EL303. Household Detergent

【EL303-2001/4/2010-13】

1. Scope

The criteria shall apply to the liquid detergent for kitchen used in washing dishes, cookers, and vegetables·fruit etc.(except for a dish washer).

2. Definition

2.1

“Functional unit” shall refer to the same quantified service(capability) of a product and shall be set based on the amount of kitchen detergent[g/wash] which remove the contaminant of 100g to dilute in the water of 100L (Test method of <Annex 1>).

2.2

“Critical dilution amount(CDVtox)” shall refer to the value which is calculated the amount of water[L/wash] to dilute the toxicity of component materials to the acceptable level to the environment and added up.

3. Certification Criteria

3.1 Environmental criteria

3.1.1

With respect to the use of chemical substances in the manufacturing steps, the product shall not contain the following component materials.

3.1.1.1

Alkylphenol ethoxylates (APEOs), alkyl phenol derivatives and triclosane(5-Chloro-2-(2,4-dichlorophenoxy) phenol)

3.1.1.2

Use food preservative which is not registered in Korea Food Additives Code more than 0.2 %

3.1.1.3

The substances pertinent to ‘Group 1’, ‘Group 2A’ and ‘Group 2B’ as the carcinogenic indicator of IARC(International Agency for Research on Cancer)

3.1.1.4

Nitromusks and polycyclic musks

Note)In this standard, following substances are temporarily defined as the Nitromusks and polycyclic musks.

substance	CAS No.
Musk xylene	81-15-2
Musk ambrette	83-66-9
Moskene	116-66-5
Musk tibetine	145-39-1
Musk ketone	81-14-1
AHTN	1506-02-1, 21145-77-7
HHCB	114109-62-5, 114109-63-6, 1222-05-5, 78448-48-3, 78448-49-4

3.1.1.5

Chemicals belonging to the following H code class according to the UN Globally Harmonized System of Classification and Labeling of Chemicals should not be used.

Note: EU Regulation (EC) No. 1272/2008 Annex VI Part 3, (Harmonized Classification and Labeling Tables) will be tentatively applied to the material list.

H400 : Very toxic to aquatic life.

H410 : Very toxic to aquatic life with long lasting effects.

H411 : Toxic to aquatic life with long lasting effects.

H412 : Harmful to aquatic life with long lasting effects.

3.1.2

With respect to the emission of water pollutants and harmful substances in the using steps, the product shall not contain the following component materials.

3.1.2.1

The amount of dilution limit (CDVtox) [L/wash] (referring to the following note) applying the functional unit shall be 20000 or less.

Note) TF value of DID specifications for each component material, DF value and usage [g/wash(i)] according to contents shall be applied to the following equation, and thus, CDVtox(i) for each material shall be calculated thereby to sum up the same.

$$CDV_{tox}(i) = \frac{g/wash(i) \times DF(i) \times 10}{TF(i)}$$

3.1.2.2

Biodegradability of surfactants shall satisfy the following conditions.

a) With respect to the rapid aerobic biodegradability, i.e., ready biodegradability, aerobic (referring to the following note), it shall be easily biodegradable.

Note) When aerobic biodegradability is indicated as “R” in the <appendix 2> DID (Detergent Ingredients Database) and it satisfies the B-(2) of “verifying method for water pollution-related effects of detergents and cleaning agents <appendix>”, it shall be considered as satisfying the criteria.

b) The contents [g/wash] (referring to the following note) of anaerobic non-biodegradable surfactants shall be 20 or less.

Note) The usage [g/wash(i)] according to the contents [%] of DID specifications for each component material shall be calculated, and then summed up.

3.1.3

When the product is being manufactured and when the product is being used, in regard to recycling in terms of resources consumption and at the stage of disposal, packing materials should satisfy the following requirements.

3.1.3.1

“Packing material evaluation index” of the primary packing material for each standard of the main container should be 30 or below 30.

Note1) The definition of “the primary packing material” should be fulfill the 「Regulation concerning criterion of package material and package method」 of 「Act on the Promotion of Saving and Recycling of Resources」. However, vinyl packages, etc. in which products and others are directly used are not calculated as the number of packages.

Note2) Package material evaluation index [g/wash] =

$$\frac{\text{entire weight of packing material[g]} - \text{weight of use of recycling material[g]}}{\text{the number of function unit out of entire products}}$$

3.1.3.2

The packing materials shall not contain the halogen synthetic resin including polyvinyl chloride(PVC) etc.

