FASS

Trileptal®

Novartis

Filmdragerad tablett 150 mg
(Ljust gröngråa, ovala, något bikonvexa tabletter med skåra på båda sidor, märkta med T/D på ena och C/G på den andra)

Antiepileptika

Aktiv substans:
Oxkarbazepin

ATC-kod:
N03AF02

Läkemedel från Novartis omfattas av Läkemedelsförsäkringen.

Miljöpåverkan

Oxkarbazepin

Miljörisk: Användning av oxkarbazepin har bedömts medföra försumbar risk för miljöpåverkan.
Nedbrytning: Oxkarbazepin är potentiellt persistent.
Bioackumulering: Oxkarbazepin 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 = 0.1361 µg/L

Where:

A = 993.56 kg (total sold amount API in Sweden year 2021, data from IQVIA).

R = 0 % removal rate (due to loss by adsorption to sludge particles, by volatilization, hydrolysis or biodegradation) = 0 if no data is available.

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

V (L/day) = volume of wastewater per capita and day = 200 (ECHA default) (ECHA 2008)

D = factor for dilution of waste water by surface water flow = 10 (ECHA default) (ECHA 2008)

Predicted No Effect Concentration (PNEC)

Ecotoxicological studies

Algae (Pseudokirchneriella subcapitata) (OECD 201) (Ibacon Project 106301210)*:*

ErC_{50} 72 h (growth rate) = 12.8 mg/L

NOEC 72 h = 0.534 mg/L

*Crustacean (*Waterflea, *Daphnia magna):*

Acute toxicity

EC50 24 h (immobilisation) > 100.0 mg/L, (OECD 202) (Ciba-Geigy, Ecotoxicology, Project No.: 880062)

*Fish (*Zebrafish, *Danio rerio):*

Acute toxicity

LC50 96 h (lethality) > 100.0 mg/L, (OECD 203) (Ciba-Geigy,Ecotoxicology, Project No.: 880063)

Other ecotoxicity data:

Bacterial respiration inhibition (activated sludge microorganisms)

EC_{50} 3 h > 320.0 mg/L (OECD 209), (Ciba-Geigy Crop Protection, TF: Bericht zu test 110)

PNEC = 12.8 mg/L / 1000 = 12.8 µg/L

PNEC (µg/L) = lowest EC_{50}/1000, where 1000 is the assessment factor used, if acute toxicity values for 3 trophic levels are available. The EC_{50} for green algae growth inhibition has been used for this calculation since it is the most sensitive endpoint of the three tested species.

Environmental risk classification (PEC/PNEC ratio)

PEC/PNEC = 0.1361 µg/L / 12.8 µg/L = 0.0106, i.e. PEC/PNEC ≤ 0.1 which justifies the phrase "Use of oxcarbazepine has been considered to result in insignificant environmental risk."

Degradation

Biotic degradation

Ready degradability:

2.0 % degradation in 28 days, not readily biodegradable (OECD 301E). (Ciba-Geigy, Ecotoxicology, Test No: 821376)

Justification of chosen degradation phrase:
Oxcarbazepine does not pass the criteria for ready biodegradability. Therefore, the phrase ‘Oxcarbazepine is potentially persistent’ is used.

Bioaccumulation

Partition coefficient:
Log D (at pH 7.4) = 1.31 (experimentally determined, method unknown) (Novartis internal data; no report / reference available).

Justification of chosen bioaccumulation phrase:
The octanol-water partition coefficient for oxcarbazepine remains below the screening criteria for a bioaccumulative substance of a log Kow of 4. Therefore, the phrase ‘Oxcarbazepine has low potential for bioaccumulation’ is chosen.

Excretion (metabolism)

Oxcarbazepine is cleared from the body mostly in the form of metabolites, which are predominantly excreted by the kidneys. More than 95% of the dose appears in the urine, with less than 1% as unchanged oxcarbazepine. Fecal excretion accounts for less than 4% of the administered dose. Approximately 80% of the dose is excreted in the urine either as glucuronides of the 10-monohydroxy derivative (MHD) of oxcarbazepine (49%) or as unchanged MHD (27%), whereas the inactive 10, 11-dihydroxy derivative (DHD) accounts for approximately 3% and conjugates of oxcarbazepine account for 13% of the dose. (Novartis Core Data Sheet for TRILEPTAL (oxcarbazepine))

References

- ECHA 2008, European Chemicals Agency. 2008 Guidance on information requirements and chemical safety assessment. http://guidance.echa.europa.eu/docs/guidance_document/informa
- Ibacon Project 106301210: Oxcarbazepine: Toxicity to *Pseudokirchneriella subcapitata* in an algal growth inhibition test. Project 106301210. Final report: May 18, 2016.
- Ciba-Geigy, Ecotoxicology, Project No.: 880063, 1988
- Ciba-Geigy, Ecotoxicology, Project No.: 880062,1988
- Ciba-Geigy Crop Protection, TF: Bericht zu test 110
- Ciba-Geigy, Ecotoxicology, Test No: 821376, 1983

- Novartis Core Data Sheet for TRILEPTAL (oxcarbazepine), Version 2.2, 17 July 2017