

Glossary of Terms and Abbreviations

The descriptions given herein reflect the working understanding of Peter Fisk Associates experts and are not necessarily authorised by external agencies

Term	Description
Acute ecotoxicity	A toxic effect resulting from a short-term exposure. The endpoint is often mortality but may also include immobilisation.
Adsorption	The uptake of a substance from the water phase onto the solid phase. Such adsorption can typically occur from water onto sediments, suspended sediments and soil. Usually expressed as K_{oc} , the adsorption coefficient normalised for the organic carbon content of the soil or sediment.
Assessment factor	Assessment Factor. A numerical factor used to derive a Predicted No Effect Concentration from a toxicity value for a substance.
Base Set	The minimum data requirements for notification of a new substance at >1 tpa, and for carrying out a risk assessment.
BAT	Best Available Technology. The best technology available for carrying out a process that will achieve the highest level of protection against environmental damage irrespective of its cost.
BCF	Bioconcentration Factor. The factor by which a substance accumulates in an organism relative to its ambient environment.
Bioaccumulation	A term to describe transfer of a substance from the environment into an organism. Thus bioaccumulation can occur typically from sediment, soil, water or via the food chain, or any combination of them. The transfer of a substance from water alone into an organism is called bioconcentration. See also biomagnification.
Bioassay	A procedure in which a living organism (or a component of a living organism) is exposed to an environmental sample (effluents, emissions or environmental media samples (water, land and air)) to determine whether any adverse effects occur, relative to a control.
Bioavailability	The extent to which a substance is available for uptake into an organism.
Bioconcentration	The uptake of a substance into an organism from water. One component of the total process called bioaccumulation. Bioconcentration factors are usually determined as the ratio between the concentration in the organism and the exposure concentration.
Biodegradation	The actions of biological processes to break down a substance; usually implied to mean bacterial action (in soil, water or WWTP) whereby the organisms utilise the substance as food. Biodegradation can be complete, resulting in complete breakdown to minerals, or partial, producing particular end products, or may not occur at all. There are many standard tests of biodegradability, the <i>ready</i> and <i>inherent</i> studies leading to substances being described as 'readily biodegradable', 'not inherently biodegradable', 'non-biodegradable', etc.
Biomagnification	An increase in concentration of a substance up the food chain due to bioaccumulation.
CA	Competent Authority. The National body responsible for handling substance notifications.
Chronic ecotoxicity	A toxic effect resulting from a longer-term exposure. The endpoint is often a reduction in growth or reproduction.
CMR	Carcinogenic, Mutagenic and toxic to Reproduction. Categories for longer-term toxic effects on mammalian species.

