

Detergents Ingredients Database

Version January 2007

Part B.

Critical Dilution Volume

The Critical Dilution Volume is calculated according to the following equation:

$$CDV = 1000 * \sum \text{dosage}(i) * DF(i) / TF(i)$$

Dosage(i) = Dosage of ingredient i, expressed in g/wash, or in some cases as g/100 g product.

DF(i) = Degradation Factor for ingredient i.

TF(i) = Toxicity Factor for ingredient i.

PROCEDURE FOR ESTABLISHING PARAMETER VALUES FOR INGREDIENTS NOT ON THE DID-LIST

As a general rule the listed parameter values must be used for all ingredients on the DID-list. An exception is made for perfumes and dyes, where additional test results are accepted (see footnote in Part A).

The following approach applies for ingredients that are not listed on the DID-list.

Aquatic toxicity

In the European Eco-label scheme, the CDV is calculated based on the chronic toxicity and chronic safety factors. If no chronic test results are available, the acute toxicity and safety factor must be used.

The chronic toxicity factor (TF_{chronic})

- Calculate the Median value within each trophic level (fish, crustaceans or algae) using validated test results for chronic toxicity. If several test results are available for one species within a trophic level, a median for the species shall be calculated first, and these median values shall be used when calculating the median value for the trophic level .
- The Chronic toxicity factor (TF_{chronic}) is the lowest median of the trophic levels calculated.
- The TF_{chronic} shall be used when calculating the critical dilution volume criterion.

The acute toxicity factor (TF_{acute})

- Calculate the Median value within each trophic level (fish, crustaceans or algae) using validated test results for acute toxicity. If several test results are available for one species within a trophic level, a median for the species shall be calculated first, and these median values shall be used when calculating the median value for the trophic level .
- The Acute toxicity factor (TF_{acute}) is the lowest median of the trophic levels.
- The TF_{acute} shall be used when calculating the critical dilution volume criterion.

Safety Factor:

The Safety Factor (SF) is depending on how many trophic levels are tested, and whether chronic test results are available or not. SF is determined as follows:

Data	Safety factor (SF)	Toxicity factor (TF)
1 short-term L(E)C50	10000	Toxicity/10000
2 short-term L(E)C50 from species representing two trophic levels (fish and/or crustaceans and/or algae)	5000	Toxicity/5000
At least 1 short-term L(E)C50 from each of three trophic levels of the base-set1	1000	Toxicity/1000
One long-term NOEC (fish or crustaceans)	100	Toxicity/100
Two long-term NOEC from species representing two trophic levels (fish and/or crustaceans and/or algae)	50	Toxicity/50
Long-term NOEC from at least three species (normally fish, crustaceans and algae) representing three trophic levels	10	Toxicity/10

- The base set for testing the toxicity of substances towards aquatic organisms consists of acute tests with fish, daphnia and algae.

Degradation Factors

The Degradation Factor is defined as follows:

Table 1. Degradation factor (DF):

	DF
Readily biodegradable (*)	0,05
Readily biodegradable (**)	0,15
Inherently biodegradable	0,5
Persistent	1

(*) All surfactants or other ingredients consisting of a series of homologues and fulfilling the final degradation requirement of the test, shall be included in this class regardless of fulfilment of the 10-day window criterion.

(**) 10-day window criterion not fulfilled.

For inorganic ingredients the DF is set according to observed degradation rate. If the ingredient degrade within 5 days: DF=0,05, within 15 days: DF=0,15 or within 50 days: DF=0,5.

Anaerobic biodegradability

The ingredient must be classified into one of the following classes of compounds:

Category	Label
Anaerobically not biodegradable, i.e. tested and found not biodegradable.	N
Anaerobically biodegradable i.e. tested and found biodegradable or not tested	Y

but demonstrated through analogy considerations etc.	
Not tested for anaerobic biodegradability	0

Aerobic biodegradability

The ingredient must be classified into one of the following classes of compounds:

Category	Label
Readily biodegradable	R
Inherently biodegradable, but not readily biodegradable	I
Persistent	P
Not tested for aerobic biodegradability	O

Insoluble inorganic ingredients

If an inorganic ingredient has a very low water-solubility, or is not soluble in water this must be indicated in the submitted file.