3.1.3.3

In a case where label and shrink film are used, the same or the same kind of materials as the body of a case should be used and metal coating should not be executed. However, an exception should be made in case of in-mold label (PP: white and transparent PE) inserted upon case molding.

3.1.3.4

The product shall contain a tool or an indication which the consumer can use the proper amount of detergent. However, the refill packing product shall not be applied to this provision.

3.2 Quality Criteria

3.2.1

The product shall be suited to the standard and norm of sanitary goods according to「Law of public health control」.

3.2.2

It shall be suited to KS M 2716(Kitchen Detergent).

3.3 Consumer Information

Indications required to reduce environmental load due to consuming water·detergent in the consuming steps including indication of the standard amount used on the packing materials.

4. Test Methods

Certification Criteria		Methods of Test and Verification
Environmental Criteria	3.1.1	Verification of the documents for submission
	3.1.2.1	▪ Verification of the documents for submission and an on-the-spot inspection ▪ Authorized laboratory test reports in accordance with '4.1 and 4.2" test methods
	3.1.2.2	Verification of submitted documents or Authorized laboratory test reports in accordance with followings

		▪ biodegradability test methods in 'Annex-B-(2)' ▪ OECD 311(Anaerobic Biodegradability of Organic Compounds in Digested Sludge: by Measurement of Gas Production) ▪ KS M ISO 11734(Water quality - Evaluation of the ultimate anaerobic biodegradability of organic compounds in digested sludge method by measurement of the biogas production)
	3.1.3	Verification of the documents for submission
Quality Criteria	3.2.1	Test report of the accredited institutions according to 'the standard and norm of sanitary goods' and the equivalent certificate
	3.2.2	Test report of the accredited institutions according to KS M 2716(Kitchen Detergent) and the equivalent certificate
Consumer Information		Verification of the documents for submission

4.1 General Matters

4.1.1

The number of test samples shall be one sample a product applied in principle. However, in case that more than one sample is required, it shall make an exception.

4.1.2

The test sample shall be randomly sampled out of the commercial products and the products kept in the producing center by an entrusted institution of eco label certification.

4.1.3

Test result shall be numerically set according to KS Q 5002 (Statistical interpretation method of the data – Part 1: Statistical description of the data).

4.2. Test Method for Determining Functional Unit of Dishwashing Detergents

4.2.1.

Principle: The object of this test is to determine the functional unit of dishwashing detergents. In addition, this test prescribes a method for determining the amount of dishwashing detergent that is able to remove the unit amount of contaminants through solubilization.

4.2.2.

Test Devices and Materials

4.2.2.1.

Agitator: It can be adjusted to 3000±50 r/min, and an impeller satisfying the following conditions or having the shape of blade shall be used. (e.g., referring to the following figure)

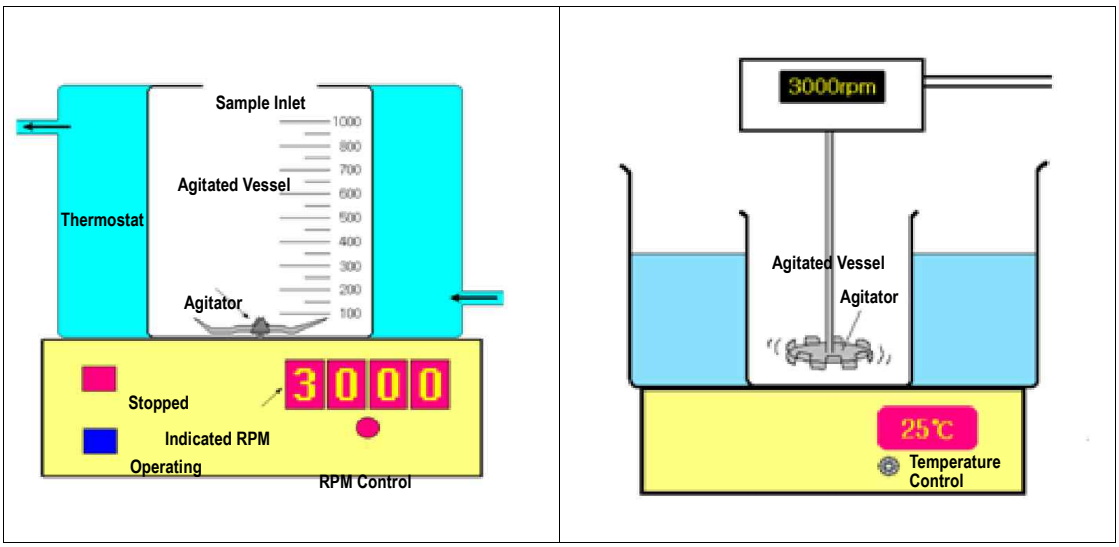
Division	Size [mm]
Diameter	40±1
Height of each Blade	7±1

4.2.2.2.