Term	Description
COD	Chemical Oxygen Demand. The oxygen required for aerobic degradation of a substance.
<i>Daphnia</i>	A type of invertebrate commonly used in aquatic ecotoxicity tests. Also sometimes referred to as a “water flea”.
Dilution factor	The dilution of an effluent stream in the receiving water.
Direct toxicity assessment (DTA)	A procedure for assessing the toxicity of environmental media using bioassays.
DT ₅₀	Degradation half-life. The period required for 50% dissipation/ degradation.
E(L)C ₅₀	A short hand term to describe both LC ₅₀ and EC ₅₀ together.
E(L)L ₅₀	A short hand term to describe both LL ₅₀ and EL ₅₀ together
EASE	Estimation and Assessment of Substance Exposure Physico-chemical properties. A software tool for human health exposure and risk assessment.
E _b C ₅₀	The concentration predicted to cause a 50% reduction in biomass in algal growth inhibition tests.
EC ₁₀	An exposure concentration associated with a 10% effect.
EC ₅₀	An exposure concentration associated with a 50% effect. Also referred to as the Median Effect Concentration.
EINECS	<u>E</u> uropean <u>I</u> nventory of <u>E</u> xisting <u>C</u> hemical <u>S</u> ubstances. This lists all chemical substances that were supplied to the market prior to 18th September 1981.
EL ₅₀	The “loading rate” that causes adverse effects in 50% of the exposed population. This is the toxicity measure normally used to express the results of short-term <i>Daphnia</i> and algal tests carried out on poorly water-soluble test substances and complex mixtures.
ELINCS	<u>E</u> uropean <u>L</u> ist of <u>N</u> otified <u>C</u> hemical <u>S</u> ubstances.
Endocrine disruptors	Substances that cause effects on the endocrine (or hormonal) system – these can be inhibition or stimulation. A potentially significant effect, not usually associated with toxicity.
Environmental compartment	The parts of the environment considered in the risk assessment. The main ones considered are surface water, sediment, soil (also known as terrestrial), air, and biota (notionally fish, earthworms and food, for the purposes of modelling).
EQS	Environmental Quality Standard. A concentration-based standard that is used to assess the quality of an environmental medium (air, water, sediment or soil).
Equilibrium partitioning method	An approach that allows the toxicity to soil and sediment organisms to be estimated from toxicity data on surface water organisms. Expressed either as a means to determine PNEC _{soil/sediment} from PNEC _{water} , or to calculate concentration of the substance in the water surrounding the soil/sediment.
ESD	Emission Scenario Document.
ESR	<u>E</u> xisting <u>S</u> ubstances <u>R</u> egulation, EC 793/93. Under this regulation, data have been collected and published in IUCLID, and some substances have been selected to be subject to risk assessment on a priority basis.
EU	European Union.
EUSES	European Union System for the Evaluation of Substances. A software tool in support of the Technical Guidance Document (TGD) on risk assessment.
Existing Substance	A substance which appears on EINECS.
FELS	Fish Early Life Stage test. An ecotoxicity test to determine effects of longer-term chemical exposure on fish, egg, larval and juvenile life-stages.

Term	Description
GLP	Good Laboratory Practice.
Green Chemistry	General term for various objectives and approaches concerned with improving environment-friendliness of chemical processes and substances.
Half-life	The time taken for 50% of the substance to be degraded or removed.
Hazard	An intrinsic dangerous property of a substance.
Henry's law constant (H)	In its dimensionless form this is the air-water partition coefficient. It is commonly expressed in a form with the dimensions Pa m ³ /mol, obtained from the ratio of vapour pressure to water solubility.
HPLC	High Performance (or Pressure) Liquid Chromatography, used as an analytical tool and in methods for estimation of log K _{ow} and log K _{oc} .
HPVC	High Production Volume Chemical (>1000 t/a).
Hydrolysis	The action of water to break down a substance. It is almost always partial, giving rise to definite end products. It usually depends strongly on pH.
Hydroxyl radicals	Reactive species (termed OH [•]) that occur in the atmosphere and can react with hydrogen atoms and thereby degrade many types of chemicals.
IC ₅₀	Median (50%) Immobilisation Concentration or Median Inhibitory Concentration.
ICCA	International Council of Chemical Associations.
Industry Category (IC)	A classification system to indicate the main areas of industry a substance may be used in.
IPCS	International Programme on Chemical Safety.
IPPC	Integrated Pollution Prevention and Control
IUCLID	International Uniform Chemical Information Database for existing substances. The data set format is also used in SIDS dossiers (see below)
K _{oc}	Organic carbon normalised distribution coefficient.
K _{ow}	Octanol/water partition coefficient.
LC ₅₀	An exposure concentration associated with a 50% lethal effect. Also referred to as the Median Lethal Concentration.
LD ₅₀	The dose that is lethal to 50% of the exposed population. This is the endpoint measured in some mammalian toxicity studies.
Life cycle	The uses and applications of a substance from when it was manufactured through to disposal or destruction.
Lipophilic	Lipid- or fat-loving.
LL ₅₀	The "loading rate" that is lethal to 50% of the exposed population. This is the toxicity measure normally used to express the results of short-term fish toxicity tests carried out on poorly water-soluble test substances and complex mixtures.
Loading rate	The ratio of test material to water (in mg/l) used in the preparation of a WAF.
LOEC	Lowest Observed Effect Concentration.
Mesocosm	Model ecosystem.
New Substance	A substance placed on the market after 18th September 1981 that does not appear on EINECS. After a notification is accepted the substance is published in ELINCS.

