FASS

Calcipotriol/Betamethasone Sandoz

Sandoz AS

Salva 50 mikrogram/g + 0,5 mg/g

(Benvit.)

Övriga medel vid psoriasis för utvärtes bruk, Kalcipotriol, kombinationer.

Aktiva substanser (i bokstavsordning):

Betametason

Kalcipotriol (vattenfri)

ATC-kod:

D05AX52

Läkemedel från Sandoz AS omfattas av Läkemedelsförsäkringen.

Miljöpåverkan

Miljöinformationen för betametason är framtagen av företaget GlaxoSmithKline för Betnovat®, Betnovat® med chinoform, Betnovat® med neomycin

Miljörisk: Risk för miljöpåverkan av betametason kan inte uteslutas då det inte finns tillräckliga ekotoxikologiska data.
Nedbrytning: Betametason är potentiellt persistent.

Bioackumulering: Betametason har låg potential att bioackumuleras.

Detaljerad miljöinformation

Detailed background information

Environmental Risk Classification

Predicted Environmental Concentration (PEC)

PEC is calculated according to the following formula:

PEC (µg/L) = $(A*10^{9}*(100-R))/(365*P*V*D*100) = 1.37*10^{-6}$ *A(100-R)

PEC = 0.064 µg/L

Where:
A = 465.29 kg (total sold amount API free base in Sweden year 2022, data from IQVIA). Total volume of Betametasone acetate = 0.23 = 0.21 Kg acetate free base. Total volume of Betametasone dipropionate = 473 = 368 Kg dipropionate free base. Total volume of
Betametasone sodium phosphate = 25 = 19 Kg atrium phosphate free base. Total volume of Betametasone valerate = 69.57 = 57.29 Kg valerate free base.

R = 0% removal rate (conservatively, it has been assumed there is no loss by
adsorption to sludge particles, by volatilization, hydrolysis or biodegradation).

P = number of inhabitants in Sweden = $10*10^6$

V (L/day) = volume of wastewater per capita and day = 200 (ECHA default) (Reference 1)

D = factor for dilution of waste water by surface water flow = 10 (ECHA default) (Reference 1)

Predicted No Effect Concentration (PNEC)

Ecotoxicological studies

Algae:
No data

Water flea (Daphnia magna):
Acute toxicity
EC_{50} 48 h (immobility) = 1,900 µg/L (OECD 202) (Reference 3)

Water flea:
Chronic toxicity
No data

Fish:
Acute toxicity
No data

Chronic toxicity
No data

Other ecotoxicity data:

Microorganisms in activated sludge:
EC_{50} 3 h (inhibition) > 1,000,000 µg/L (OECD 209) (Reference 4)
NOEC 3 h (inhibition) = 1,000,000

PNEC cannot be calculated because data is not available for all three (algae, crustacean and fish) of the toxicity endpoints.

Environmental risk classification (PEC/PNEC ratio)

Risk of environmental impact of betamethasone cannot be excluded, since there is not sufficient ecotoxicity data available.

Degradation

Biotic degradation

Ready degradability:
No data

Inherent degradability:
28% primary degradation in 28 days (OECD 302C) (Reference 5)

Abiotic degradation

Hydrolysis:
50% degradation (pH 7) = 6.5 days (TAD 3.09) (Reference 7)

Photolysis:
No data

Justification of chosen degradation phrase:
Betamethasone valerate is not readily degradable or inherently biodegradable but the parent API undergoes appreciable primary biodegradation. This substance is predicted to degrade via hydrolysis with a half-life is less than 40 days. However, relevant hydrolysis products have not been identified and characterised. The phrase “betamethasone valerate is potentially persistent” is thus chosen.

Bioaccumulation

Bioconcentration factor (BCF):
Partitioning coefficient:
Log P_{ow} = 3.60 (OECD 107). (Reference 6)

Justification of chosen bioaccumulation phrase:
Since log P_{ow} < 4, the substance has low potential for bioaccumulation.

Excretion (metabolism)

Betamethasone:Topical mode of administration with up 14 % of betamethasone adsorbed systematically. This fraction is extensively metabolised in the liver. Only 4.8 % of the dose is recovered from urine, the remainder is eliminated as metabolites (Reference 2).

Please, also see Safety data sheets on http://www.msds-gsk.com/ExtMSDSlist.asp.

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References

1. ECHA, European Chemicals Agency. 2008 Guidance on information requirements and chemical safety assessment.

2. Petersen MC, Nation RL, McBride WG, et al: Pharmacokinetics of betamethasone in healthy adults after intravenous administration. Eur J Clin Pharmacol 1983; 25:643-650.

3. Sewell IG and McKenzie J. Betamethasone 17-Valerate: Acute Toxicity to Daphnia magna. Report No. 1127/304. Safepharm Laboratories Limited, May 2004.

4. Clarke N. Betamethasone 17-Valerate: Assessment of the Inhibitory Effect on the Respiration of Activated Sewage Sludge. Report No. 1127/306. Safepharm Laboratories Limited, May 2004.

5. Mead C and McKenzie J. Betamethasone 17-Valerate: Assessment of Inherent Biodegradability; Modified MITI (II) Test. Report No. 1127/305. Safepharm Laboratories Limited, July 2004.

6. Dołowy M, Pyka A. Evaluation of Lipophilic Properties of Betamethasone and Related Compounds. Acta Pol Pharm. 2015;72(4):671-681

7. Material Safety Data Sheet for Betnovate® GM Cream. SDS number 130046. GlaxoSmithKline plc, September 2007.