Thermostat: Device capable of adjusting and maintaining the temperature of 25±1 ℃ within the agitated vessel.

4.2.2.3.

Agitated vessel: Circle shape having the inside diameter of 90±2 mm, and made of glass having good thermal conductivity.



<Figure> Example of Test Device

4.2.2.4

Contaminant; The mixture in which soybean oil and tallow (respectively defined by Korean Pharmacopoeia) are mixed with the weight ratio of 1:1 shall be used, and during testing, the liquid state in which soybean oil and tallow are mixed shall be maintained by heating water to 40±5 ℃.

4.3. Test Method

4.3.1.

Measuring the contaminant inputs of samples with surfactant concentration of 25% or less.

4.3.1.1.

Calcium chloride (2 hydrate) 59.0 mg and magnesium chloride (6 hydrate) 27.2 mg is put into water (distilled water) to be dissolved by 1 L and thus, use in the same manner as water.

4.3.1.2.

Dishwashing detergent samples are determined as 1.0 g and 3.0 g, respectively, and then completely dissolved in the abovementioned water to thereby prepare a detergent solution of 1 g/L and 3 g/L concentration.

4.3.1.3.

The detergent solution of 1 g/L concentration, for which temperature is pre-adjusted by 25 ± 1 ℃, is put into an agitated vessel. Herein, it shall be noted that bubbles do not occur and the temperature of thermostat is maintained at 25 ± 1 ℃.

4.3.1.4.

Detergent solution in thermostat is stirred for 1 minute at 3000±50 r/min to generate sufficient bubbles.

4.3.1.5.

Contaminants are injected with a syringe filled with the contaminants or a micro-pipette, and then stirred at 3000±50 r/min for 5 minutes. Then, the removal of air bubbles is observed with bare eyes for about 2 minutes. In regard to the injection sequence of the contaminants, the 0.05 g of contaminant is first injected one time, and then the 0.03 g of contaminant is injected one time. Subsequently, the 0.01 g of contaminant is injected until reaching the end point, and thus the contaminant inputs (g) to the end point shall be measured.

Note) With the input of contaminants, the thickness of bubble layer is decreased to form a thin film and the destruction of bubbles forming the film reveals the surface of the detergent solution. When half or more of the surface of detergent solution is observed with bare eyes after two minutes have elapsed, this time point shall be the end point.

4.3.1.6.

The contaminant inputs (g) shall be measured by repeating the above-mentioned steps 4.3.1.3 to 4.3.1.5 with the detergent solution of 3 g/L concentration. However, the determination for the

sequence of contaminant inputs shall conform to the following classification according to the thickness of the bubble layer after two minutes have elapsed.

Thickness of Bubble Layer [㎝]	Contaminant Inputs [g]
1.0 or more	0.05
0.3 ~ 1.0	0.03
0.3 or less	0.01

4.3.2

Measuring the contaminant inputs of samples of which surfactant concentration is 25% or more.

4.3.2.1

The step of 4.3.1.1 shall be executed.

4.3.2.2

Dishwashing detergent samples are determined as 1.0 g and 2 g, and then completely dissolved in the abovementioned water to prepare detergent solution of 1 g/L and 2 g/L concentration, respectively.

4.3.2.3

The steps of 4.3.1.3 to 4.3.1.4 shall be executed.

4.3.2.4

Contaminants are injected with a syringe filled with the contaminants or a micro-pipette and then stirred at 3000±50 r/min for 5 minutes. And then, the removal of air bubbles is observed with bare eyes for about 2 minutes. Next, the contaminant inputs (g) to the end point shall be measured. However, the determination of the injection sequence of the contaminants shall conform to the method mentioned in 4.3.1.6.

Note) The determination of the end point shall conform to the method mentioned in 4.3.1.5.

4.3.2.5

The steps of 4.3.1.3 to 4.3.1.4 shall be repeated with the detergent solution of 2 g/L.

