

## Application of the “relevant ingredients” criteria in paragraph 3.1.3.3

### Acute toxicity – Oral

#### Ingredient information:

Ingredient	Wt%	Classification	Test Data
Ingredient 1	4	Oral Category 3	LD <sub>50</sub> : 125 mg/kg
Ingredient 2	92	-	No data available
Ingredient 3	3	Oral Category 4	LD <sub>50</sub> : 1500 mg/kg
Ingredient 4	0.9	-	No data available
Ingredient 5	0.1	Oral Category 2	LD <sub>50</sub> : 10 mg/kg

#### Answer:

Apply the equation in paragraph 3.1.3.6.2.3:

$$\frac{100 - \left( \sum C_{unknown} \text{ if } > 10\% \right)}{ATE_{mixture}} = \sum_n \frac{C_i}{ATE_i}$$
$$\frac{100 - (92)}{ATE_{mixture}} = \frac{4}{125} + \frac{3}{1500}$$

Therefore: ATE<sub>mixture</sub> = 235 mg/kg, Category 3, and

“92% of the mixture consists of an ingredient of unknown toxicity.”

#### Rationale:

- Classification via application of substance criteria is not possible since acute toxicity test data was not provided for the mixture (paragraph 3.1.3.4);
- Classification via the application of bridging principles is not possible since data on a similar mixture was not provided (paragraph 3.1.3.5.1);
- Classification of the mixture based on ingredient data can be considered (paragraph 3.1.3.6);
- Applying the “relevant ingredients” concept from paragraph 3.1.3.3 (a) means that ingredient 4 could be excluded from both the ATE<sub>mixture</sub> calculations. This is true for the calculation in either paragraph 3.1.3.6.1 or 3.1.3.6.2.3. This same reasoning could also apply to ingredient 5, as it is below the “relevant ingredients” threshold; however, the use of expert judgment is necessary to make this decision for ingredient 5 as it is classified in Category 2. For this example, it was decided that since the percentage of this ingredient is well below the threshold (i.e. 0.1%) and the ingredient is classified in Category 2, it would be excluded from the ATE calculation;
- The total concentration of ingredients with unknown acute toxicity (i.e. ingredient 2) is 92%, therefore, the ATE<sub>mixture</sub> equation in paragraph 3.1.3.6.2.3 must be used. This calculation corrects for ingredients with unknown acute toxicity above 10% of the mixture;
- Ingredients 1 and 3 are included in the ATE<sub>mixture</sub> calculation because they have data that fall within a GHS acute toxicity category [Paragraph 3.1.3.6.1 (a)];
- Applying the guidance in Note (a) to Table 3.1.1 results in using the LD<sub>50</sub> data for Ingredients 1 and 3 in the ATE<sub>mixture</sub> calculation since data are available;
- Ingredient 2 does not have any useable information for the oral route ATE<sub>mixture</sub> calculation and is in the mixture at a concentration ≥ 1% so an additional statement is included (paragraph 3.1.3.6.2.2.);