

Detergents Ingredients Database

Version 2014.1

Part B.

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 substances i, expressed in g/wash, or in some cases as g/100 g product.

DF_(i) = Degradation Factor for substance i.

TF_(i) = Toxicity Factor for substance i.

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

As a general rule the listed parameter values must be used for all substances 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 substances 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 (LC_{50} or EC_{50}) 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)
1 short-term L(E) C_{50}	10000	Toxicity/10000
2 short-term L(E) C_{50} from species representing two trophic levels (fish and/or crustaceans and/or algae)	5000	Toxicity/5000
At least 1 short-term L(E) C_{50} from each of three trophic levels of the base-set*	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 and/or crustaceans and/or algae)	50	Toxicity/50
Long-term NOEC or EC_{10} 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 (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 substances 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 substances the DF is 0,05 for nutrients, such as sodium nitrate, phosphate or ammonia. DF is 1 for other inorganic substances, such as zeolite, silicates, perborates, sulphamic acid.

Anaerobic biodegradability

The substance 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

Aerobic biodegradability

The substance 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 substances

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