Term	Description
NOEC	No Observed Effect Concentration. This is defined as the highest concentration tested that caused no adverse effects on the test organisms compared to controls. This is usually the endpoint measured on long-term ecotoxicity studies.
NONS	Notification Of New Substances Regulations 1993, which apply to substances not listed on EINECS, notified in the UK, enacting EU-wide law.
OECD	Organisation for Economic Co-operation and Development.
OSPAR	The OSPAR Commission for protection of the marine environment of the North East Atlantic.
PBT	Persistent, Bioaccumulative and Toxic.
PEC	Predicted Environmental Concentration (in the context of environmental risk assessment).
PEL	Probable Effect Level (a sediment quality criterion – see also TEL)
Photodegradation	The action of light on a substance to break it down. It may be direct, or <i>via</i> a mediator (photosensitiser) which traps light energy and then transfers it to the substance.
Photo-oxidation	Action of light to generate oxidising agents in the air, such as the hydroxyl radical, which then can oxidise substances.
PNEC	Predicted No Effect Concentration (in the context of environmental risk assessment).
Poorly (or sparingly) water-soluble substance	A substance with a limit of water solubility of <100 mg/l.
POP	Persistent Organic Pollutant.
Preparation	A deliberate and well-defined physical mixture of substances.
QSAR	Quantitative Structure Activity Relationship. A statistical relationship between structural properties of a molecule and its physico-chemical and/or ecotoxicological properties.
R phrases	Risk phrases used for classification and labelling according to Annex III of Directive 67/548/EEC (they actually describe hazards).
RA	Risk Assessment.
RAR	Risk Assessment Report.
RCR	Risk Characterisation Ratio – derived as the ratio PEC/PNEC for environmental end points.
Risk	The likelihood of a hazardous property of a substance being manifest in the environment.
S phrases	Safety phrases according to Annex III of Directive 67/548/EEC, used on labels as a consequence of identified hazards.
Secondary poisoning	Exposure of an organism via the food chain.
SIDS	Screening Information Data Set, a detailed chemical data set part of a substance submission to an HPV review initiative.
SimpleTreat	A multi-compartment steady state model used to model the fate and behaviour of a substance in biological waste water treatment plant.
SNIF	Summary Notification Interchange Format, a detailed chemical data set for new substances.
Speciation	The formation or presence of different interconvertible forms of a substance in the environment, such as ionised forms, complexes of metals with organic molecules.

Term	Description
SSD	Species Sensitivity Distribution (to a toxic substance).
Stable exposure concentration	A condition in which the exposure concentration remains within 80 and 120% of nominal over the entire exposure period.
Steady-state	A system that has reached the state where the inflows of a substance are balanced by the outflows or removal of the substance.
STP	Sewage Treatment Plant.
Substance	Chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substances or changing its composition.
Suspension	A stable dispersion of solid particles in a liquid.
TEL	Threshold Effect Level (a sediment quality criterion – see also PEL)
TGD	Technical Guidance Document (for risk assessment).
Toxicity reduction evaluation (TRE)	A procedure for assessing the source of toxicity of environmental media using bioassays and sample manipulations.
Toxicity test	A procedure in which living organisms are exposed to a substance (single chemical species or mixture) to determine adverse effects associated with a range of test concentrations. The results of the test are used to determine an LC ₅₀ /EC ₅₀ and/or a NOEC.
Trophic levels	The succession of steps through which matter and energy can be transferred through an ecosystem, usually via the food chain.
UNEP	The United Nations Environment Program.
vPvB	Very Persistent and very Bioaccumulative
WAF	Water accommodated fraction: an ecotoxicity test medium generated by periods of stirring the substance with water, settling, and separation of the aqueous layer (without filtration).
Water Solubility	The maximum attainable concentration or concentration at thermodynamic equilibrium between aqueous phase and solid (or liquid or gaseous) pure phase.
WWTP	Waste Water Treatment Plant. Also sometimes known as STP or Sewage Treatment Plant.