

Risperdal[®]

M R EF**Janssen**

Frystorkad tablett 1 mg

Avregistreringsdatum: 2018-09-17 (Tillhandahålls ej) (ljus korallfärgad, fyrkantig, bikonvex tablett, 11 mm, märkt med R1 på ena sidan. Mild pepparmintsmak.)

Neuroleptikum

Aktiv substans:

Risperidon

ATC-kod:

N05AX08

För information om det avregistrerade läkemedlet omfattas av Läkemedelsförsäkringen, kontakta Läkemedelsförsäkringen.

Läs mer om avregistrerade läkemedel

Miljöpåverkan

Risperidon

Miljörisk: Användning av risperidon har bedömts medföra försumbar risk för miljöpåverkan.

Nedbrytning: Risperidon är potentiellt persistent.

Bioackumulering: Risperidon har låg potential att bioackumuleras.

Detaljerad miljöinformation

1. PREDICTED ENVIRONMENTAL CONCENTRATION (PEC):

The Predicted Environmental Concentration is calculated according to the following formula:

$$\text{PEC } (\mu\text{g/L}) = \frac{A \times 10^9 \times (100-R)}{365 \times P \times V \times D \times 100}$$

Where:

A (kg/year)	=	total actual API sales in Sweden for the most recent year 15.2176 kg (Sales from 2015 - IMS Health) [8]
R (%)	=	removal rate (due to loss by adsorption to sludge particles, by volatilization, hydrolysis or biodegradation)
	=	0% (worst-case scenario: no removal)
P	=	number of inhabitants in Sweden (9×10^6)
V (L/day)	=	volume of waste water per capita and day
	=	

		200 (ECHA default)
		[7]
D	=	factor for dilution of waste water by surface water flow
	=	10 (ECHA default) [7]
PEC (µg/L)	=	0.0023 µg/L

2. PREDICTED NO EFFECT CONCENTRATION (PNEC)

2.1. Ecotoxicological studies

2.1.1. Algae

Algal growth inhibition test with the green alga (*Selenastrum capricornutum*) (OECD 201) [1]:

EC₅₀ 72 h = 26 mg/L (Inhibition of growth)

2.1.2. Crustacean

Acute

The Acute Toxicity of risperidone to the Water-flea (*Daphnia magna*) (FDA 4.08) [2]:

EC₅₀ 48 h = 6 mg/L (Immobilization)

Chronic

Not available

2.1.3. Fish

Acute

The Acute Toxicity of risperidone to the Bluegill sunfish (*Lepomis macrochirus*) (FDA 4.00) [3]:

LC₅₀ 96 h = 5.8 mg/L (Survival)

Chronic

Not available

2.1.4. Other ecotoxicity data

Toxicity to activated sludge in a respiration inhibition test (OECD 209) [4]:

EC_{50} 3 h > 1000 mg/L (OECD 209)

NOEC = 47 mg/L

2.2. Calculation of Predicted No Effect Concentration (PNEC)

PNEC ($\mu\text{g/l}$) = lowest $EC_{50}/1000$, where 1000 is the assessment factor used. EC_{50} for the Bluegill sunfish 5.8 mg/L has been used for this calculation since it is the most sensitive of the three tested species.

$PNEC = 5.8 \text{ mg/L}/1000 = 5.8 \mu\text{g/L}$

2.3. Environmental risk classification (PEC/PNEC ratio)

$PEC/PNEC = 0.0023/5.8 = 0.0004$ i.e. $PEC/PNEC \leq 0.1$

Conclusion for environmental risk:

The calculated PEC/PNEC ratio is ≤ 1 . Hence, risk assessment procedures would indicate that Risperidone would have insignificant long-term risk to the environment. This medicine is potentially persistent and has no significant bioaccumulation potential

3. DEGRADATION

3.1. Biotic degradation

3.1.1. Ready biodegradation

Biodegradability in a CO₂-evolution test (FDA 3.11) [5]:

Based on the measurements of CO₂ produced and DOC analysis, the percentage biodegradation calculated for Risperidone was 5%.

Based on the measurements of CO₂ produced and DOC analysis, the percentage biodegradation calculated for the reference substance glucose was > 60%. Consequently, it can be concluded that Risperidone is not readily biodegradable.

Conclusion for degradation:

The medicine is potentially persistent.

4. BIOACCUMULATION

4.1. Partition coefficient octanol/water

Partition coefficient octanol/water (shaking flask method) [6]:

The average apparent partition coefficient (total solute measured, regardless of form) of R064766 in 1-octanol/aqueous solution at 25°C as determined by UV spectrometry is:

- in 1-octanol/buffer pH 5: log P = 0.22
- in 1-octanol/buffer pH 7: log P = 1.67
- in 1-octanol/buffer pH 9: log P = 2.91

Conclusion for bioaccumulation:

As $\log P_{ow} < 4$, risperidone has no significant bioaccumulation potential.

5. REFERENCES

1. Weytjens D.; The effect of risperidone on the growth of the unicellular green alga *Selenastrum capricornutum*, Janssen Pharmaceutica N.V.; Janssen Study No. AASc/0004; May 14, 1993.
2. Weytjens D.; The acute toxicity of risperidone to the water-flea (*Daphnia magna*), Janssen Pharmaceutica N.V.; Janssen Study No. ADK6/0017; February 2, 1993.
3. Weytjens D.; The Acute Toxicity of risperidone to the Bluegill sunfish (*Lepomis macrochirus*), Janssen Pharmaceutica N.V.; Janssen Study No. AFLm/0004; February 2, 1993.
4. Seyfried B.; Toxicity to activated sludge in a respiration inhibition test, RCC Ltd.; RCC Study No. A35087; Janssen Study No. RMD704; April 6, 2006.
5. Weytjens D., Biodegradability in a CO₂-evolution test, Janssen Pharmaceutica N.V.; Janssen Study No. BDAS0036; January 11, 1993.
6. Van Dingenen J.; R064766: Partition coefficient; Janssen Pharmaceutica N.V., Report PC-CHAR 92-59 (921209) - R064766; December 09, 1992.
7. ECHA, European Chemicals Agency. 2008 Guidance on information requirements and chemical safety assessment. http://guidance.echa.europa.eu/docs/guidance_document/informa
8. IMS Health - 2015