Addendum to the Product Assessment Report (PAR) - DRAFT Anti-Brumm® Forte January 2015$_5$

Swiss Competent Authority

Internal registration no:	SZID 332797
Authorisation no:	CH-2013-ZL-0001
Date:	21st February 2020
Active ingredient:	DEET
Product type:	19

Addendum following application for a revision of the product authorisation

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Chemical Products Division
Biocides Section
Schwarzenburgstrasse 165, CH-3003 Bern

Federal Office for the Environment FOEN
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Content

1 General information on the application for the revision of the product authorisation

The product Anti-Brumm® Forte is a repellent containing DEET and is applied onto skin against mosquitoes and ticks, as described in the original PAR.

The applicant Vifor SA has submitted a new dermal absorption study and requested an amendment to the existing PAR on Anti-Brumm® Forte and adapted use instructions. The Swiss Competent Authority (CA) has accepted the dermal absorption study (see Doc IIIB6.4/01) and has revised Chapter 2.6 Exposure Assessment, Chapter 2.7 Risk assessment for human health, Chapter 2.8 Risk assessment for the environment and Chapter 3 Proposal for Decisionof the original PAR as well as Annexes 2 and 6.

In February 2020, the applicant submitted a minor change according to Commission Implementing Regulation (EU) No 354/2013 concerning a change in the pack size range: the addition of 45 mL packaging.

2 Summary of the product assessment

2.2.2 Packaging of the biocidal product

The biocidal product is supplied to the market in plastic bottles of 45, 75 and 150 ml, equipped with pump spray devices.

2.6 Exposure assessment

In the PAR for Anti-Brumm® Forte (Granting date October 31, 2013), the risk assessment for human health concluded that Anti-Brumm® Forte can be used without concern once per day on adults and children over 12 years and should not be used on children under 12 years. The revised exposure assessment including a new dermal absorption study is now based on the revised risk assessment (see below).

2.7 Risk assessment for human health

2.7.1 Hazard potential

2.7.1.3 Toxicology of the biocidal product

Dermal penetration: revised absorption rate
The dermal absorption of DEET from Anti-Brumm® Forte was evaluated in the original PAR based on the CAR on DEET. In the CAR, an *in vivo* dermal absorption study in humans was submitted with an exposure period of 8 hours and using a 15 % w/w ethanol solution of DEET or the undiluted technical grade of DEET. [redacted] a dermal absorption value of 20% was derived and subsequently used in the risk assessment in the CAR. For the product Anti-Brumm® Forte, a new dermal absorption study of DEET using Anti-Brumm® Forte was submitted by the applicant. The study was conducted according to OECD Test Guideline 428 as an *in vitro* test with human skin and an exposure time of 8 hours. [redacted] Taking into account the variation between replicates, the radioactive recovery and a high dermal loading in the study, a conservative absorption value [redacted] was derived. This dermal absorption value is lower than compared to the value taken from the *in vivo* study in the CAR. However, the results from the two studies (*in vivo* in the CAR, new *in vitro* study) are not inconsistent with one another when considering: 1) the lower level of recovered radioactivity [redacted] and 2) the different formulation types. In addition, in the study using undiluted DEET, a dermal absorption value [redacted]
The Swiss CA considers the dermal absorption value [redacted] based on the new *in vitro* study performed with Anti-Brumm® Forte acceptable . The original risk assessment in the PAR has been revised taking into account this lower dermal absorption value.