4.3.2.6

Calculation of dishwashing detergent consumption

With the contamination inputs (g) obtained by two kinds of sample concentration, “dishwashing detergent consumption for standards contaminants” (g of dishwashing detergent capable of

removing contaminant of 1g by diluting in 1L of water) shall be calculated according to the following equation.

$$Y = \frac{y_2 - y_1}{x_2 - x_1} X + 5B \quad X = \frac{Y - 5B}{(y_2 - y_1)/(x_2 - x_1)}$$

That is,

- X : Dishwashing detergent consumption for standards contaminant [g]
- Y : g of contaminant injected per 1 L of detergent solution (herein, it will be 1 g/L)
- y_2 : Contaminant inputs [g] calculated with detergent solution of 2 g/L or 3 g/L concentration.
- y_1 : Contaminant inputs [g] calculated with detergent solution of 1 g/L concentration.
- x_2 : 0.4 g or 0.6 g (amount of dishwashing detergent out of 200 mL of detergent solution being 2 g/L or 3 g/L)
- x_1 : 0.2 g (amount of dishwashing detergent out of 200 mL of detergent solution being 1g/L)
- B : Intercept of a straight line plotting the values of (x_1, y_1) and (x_2, y_2), i.e., $B = y_1 - \frac{y_2 - y_1}{x_2 - x_1} x_1$.

4.3.2.7

Determination of functional unit of dishwashing detergent sample

a) According to the steps of 4.3.2.3 and 4.3.2.4., “dishwashing detergent consumption (X value) for standard contamination” shall be obtained in 5 tests, and then the average of 3 values after eliminating the smallest and the largest value shall be represented.

b) Functional unit shall be on the basis of the amount of dishwashing detergent capable of removing 100 g of contaminant by diluting in 100 L of water, i.e., 100 times (100X) [g-detergent] of dishwashing detergent consumption (X) for standard standards.

5. Reasons for Certification

“Water pollution control and environmental-friendly design”

[Annex] Verification Methods Regarding Water Quality Contamination

A. Purpose

This annex is aimed to describe the verification method regarding the water quality contamination effects.

B. Definitions

(1) “AC (Active Contents)” refers to the total weight of chemical substances, excluding water, which composes a product.

(2) "Readily biodegradable” refers to the biodegradability for each test method conforming to the following in the general micro-organic degradability test which has a reduced opportunity for degradation compared to the practical environment, to examine whether chemicals are easily micro-organically degradable in the aerobic environment.

Bio-degradability test method	Bio-degradability	Bio-degradability test method	Bio-degradability
OECD 301 A (DOC Die-away test)	≥70 %	OECD 301 D (Closed bottle test)	≥60 %
KS M ISO 7827		KS M ISO 10707	
OECD 301 B (CO_2 Evolution test)	≥60 %	OECD 301 E (Modified OECD screening test)	≥70 %
KS M ISO 9439		KS M ISO 7827	
OECD 301 C [Modified MITI test(Ⅰ)]	≥60 %	OECD 301 F (Manometric respirometry test)	≥60 %
KS M ISO 14851		KS M ISO 9408	

Note) Standard names

- KS M ISO 7827 (How to Evaluate the Final Aerobic Biodegradability in Water-Liquid Media-How to Analyze Dissolved Organic Carbon)
- KS M ISO 9439 (How to Evaluate the Final Aerobic Biodegradability in Water-Liquid Media-How to Test the Generation of Carbon Dioxide)
- KS M ISO 14851(Measurement of the Final Aerobic Biodegradability of Plastic Materials in the Water Liquid Media – Measurement of Oxygen Quantity Consumed by the Airtight Respiratory Organ)
- KS M ISO 10707 (How to Evaluate the “Final” Aerobic Biodegradability in Water-Liquid Media-How to Analyze Biochemical Oxygen Demand (BOD) (Airtight Bottle Test)
- KS M ISO 9408 (Water - Evaluation of the Aerobic Final Biodegradability of Organic Compounds in Liquefied Media by Measurement of the Biological Oxygen Demand (BOD) with an Airtight Breathalyzer)

(3) “Inherently biodegradable” refers to that the biodegradability for each test method conforming to the following in the general microorganism degradability test performed in the

conditions, which has the accelerated opportunity of degradation compared to the practical environment, to examine whether chemicals are easily micro-organically degradable in the environment.

