CHEMICAL MIXTURES

IN SOURCE WATER AND DRINKING-WATER

World Health Organization

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GLOSSARY OF TERMINOLOGY, ACRONYMS AND ABBREVIATIONS

A lack of common terminology across governmental and industrial sectors is one of the recognised barriers currently impeding the harmonization of methods to assess and manage the risk associated with combined exposure to multiple chemicals. The World Health Organization – International Programme on Chemical Safety (WHO/IPCS) framework, described in detail in this document, adopts an explicit descriptive terminology as a means to increase understanding of relevant terms and to facilitate harmonization of multiple chemical risk assessment methodologies (WHO, 2009; Meek et al., 2011; Meek, 2013).

The following table summarises the descriptive terminology and associated definitions used throughout this document, and are those described or adapted from key documents from USEPA, 2000; ECETOC, 2002; EFSA, 2008; IGHRC, 2009; WHO, 2009; Meek et al., 2011; Meek, 2013; EFSA, 2013. These definitions may differ from definitions used in different jurisdictions (e.g. cumulative exposure). Of importance to note is that the framework described in this document addresses **combined exposure to multiple chemicals** (abbreviated to **'chemical mixtures'** throughout).

GLOSSARY

Acceptable daily intake (ADI)	Estimated maximum amount of an agent, expressed on a body mass basis, to which individuals in a (sub)population may be exposed, by all routes, daily over their lifetimes without appreciable health risk. The ADI is expressed in milligrams of the chemical per kilogram of body weight (the default assumption of bodyweight by WHO is 60 kg).
Additivity	**Dose additivity** is applied in the case of chemicals in a mixture that act by the same mode of action and/or at the same target cell, tissue or organ and differ only in their potencies. Commonly used dose-additive methods include the hazard index (HI) approach (sum of the ratios of exposure of each component to a health endpoint – see HI method) and two index chemical approaches (sum of the doses of each mixture component that can induce the same response/effect, if appropriate scaled by their toxic potency relative to the index chemical; see relative potency factor - RPF and toxic equivalency factor - TEF methods). **Response additivity** is applied in the case of chemicals that act via independent modes of action to elicit the same response. The toxic response (rate, incidence, risk or probability of effects) from the combination is equal to the conditional sum of component responses as defined by the formula for the sum of independent event probabilities