-use spray (on cows, post-milking).

meta SPC 4-5: Veterinary hygiene - animal husbandry - teat disinfectant - professional - indoors – dipping

- Use 1: Teat-dipping: Manual non-medical disinfection of teats with a ready-to-use liquid (on cows, post-milking).

meta SPC 6-8: Veterinary hygiene - animal husbandry – hard surface disinfectant - professional - indoors - spraying

- Use 1: Spraying: Disinfectant for hard surfaces in stables (excluding hatcheries). Spraying of diluted concentrate by means of a hand-held knapsack sprayer (4-7 bar).

**Physico-chemical properties**

The products within the family typically have the characteristic dark brown colour and characteristic odour. The pH of the products within the family ranges from approximately 0.76 to 3.9 and the density is around 1.0 g/mL.

Although the products within the family are stabilised, the degradation of Iodine exceeded 10% in some studies during storage. Efficacy trials showed products can generally be adequately used after 12 months storage (meta SPCs 1 to 5) or 24 months storage (meta SPCs 6 to 8). Products should generally be protected from high temperatures as well as from frost, away from direct sunlight. With regard to classification and labelling, the products are classified corrosive to metals.

### **Efficacy**

Meta SPC 1-5 (teat disinfection): the tested products of these meta SPCs demonstrated a bactericidal and yeasticidal efficacy at the intended use concentration of 0.1-0.5% w/w iodine (RTU solutions) according to standard lab tests (phase 2/step1: EN 1656, EN 1657) under test conditions defined for teat disinfection as well as in a quantitative carrier test (phase 2/step2: Vitroskin® test using (drop/drop) test protocols of the IRG ring trial).

Meta SPC 6-8 (animal house disinfection): the tested products of these meta SPCs demonstrated a bactericidal, yeasticidal and virucidal efficacy at the intended use concentration of 0.075% w/w iodine (diluted products) according to standard lab tests (phase 2/step1: EN 1656, EN 1657, EN 14675) under test conditions defined for teat disinfection as well as in a quantitative surface test (phase 2/step2: EN 14349/EN 16437 and EN 16438).

It can be concluded that all products in this family are efficacious, when used in accordance with the use instructions proposed in the SPC.

### **Human health**

Professional exposure during teat spraying or dipping (post-milking only) takes place during mixing and loading by filling the ready-to-use solution into the spray bottle or the dipping cup, followed by the application step. Post-application exposure is considered limited. For disinfection of animal houses, a dilution step is performed, followed by medium-pressure spraying (4 to 7 bar) of emptied animal houses. A cleaning scenario is assessed for all uses.

Livestock exposure following all above-mentioned kinds of treatment is calculated and the health risk for animals is estimated on the basis of animal specific upper intake levels derived from an EFSA evaluation of animal health from feeding studies.

Human dietary exposure assessment includes exposure to iodine coming from several sources, i.e. teat treatment, background concentrations from milk (due to iodine sources other than from teat treatment, e.g. feeding stuff iodisation) and dietary intake from non dairy sources (including animal products containing residues from animal house disinfection).

As agreed on BPC WG II 2017, for the purpose of the human health risk assessment, exposure to iodine arising from professional use of iodine products and via the diet was compared with the relevant upper limit (UL) values for iodine for adults (600 µg/day) and infants (200 µg/day).

Agreements of the BPC Human Health Working Group IV 2017 were considered. There it was decided that the consumer risk assessment should not only consider the iodine exposure resulting from teat treatment with iodine-containing disinfectants, but also exposure to iodine from other sources. According to the European Food Safety Authority, milk and other dairy products are by far the main source of iodine in the human diet. However, it is noted that the level of iodine in milk varies greatly across Europe and is only partly due to teat treatment with iodine-containing disinfectants. The main non-biocidal

factors influencing the level of iodine in milk are the dairy cattle diet (i.e. drinking water and grass), the use of iodine feed supplements, farming practices, seasonal variations and milk processing technologies. Other non-biocidal sources of iodine in the human diet include eggs, grain products, fish and iodized salt.

In order to undertake the consumer risk assessment, the Human Health Working Group, agreed harmonised values for background levels of iodine in milk and other dietary sources, as well as the approach to be taken for the consumer exposure assessment. The agreed background levels of iodine were 200 µg/L iodine from milk (EFSA monitoring data<sup>1</sup> and the O'Brien study, 2013<sup>2</sup>) and from sources other than milk, 185 µg/day for adults and 96 µg/day for children (UK retail survey of iodine in UK produced dairy foods<sup>3</sup>).