<table>
<tr><th>Bio-degradability test method</th><th>Bio-degradability</th><th>Bio-degradability test method</th><th>Bio-degradability</th></tr>
<tr><td>OECD 302 A
(Modified SCAS test)</td><td rowspan="3">≥70 %</td><td rowspan="2">OECD 302 B
(Zahn-Wellens/EMPA test)</td><td rowspan="3">≥70 %</td></tr>
<tr><td>KS M 9138</td></tr>
<tr><td>OECD 302 C
(Modified MITI test(Ⅱ))</td><td>KS M ISO 9888</td></tr>
</table>

Note) Standard names

▪KS M 9138 (How to Evaluate the Aerobic Biological Oxygen Degradation (BOD) of Organic Compounds in Water [Semi-continuous Activated Sludge (SCAS) Process])

▪KS M ISO 9888 (How to Measure the Aerobic Degradability of Organic Compounds in the Water-Liquid Media (Static Method: Zahn-Wellens Method)

(4) “DF (Degradation factor)” “DF” refers to a coefficient for the biodegradability of each material, with the biodegradability divided into easily biodegradable, inherently biodegradable and not biodegradable.

(5) “TF (Toxicity factor)” “TF” refers to a coefficient standing for the toxicity of a substance as a value obtained by dividing acute toxicity data(LC50 and EC50) by uncertainty factor (SF).

(6) “The acute toxicity” refers to a toxicity that appears when a chemical substance is administered (processed) to a test animal once or a few times within 24, 72 and 96 hours, or when an inhalable substance is exposed to a test animal once during a limited time that does not exceed 24, 72 and 96 hours.

(7) “The chronic toxicity” refers to a general toxicity that occurs as a result of repeated administration or exposure during a considerable or whole period of the test animal’s life expectancy. However, it excludes reproductive toxicity, genetic toxicity and cancer-causing properties.

C. Calculation Methods

(1) X_n Calculation Methods

With regard to the emission of water pollutants in the use phase, calculate the value for each environmental influence item X_n in accordance with Appendix Table 1 using the DID in Appendix Table 2 and based on the calculation methods presented in (A) to (D). Calculate the value of the constituent substances not included in DID after building the data in accordance with Appendix Table 3. Calculate the score for each item down to one decimal place.

a) Total chemical substance(X_1) [g/wash] : Adds the usage amount by functional unit [g/wash(i)] depending on the content [%] of all chemical substances excluding water (including bound water among component substances).

b) Aerobic non-biodegradable substance(X_2) [g/wash] : Add the usage amount [g/wash(i)] by functional unit in accordance with the content [%]of the substances conforming to aerobic non-biodegradable substances among DID list.

c) Anaerobic non-biodegradable substance(X_3) [g/wash] : Add the usage amount [g/wash(i)] by functional unit in accordance with the content [%]of the substances conforming to anaerobic non-biodegradable substances among DID list.

d) Limit dilution amount(CDV_{tox},X_4) [L/wash] : Calculate CDV_{tox}(i) by each substance by applying TF value, DF value and usage amount by functional unit [g/wash(i)] depending on the content in CDV_{tox} (i) = $\frac{\frac{g}{wash(i)} \times DF(i)}{TF(i)}$ and add them all.

(2) Calculation Methods of the Total Scores

a) Multiply the results from “(1) X_n Calculation Methods “by the added values for standard items and then total them.

b) Calculation examples

1) Total = $(aX_1+b\times3.5) + (cX_2+d\times1.5) + (eX_3+f\times3) +(gX_3+h\times7)$

<Appendix 1> Document Form for Submission

A. General matters

(1) The environmental labeling application products shall be distributed and sold in certain scopes or higher and equipped with the distribution and sales conditions as well as production processes.

(2) The submitted documents shall not be used for other purposes than as evidence to decide whether products conform to criteria.

B. How to write the document forms for submission

(1) All the data of individual substance comprising the product shall be provided, and shall conform to the following format. If substances not in DID are used, formats for submitted documents shall be prepared and submitted based on the presented method in <Annex Table 3>.

(2) However, if a substance which is not included in DID list conforms to the following within the scope of 10% or under among all products, all chemical substance items can be applied without establishing separate data according to the presented method in <Annex Table 3>.

a) Active Contents(AC) Natural extracts under 1%. However, substance in Food Code Asterisk 1 can be used without limit, regardless of the content amount.

