2.6.1.2. *User Fact Sheet: Relative Potency Factors*

The user of this guidance document can follow Figure 2-1 to determine that the data available are on the components of the mixture of concern and that there is evidence of toxicologic similarity of the components. Then a procedure is suggested for estimating risk from exposure to the mixture by using Relative Potency Factors, as encapsulated in the following user-information fact sheet.

Approach:	Relative Potency Factors
Type of Assessment:	Dose-Response Assessment for Any Toxic Endpoint
Section(s):	4.1, 4.4
References:	New Procedure
Data Requirements:	Method requires both toxicity and exposure data on the mixture's components. Toxicity data are missing for some components.
Strategy of Method:	Scale component exposure concentrations relative to potency of an index chemical (typically the best-studied component) following expert committee consensus. Add scaled concentrations. Use dose-response curve of index chemical to generate response estimate for sum of scaled concentrations.
Ease of Use:	Complicated to use. Requires some statistical modeling and judgment of relative potency factors.
Assumptions:	Based on dose addition which carries with it assumptions of same mode of action and similarly shaped dose-response curves across the components. The "common mode-of-action" assumption can be met using a surrogate of toxicologic similarity, but for specific conditions (endpoint, route, duration).
Limitations:	Limited by data quality and similarity. May not have data from all routes of exposure of interest. Same mode-of-action across components may not be known.
Uncertainties:	Judgment of relative potency factors. Similarity of toxicologic action. Missing data on some components.

2.6.2. Independence and Response Addition

Response addition may apply when components act on different systems or produce effects that do not influence each other. Under response addition, the chemicals in the mixture are assumed to behave independently of one another, so that the body's response to the first chemical is the same whether or not the second chemical is present. Mathematically, response addition can be described by the statistical law of independent events, with "response" measured by the percentage of exposed animals that show toxicity or the proportion of the population responding. Response addition is particularly useful when the effects of concern are thought to be present at low dose levels for each of the component chemicals, even though it is highly unlikely the effects are capable of being observed at these low levels in the environment. When interaction data are available on any of the components in the mixture, the risk assessor may provide a qualitative discussion of the likely effect of these data on the outcome of the mixture risk assessment under response addition (see Sections 2.2.4, 4.5.4).