It should be noted that the regulation of iodine exposure pathways that are not a consequence of biocidal use are outside the remit of the BPC. Where unacceptable risks are identified as a result of consideration of total dietary intake of iodine in addition to exposure arising from biocidal use, a risk management decision cannot be taken in isolation with respect to the biocides use only. It would be advisable that this issue is addressed at European level in order to ensure that all relevant regulatory bodies can be involved in agreeing a way forward.

### **Professional user risk assessment**

#### Local effects

Products within meta SPC 1-5 are not classified for local effects. Therefore no risk assessment for local effects is necessary for these products.

The meta SPC 6-8 products for animal house disinfection use are classified for eye damage category 1 and skin corrosion category 1.

The task of diluting the meta SPC 6-8 products to the in-use solutions is carried out for few minutes per day, usually not more than 1 time per stable and year and rarely (for ducks) up to 13 times per stable and year. Professional workers from service companies may also be exposed more frequently. However, appropriate RMM and PPE are used by professionals and specific training and experience may be expected for frequent professional use. The risk for local effects is considered acceptable.

#### Systemic effects

The risk for the use of the Iodine products for teat spraying (maximum iodine content: 0.5% w/w) and for teat dipping (maximum iodine content: 0.45% w/w) appears acceptable. For teat spraying gloves, coated coverall and boots are necessary for a safe use. In contrast for teat dipping no PPE is needed. The cleaning of equipment contributes just 1% of the UL, even without PPE and therefore it does not significantly influence the overall exposure assessment.

The exposure estimate for animal house spraying with gloves and an impermeable coverall results in 58% of the UL.

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<sup>1</sup> EFSA Journal 2013;11(2):3101

<sup>2</sup> O'Brien et al. Iodine concentrations in milk. Irish Journal of Agricultural and Food Research 52: 209–216, 2013

<sup>3</sup> FSIS 02/08, 16 June 2008



### **Risk for consumers via residues in food**

Dietary risk via iodine residues in milk due to teat treatment and Iodine background in milk as well as other dietary sources (including animal products with Iodine residues from animal house disinfection) has been assessed for both adults and toddlers. While it appears acceptable for adults (65% of the UL), the UL is exceeded for toddlers (150% of the UL).

However, in line with earlier iodine Union product authorisations, this exceedance is considered acceptable based on the following arguments:

- the toddler's dietary iodine intake from milk due to the teat disinfection procedure represents just approximately 58% of the UL (i.e. 38% of the total toddler's dietary iodine exposure). The rest stems from background exposure in milk and from other sources of human dietary exposure (including residues from animal house disinfection).
- The last two aspects may be very variable throughout Europe. Reducing the dietary exposure estimate by about 30% would result in a total exposure value of 100% of the UL also for the toddler.
- In spite of the exceedance of the UL value for toddlers (300 instead of 200 µg/day), there is still a high margin to doses where marginal and not clinically adverse effects were observed in adult humans (1700-1800 µg/day for adults).

### **Risk from combined exposure**

Combining Iodine exposure from professional teat spraying disinfection with dietary exposure results in an estimate of 85% of the UL, if gloves, protective coverall and boots are used as PPE.

For teat dipping no PPE is necessary, the respective combined professional and dietary exposure estimate is 83% of the UL.

Professional exposure from animal house disinfection with just gloves as PPE would as such already result in 437% of the UL and this would represent an unacceptable risk. However if a chemical resistant impermeable coverall is used and this is combined with the dietary exposure estimate, the exposure estimate is 123% of the UL. This exceedance of the UL would normally not be acceptable. However, the following arguments support to accept the exceedance in this specific case:

- Exposure from animal house disinfection should not be carried out at high frequency, i.e. not more than 3 times per month.
- The animal house disinfection as such results in 58% of the UL, the dietary exposure estimate adds the higher amount of 65%.
- In spite of the exceedance of the UL value, there are still high margins to doses where marginal and not clinically adverse effects were observed in adult humans (1700-1800 µg iodine/day for adults).
- A face shield and protective gloves are obligatory for mixing and loading.

Consequently, the risk for these professional and dietary combined exposures is considered acceptable, in case frequency of application in animal housing spraying is low, not more than 3 times per month.

