

Detergents Ingredients Database Part B

Version 2023

Critical Dilution Volume

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

$$CDV = \sum CDV_{(i)} = \sum ((\text{dosage}_{(i)} \times DF_{(i)}) / TF_{(i)}) \times 1000$$

Dosage_(i)=Dosage of ingredients 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.

The following approach applies for ingredients that are listed on the DID-list

As a general rule the listed parameter values for toxicity and biodegradability must be used for all ingredients on the DID-list. An exception is made for perfumes and dyes, where additional toxicity test results are accepted and for block polymers, where additional degradability data are accepted (see footnotes in Part A). If parameter values for biodegradability is missing (marked with "O" in Part A), the procedure for biodegradability described below for ingredients not listed on the DID-list can be applied.

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

Aquatic toxicity:

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 and vice versa.

The chronic toxicity factor (TF_{chronic})

- Calculate the Median value within each trophic level (fish, crustaceans, or algae) using validated test results (NOEC or EC₁₀) 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.
- If the median value for the trophic level exceeds the water solubility, the value is set to 100 mg/L.
- The Chronic toxicity factor (TF_{chronic}) is the lowest median (NOEC or EC₁₀) of the trophic levels divided by the safety factor (SF).
- 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 (LC₅₀ and/or EC₅₀) 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.
- If the median value for the trophic level exceeds the water solubility, the value is set to 100 mg/L.
- The Acute toxicity factor (TF_{acute}) is the lowest median (LC₅₀ or EC₅₀) of the trophic levels divided by the safety factor (SF).
- 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)
One short-term L(E)C ₅₀	10000	Toxicity/10000
Two short-term L(E)C ₅₀ from species representing two trophic levels (fish, crustaceans, and algae)	5000	Toxicity/5000
Three short-term L(E)C ₅₀ from species representing three trophic levels (fish, crustaceans, and algae)	1000	Toxicity/1000
One long-term NOEC or EC ₁₀ (fish or crustaceans)	100	Toxicity/100
Two long-term NOEC or EC ₁₀ from species representing two trophic levels (fish, crustaceans, and algae)	50	Toxicity/50
Three long-term NOEC or EC ₁₀ from species representing three trophic levels (fish, crustaceans, and algae)	10	Toxicity/10

The ingredient must be tested according to test methods OECD 203/212 (fish, acute toxicity), OECD 210 (fish, chronic toxicity), OECD 202 (crustaceans, acute toxicity), OECD 211 (crustaceans, chronic toxicity) and OECD 201 (algae, acute and chronic toxicity) or equivalent test methods.

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

The ingredient must be tested according to test method OECD 301 A-F or 310 (readily biodegradable) or 302 A-C (inherently biodegradable) or equivalent test methods.

Degradation Factors

The Degradation Factor (DF) is defined as follows:

Category	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 0,05 for nutrients, such as sodium nitrate, phosphate, or ammonia and 1 for other inorganic ingredients, such as zeolite, silicates, perborates, sulphamic acid.

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

The ingredient must be tested according to test method OECD 311, ISO 11734, or ECOTEC nr. 28 (June 1988) or equivalent test methods.

Ingredients with no available data

For ingredients with no data regarding aquatic toxicity and degradability, structure analogies with similar ingredients may be used to assess the TF and DF. Such structure analogies shall be carried out by an independent third party and approved by the competent body granting the license. Alternatively, a worst-case approach shall be applied using the parameters below:

Acute toxicity			Chronic toxicity			Degradation		
LC50/EC50	SF _{acute}	TF _{acute}	NOEC(*)	SF _{chronic} (*)	TF _{chronic}	DF	Aerobic	Anaerobic
1 mg/l	10 000	0,0001			0,0001	1	P	N

(*) If no acceptable chronic toxicity data are found, TF_{chronic} is defined as equal to TF_{acute}.