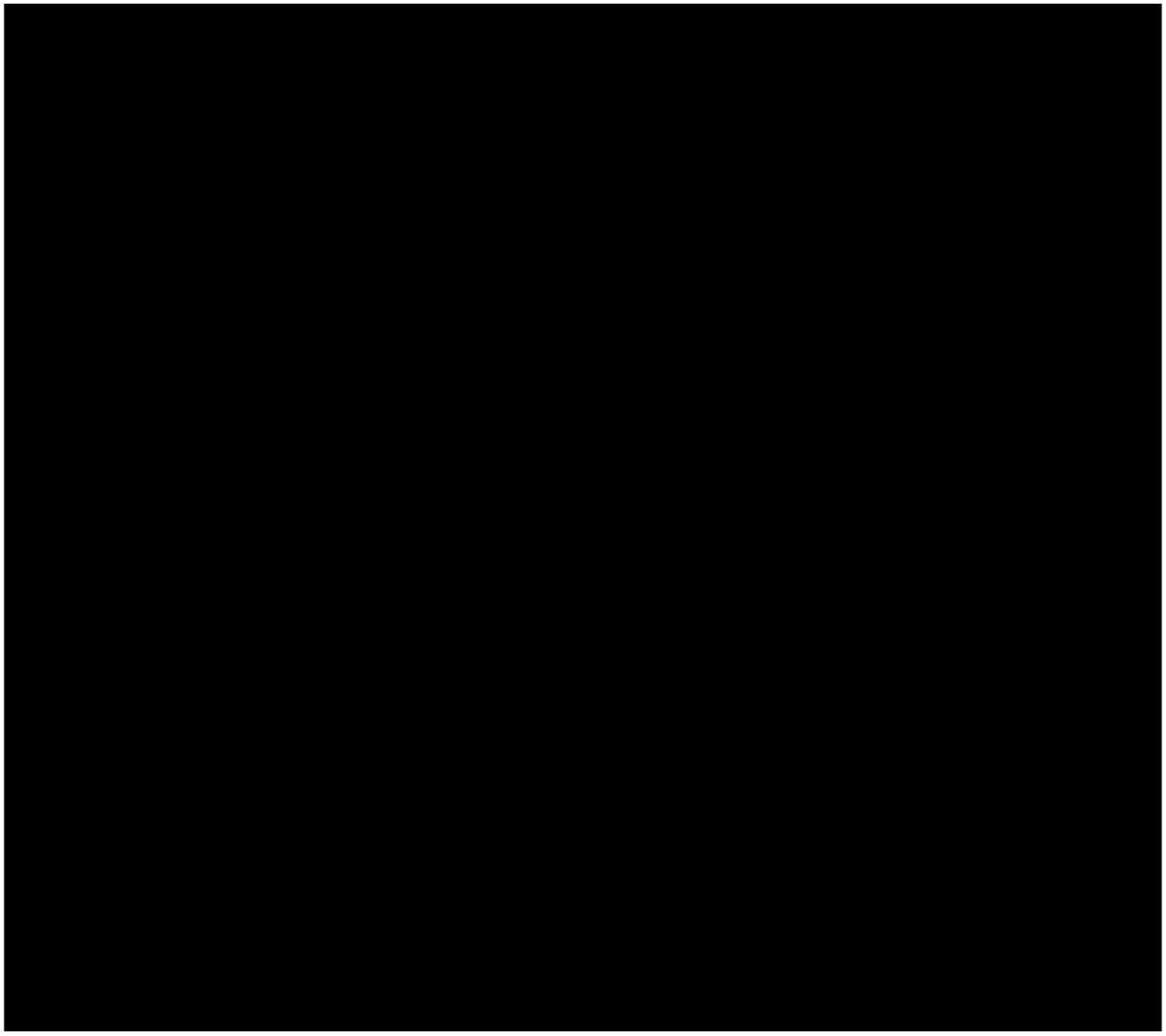
2.7.2 Exposure

2.7.2.2 Exposure of non-professional users and the general public

A revised human exposure assessment was calculated with the new dermal absorption value [redacted] and assuming that the product will be applied at the same application rate as the 15% reference product in the CAR and the 26.1% average DEET product of the usage study. For calculation details, please refer to Figure 1 in Annex 6.

The revised risk characterisation calculations (see chapter 2.7.3 below) show that the application of the biocidal product Anti-Brumm® Forte containing DEET at a concentration of 29.9% can be safely applied up to five times in male adults and up to seven times in female adults to 64% of the body surface. For children > 12 years of age, Anti-Brumm® Forte can be applied up to four times per day

and for children < 12 years of age, a maximum of two daily applications per day is possible to 64% of the body surface



2.7.3 Risk Characterisation

2.7.3.2 Risk for non-professional users and the general public

Intended uses
Anti-Brumm® Forte is used as a repellent against mosquitoes and ticks as described in the original PAR. Exposure is mainly dermal and a revision of the exposure estimation and risk characterisation is necessary based on the lower dermal absorption value derived from the new dermal absorption study.

Risk characterisation:
In accordance with the original PAR and the CAR on DEET, the AEL repeated is set [redacted] applying a safety factor of 100. The dermal absorption value [redacted] derived from the new dermal absorption study is considered acceptable for the exposure assessment. The number of applications to be used for the risk assessment is set at two applications per day, considering the duration of efficacy of Anti-Brumm® Forte (6 hours for mosquitoes, 5 hours for ticks).

[redacted]

A reverse calculation was made to estimate how many applications are possible without exceeding the reference dose. The product can be applied several times per day without exceeding the AEL [redacted] Referring to the different population groups, the number of acceptable applications per day are as follows:

Adult males: 5x / day
Adult females: 7x / day
Children > 12 years: 4x / day
Children < 12 years: 2x / day

Two applications per day should not be exceeded for children < 12 years.

