Inspired by patients.
Driven by science.

Environmental Risk Assessment
ZYLBRISQ®

PEC – Predicted Environmental Concentration

PEC= 0,0013 µg/L

$$PEC_{SURFACE\ WATER} = \frac{Dose_{AS} \times F_{PEN}}{WASTEW_{INH} \times Dilution}$$

- Dose AS: Maximum daily dose of active ingredient consumed per inhabitant (drug specific)

In the case of Zilucoplan, the maximum daily dose of active ingredient consumed per inhabitant is 32.4 mg/day.

- FPEN: Market penetration factor (Default = 0.01)

This default value may however be refined by providing reasonably justified market penetration data or disease prevalence. The disease targeted by zilucoplan – gMG - is very rare. Carr et al. (2010) collated all epidemiological studies of myasthenia gravis conducted to that date. The studies were broadly geographically representative but skewed toward Europe. The authors performed a meta-analysis of these studies to arrive at a pooled prevalence estimate of 77.7 cases per million population. This figure includes all cases of myasthenia gravis, of which gMG is only a subset. As such, its use here represents a worst-case assumption. Conservatively rounding up to 80 cases per million population results in a refined value for Fpen of **0.00008**.

- WASTEWINH: Amount (litres) of wastewater per inhabitant per day (Default = 200 L*inh-1*d-1)
- Dilution: Dilution factor (Default = 10)

$$PEC_{SURFACE\ WATER} = \frac{32.4\ (mg/day) \times\ 0.00008}{200\ (L/inh/day) \times 10}$$

$$= 1.30 \times 10^{-6}\ mg/L\ (0.0013\ \mu g/L)$$

The PEC value is below the action limit for the Phase I ERA (0.01 µg/L). The proposed use of ZYLBRISQ® is therefore considered unlikely to represent an unacceptable risk to the aquatic compartment

Additional Data

Based on its low log D of -2.52 at pH 7.4 (corresponding to a log KOW < 4.5), zilucoplan is not expected to bioaccumulate and thus is not considered a Persistent, Bioaccumulative, or Toxic (PBT) substance. No further screening for PBT is therefore required.