In the BPC WG VII 2018 meeting it was agreed that combined scenarios over more than one meta-SPC should not be assessed. Considering that each of the single scenarios already exhausts the UL to a great extent, rather a precautionary labelling should be applied, such as "Only use one kind of iodine-containing product per day."

## **Risk assessment for animal health**

### Teat disinfection

Total exposure estimates for dairy cows are beyond the human UL in terms of mg/kg bw day but below the UL for farm animals as derived from the EFSA 2013 opinion on the safety and efficacy of Iodine compounds (E2) as feed additives.

Within this opinion it was also concluded that the Iodine level in edible tissues/products is generally found to be highest in milk and not in meat. In line with this also EMEA (European Agency for the Evaluation of Medicinal Products) concluded within their summary report on Iodine-containing products used for veterinary medicine, that only small increases in serum Iodine concentration have been found after teat dipping indicating that the procedure has a negligible effect on tissue Iodine concentrations.

Consequently the risk from post-milking teat disinfection with the meta SPC (1-5) products is considered acceptable also with regard to animal health protection.

### Animal house spraying

The exposure assessment for animal house spraying application according to the DRAWG draft guidance for biocides was corrected within tier 2 for a dermal absorption rate of 12% as for humans. The exposure-estimate for laying hen appears to be 75% of the respective upper limit of 0.7 mg/kg bw/day and may therefore be considered acceptable. The exposure-estimate for dairy cattle appears to be 81% of the respective upper limit of 0.4 mg/kg bw/day and may therefore be also considered acceptable. The exposure estimate for calf appears to be 114% of the respective upper limit of 0.4 mg/kg bw/day and the exposure estimate for pigs appears to be 176% of the respective upper limit of 0.3 mg/kg bw day. However, the risk for calfs and pigs from animal house disinfection residues is nevertheless considered acceptable, since

- The animal specific limit values were derived from maximum content of Iodine in feed allowed for animal health protection. However the calves and pigs would experience the exceedance only once in their life-time.
- The exposure estimate is quite conservative. After disinfection, the stables are kept empty for usually 14 days for drying and heating. Within that time, a very considerable amount of Iodine will evaporate. This aspect was not considered in the exposure estimate.

Therefore the risk for animal health from exposure due to animal house spraying application (meta SPC 6-8) appears acceptable for laying hen, dairy cattle, calf and pig.

### Potential risk for pets

The risk for pets is concluded as acceptable, based on the following considerations:

- Animal house disinfection must only be carried out in empty (unpopulated) animal houses.
- Risk from post-treatment exposure for small farm animals, i.e. laying hen and calf was considered acceptable.
- Therefore also occasional secondary pet exposure via contact with freshly treated surfaces is likely to result in an acceptable risk.

## Environment

For the purpose of the environmental risk assessment, exposure to Iodine arises from professional use of Iodine products used as ready-to-use teat disinfectant (post-milking) applied by dipping or spraying and as diluted concentrate applied by spraying for animal house surface disinfection. The route of exposure of Iodine to the environment is either via application of manure/slurry to agricultural land or by release from the facility drain to an STP and subsequent compartments. Both emission pathways are assessed for all intended uses. However, as most farms are not connected to the public sewer, residues are predominantly discharged to the manure storage and eventually to soils when manure is applied as a fertiliser.

Iodine is not volatile and is persistent as it does not degrade biotically or abiotically. Depending on the redox conditions and acidity, Iodine will be transformed into Iodide or Iodate. Both species exist in water, but Iodate is the dominant species in soils.

### Meta SPC 1-5: teat treatment (via spraying and dipping)

When the product is released to the sewer no unacceptable risk is expected for micro-organisms in the municipal sewage treatment plant, for aquatic organisms in freshwater and freshwater sediment and for terrestrial organisms in soil. PEC/PNEC ratios are either  $<1$ , or if  $>1$ , the concerned PEC values are well below or within the natural background concentration (ranges).

PECs in groundwater are well above the threshold of  $0.1 \mu\text{g/L}$  and acceptable human intake limits. The limit value for pesticides of  $0.1 \mu\text{g/L}$  specified in the Drinking Water Directive 98/83/EC is not applicable for iodine and its iodine species since the definition for pesticides is limited to organic substances. However, the calculated iodine concentrations are within the natural background concentration range of  $1\text{-}70 \mu\text{g/L}$ . The groundwater concentrations regarding Iodate exceed the natural background concentration of  $70 \mu\text{g/L}$  slightly. However, due to the fact that leaching to groundwater level does not taking into account removal, dilution or transformation processes, overestimations of the likely iodate concentrations in groundwater are expected and further on no unacceptable risks for groundwater are assumed.