Derivation of label instructions

The duration of efficacy of Anti-Brumm® Forte and the maximal acceptable applications per day have to be taken into account for the label instructions. The product is effective 5 to 6 hours, therefore, two applications per day are sufficient for normal outdoor activities. In specific situations (like in tropical areas or after swimming) more applications could be necessary. This is acceptable from the risk assessment except for children < 12 years. The label should indicate this restriction.

The following label instructions are required:

"Apply sparingly, do not spray the whole body but only exposed skin areas. Reapply only if necessary, especially in cases of strong perspiration or after swimming. Do not use more than twice a day for children under 12 years. Not for use on children under 2 years. For the protection of the environment, do not apply more than twice a day".

2.8 Risk assessment for the environment

2.8.3 Environmental risk characterisation

[redacted]

[redacted]

In Switzerland, the application of sewage sludge from STPs to agricultural land is not permitted (Chemical Risk Reduction Ordinance (ORRChem, SR 814.81, Annex 2.6, point 5). Consequently, a risk for the contamination of groundwater through the application of sewage sludge does not have to be considered in Switzerland and the proposal for a decision regarding Anti-Brumm® Forte remains valid as long as the product is not applied more than 2 times a day.

3 Proposal for the decision

The proposal for decision as written in the original PAR stays the same with the exception of the section use restrictions.

– Use instructions:
  The intended use of Anti-Brumm® Forte as a repellent against mosquitoes and ticks is similar to the representative product in the CAR on DEET. The exposure assessment was performed using the same exposure scenarios as in the CAR, based on two applications per day. In these exposure scenarios, the resulting dermal DEET exposure is below the acceptable exposure level. Based on the revised risk assessment for human health and for the environment, the following use instructions have to be written on the label:

"Apply sparingly, do not spray the whole body but only exposed skin areas. Reapply only if necessary, especially in cases of strong perspiration or after swimming. Do not use more than twice a day for children under 12 years. Not for use on children under 2 years. For the protection of the environment, do not apply more than twice a day"

Annex 2: List of studies reviewed

Additional study submitted:

Section No	Reference No	Author	Year	Title	Owner of data	Letter of Access		Data protection claimed	
						Yes	No	Yes	No
Sections B6.4	B6.4/01	[redacted]	2014	In vitro percutaneous absorption of DEET, formulated at two concentrations, through human skin; TNO Triskelion, Zeist, the Netherlands; TNO study code 093.25195	Vifor SA	☐	☒	☒	☐

Annex 6: Exposure assessment of non-professional operators and the general public

Figure 1 Human health exposure and risk assessment applying approach in the DEET CAR (based on the 75th percentile values from the study of [redacted] 1990, reflecting application to 64% of body surface)

	Application rate/person (64% body surface) according to [redacted] (1990) 64% of body surface considered [mg product]*	Body weight as considered in CAR [kg]	body surface as considered in CAR [%]	Dermal uptake [mg DEET / kg bw]	MOE	Exposure/AEL
				[redacted]		
Male adult	5747	70.00	64.00			
female adult	3831	60.00	64.00			
child >12 years	6360	62.80	64.00			
Child <12 years	5440	25.50	64.00			

Dermal penetration for DEET according to OECD TG 428 study	[redacted]
AEL_{dermal} in mg/kg bw per day according to CAR	8.2
DEET - content of Anti-Brumm® Forte (15% is the concentration of the product assessed in the CAR)	29.9
AF MOE_{ref}	100

*The application rates per person for the product have been calculated based on the use rates for the active substance DEET as reported in the DEET-CAR, taking into consideration that the product in the CAR contained 15% DEET, while the average DEET concentration of the products covered in the [redacted] 1990 usage study was 26.1%. It is assumed that the use rate in terms of amount of product applied per person is independent from the active substance concentration. Thus, Anti-Brumm Forte will be applied at the same use rates as the 15% reference product in the CAR and the 26.1 % average DEET product of the usage study.

It needs to be highlighted that the following values always refer to treatment of 64% of the body surface (head, entire arms, entire legs, hand and feet).

- 1.5 g a.s. per adult male determined for product containing 26.1% DEET --> 5747 mg product/person/application
- 1.0 g a.s. per adult female determined for product containing 26.1% DEET --> 3831 mg product/person/application
- 1.66 g a.s. per child > 12 yrs. determined for product containing 26.1% DEET --> 6360 mg product/person/application
- 1.42 g a.s. per child < 12 yrs. determined for product containing 26.1% DEET --> 5440 mg product/person/application