2.5. Ecotoxicology

Parameter	Explanation
Bio-concentration factor	The concentration of the chemical in tissue per concentration of chemical in water. This describes the accumulation of pollutants through chemical partitioning from the aqueous phase into an organic phase, such as the gill of a fish.
Fauna and flora ecotoxicological endpoint data	Data used to measure the adverse effects on living organisms that chemicals can have when released into the natural environment. See **Endpoint Glossary and Key Species data** below.
Mesocosm study data	Mesocosm studies are a useful tool for higher-tier aquatic risk assessment. They are widely used in the regulatory assessment processes to evaluate the effects of chemical pollutants on aquatic communities at the ecosystem level.

6.0. Key Species and Endpoint Glossary

Parameter	Explanation
EC50	The concentration of a chemical that can be expected to cause a defined non-lethal effect in 50 per cent of the tested population. In some cases other percentages may be displayed e.g. EC10 or EC15.
LD50	Used in toxicology this is the median lethal dose (LD_{50}, abbreviation for 'Lethal Dose, 50%'), of a toxic substance and is the dose required to kill half the tested population. LD_{50} figures are frequently used as a general indicator of a substance's acute toxicity.
NOEL/NOEC	Greatest concentration or level of a substance, found by observation or experiment, which causes no detectable effect.
NOEAEC	'No Observed Ecologically Adverse Effect Concentration' - the highest concentration that causes no observed adverse effect on fauna or flora.

Species	Explanation
	Given below are the first choice species for ecotoxicological endpoints. However, if these are not available data for other species may be given instead. This will be indicated in the accompanying notes. Where data for several species are available, data for the most sensitive is given.
Mammals	Rat, Mice, Dog (Mainly used for the human health studies)
Birds	Mallard duck (*Anas platyrhynchos*) Bobwhite quail (*Colinus virginianus*)
Fish	Rainbow trout (*Oncorhynchus mykiss*) Bluegill sunfish (*Lepomis macrochirus*) Zebra fish (*Brachydanio rerio*)
Aquatic invertebrates	Daphnids (*Daphnia magna, Daphnia pulex*)
Aquatic crustaceans	Mysid shrimps (*Americamysis bahia*)

Species	Explanation
Sediment dwellers	Chironomid midges (*Chironomus riparius*)
Higher aquatic plants	Duckweed (*Lemna gibba, Lemna minor*)
Algae	Green algae (*Pseudokirchneriella subcapitata, Scenedesmus subspicatus*)
Honeybees	European honeybee (*Apis* mellifera)
Soil macro-organisms	Common brandling worm (Eisenia foetida)
Other soil dwelling arthropods	Springtails (*Folsomia candida)*
Other arthropods	Aphid parasitoid (*Aphidius rhopalosiphi*) Predatory mite (*Typhlodromus pyri*)
For ecotoxicological data the 'worst case' data has been selected unless it appears wildly out of character with the majority of studies published. We have chosen specific species and endpoints where ever possible to ensure a harmonised and balanced data set. In some cases endpoints other than these may be used, where this is the case the accompanying text will provide additional information.	
Mammals	acute oral LD_{50} and short term 90-day NOEL as mg kg^{-1} bw
Birds	acute oral LD_{50} as mg kg^{-1} body weight
Fish	acute 96-hr LC_{50} and 21day NOEC as mg l^{-1}
Aquatic invertebrates	acute 48-hr EC_{50} and 21day NOEC as mg l^{-1}
Aquatic crustaceans	acute 96hr LC_{50} as mg l^{-1}
Sediment dwellers	96-hr LC_{50} and chronic 28-day NOEC static water only and sediment as mg l^{-1}
Higher aquatic plants	14-day EC_{50} as mg l^{-1}
Algae	acute 72-96-hr EC_{50} and 72-96-hr NOEC biomass / growth as mg l^{-1}
Honeybees	Lowest or contact and oral LD_{50} as ug/bee
Soil macro-organisms	14-day LC_{50} and chronic reproduction NOEC as mg kg soil^{-1} dry weight
Other soil dwelling arthropods	various endpoints depending on availability as mg l^{-1}
Other arthropods	various endpoints depending on availability
Carbon & nitrogen mineralisation	% effects.