Regarding indirect exposure of Iodine via run-off from treated areas after slurry/manure application on grassland and arable land, the PECs for freshwater are within the range and for sediment they are below the typical natural background concentration, indicating that no unacceptable risk for the aquatic and sediment compartment is to be expected. Furthermore, no unacceptable risks to soil organisms are to be expected. All calculated PEC groundwater values after slurry/manure application on grassland and arable land regarding iodine are well above the  $0.1 \mu\text{g/L}$  threshold and acceptable human intake limits but below or within the range of the natural background concentrations. Furthermore, it was concluded that there was no concern regarding primary and secondary poisoning through the use of iodine in disinfectants.

### Meta SPC 6-8: Animal housing surface disinfection

No unacceptable risk is expected for micro-organisms in the municipal sewage treatment plant, for aquatic organisms in freshwater and freshwater sediment and for terrestrial organisms in soil as PEC/PNEC ratios are either  $<1$ , or if  $>1$ , the concerned PEC values are well below or within the natural background concentration (ranges).

PECs in groundwater are well above the threshold of 0.1 µg/L and acceptable human intake limits. The limit value for pesticides of 0.1 µg/L specified in the Drinking Water Directive 98/83/EC is not applicable for iodine and its iodine species since the definition for pesticides is limited to organic substances. However, the calculated concentrations are within the natural background concentration range of 1-70 µg/L.

### **Overall conclusion**

It is considered that using the products belonging to this biocidal product family according to the conditions as stated in the SPC, the products will be efficacious and will not by themselves present an unacceptable risk to human and animal health nor the environment.

### **b) Presentation of the biocidal product/biocidal product family including classification and labelling**

The description of the biocidal product and of the structure of the family is available in the SPC.

The hazard and precautionary statements of the biocidal product family according to the Regulation (EC) 1272/2008 is available in the SPC.

### **c) Description of uses proposed to be authorised**

The uses claimed in the application and their assessment are described in the PAR. The description of the uses proposed to be authorised are available in the SPC.

### **d) Comparative assessment**

The active substance Iodine contained in the biocidal product family does not meet the conditions laid down in Article 10(1) of Regulation (EU) No 528/2012 and is not considered a candidate for substitution. Therefore, currently a comparative assessment of the biocidal product family in accordance with Article 23 of the BPR is not required.

### **e) Overall conclusion of the evaluation of the uses proposed to be authorised**

The physico-chemical properties, the safety for human and animal health and for the environment and the efficacy of the intended uses of the biocidal product family have been evaluated.

The chemical identity, quantity and technical equivalence requirements for the active substance in the biocidal product family are met.

The physico-chemical properties of the biocidal product family are deemed acceptable for the appropriate use, storage and transportation of the biocidal product.

For the proposed authorised use(s), according to Article 19(1)(b) of the BPR, it has been concluded that:

1. the biocidal product family is sufficiently effective;
2. the biocidal product family has no unacceptable effects on the target organisms, in particular unacceptable resistance or cross-resistance;

3. the biocidal product family has no immediate or delayed unacceptable effects itself, or as a result of its residues, on the health of humans, including that of vulnerable groups, or animals, directly or through drinking water, food, feed, air, or through other indirect effects;
4. the biocidal product family has no unacceptable effects itself, or as a result of its residues, on the environment, having particular regard to the following considerations:
  - the fate and distribution of the biocidal product in the environment,
  - contamination of surface waters (including estuarial and seawater), groundwater and drinking water, air and soil, taking into account locations distant from its use following long-range environmental transportation,
  - the impact of the biocidal product on non-target organisms,
  - the impact of the biocidal product on biodiversity and the ecosystem.

The outcome of the evaluation, as reflected in the PAR, is that the uses described in the SPC, may be authorised.

## **2.2 BPC opinion on the Union authorisation of the biocidal product/biocidal product family**

It is proposed that biocidal product family shall be authorised, for the uses described under section 2.1 of this opinion, subject to compliance with the proposed SPC.

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## **Annex I: Draft Summary of Product Characteristics**