Note) For content calculation, numbers shall be used in accordance with KS Q 5002 (Statistic Analysis Method of Data Part 1 : Statistic Description of Data).

b) Active Contents(AC) Substances under 1%, and Chemicals belonging to the following class and label according to the UN GHS (Globally Harmonized System) of Classification and Labeling of Chemicals

Note) EU Regulation (EC) No. 1272/2008 Annex VI Part 3, (Harmonized Classification and Labeling Tables) will be tentatively applied to the material list.

H340 : may cause genetic defects
H341 : suspected of causing genetic defects
H350 : may cause cancer
H350i : may cause cancer by inhalation
H351 : suspected of causing cancer
H360F : may impair fertility
H360FD : may damage fertility, may damage the unborn child
H361f : suspected of damaging fertility
H360Fd : may damage fertility, suspected of damaging the unborn child

H362 : may cause harm to breast-fed children
H400 : very toxic to aquatic life
H411 : toxic to aquatic life with long-lasting effects
H412 : harmful to aquatic life with long-lasting effects
H413 : may cause long-lasting harmful effects to aquatic life

(3) Fix the content of water based on the KS M 2709 (5.21.1 How to Heat and Add Weight), and record the value, inclusive of that of bound water, into the following table.
(4) Write down all individual substance data that constitute the product.
(5) When writing down the contents, the water contained in individual constitution substances shall be excluded. (E.g.: In case of EDTA with the ratio of EDTA :Water = 50 : 50, only 50% of the contents are written down as EDTA contents)

C. Documents to be Submitted

(1) Product Composition Data : Basic data to check the product composition

a) Technical description of each substance (Substance name, content, CAS No. INCI Name)
b) Function of each substance (E.g.: surfactant, preservative) description
c) MSDS included with supplier of each substance
d) Water content of all substances if water is included in the submitted content by substance
e) Composed substance fixed quantity result
1) In case of a fixed quantity test data for composed substance of chemical substance, test result of publicly authorized organization or the following internal test data used internally(within 3 months) shall be provided.
2) However, in case of the substance that cannot be verified with the company's internal test records, the data shall be verified by checking the input amount of used substances recorded on the IT management system or the production records through on-site due diligence.

(2) Document forms for submission
a) DID by product composition substance to judge on the water contamination effects

DID No.	Use material name	Content [%]Note)	TF	DF	Total chemical substance [g/wash]	Aerobic non-biodegradable substance [g/wash]	Anaerobic non-biodegradable substance [g/wash]	Critical dilution volume [L/wash]

(b) In case of data for the substance non in DID, the data for the substances not in DID shall be established in accordance with [Annex table3] as follows and submitted.

Substances not in DID							
Substance name	CAS No.	Toxicity			DF	Bio-degradability	
		Measured value [mg/L]	SF	TF		Anaerobic non-biodegradable substance	Aerobic non-biodegradable substance

<Appendix 2> DID (detergent ingredients database)

A. General matters

(1) This database is not a list of substances that are available for products, and may include a list of substances prohibited from use or detection in accordance with the certification criteria for environmental labeling products.

(2) In case of O(No test) regarding the biodegradable ability, biodegrade/ non-biodegrade can be applied depending on the test results when submitting the actual test data for the respective substances.

(3) Compounds and Mixture Application Method

a) If an individually used substance exists in the final product

1) DID No. is applied based on the substance remaining in the final product. However, in case of an individual substance remaining after the chemical reaction DID No. is applied for the chemical substance before the compound by the remaining amount.

2) Application example : In case fatty acid used to make soap compounds, if 70% only is neutralized and 30% of the usage remains in the final product, 70% for soap(DID No.12) and 30% for fatty acid(DID No.123) are applied in calculation.

b) Mixture

1) In case we can acquire appropriate toxic data for substances of 2 types or more among mixture, the toxicity addition value of such substances is calculated based on the constant formula as follows and this calculated value can be used.

2) In case of applying the following constant formula among mixture, the toxicity of mixture is calculated using the toxicity value of each substance for the same life type(That is, fish, water flea or green algae), the smallest toxicity value among the calculations (That is, the value acquired from the most sensitive type among 3 life types) is adopted.

$\frac{\sum C_i}{L(E)C_{50m}} = \sum \frac{C_i}{L(E)C_{50i}}$	C_i = Concentration of substance I (Weight %) $L(E)C_{50i}$ = LC_{50} or EC_{50} of substance i (mg / L) N = Substance number (i has 1~ n value) $L(E)C_{50m}$ = $L(E)C_{50}$ in the part where the test data exist among mixtures

※ Application Example (cetearyl alcohol)

Calculation and application by applying the calculated values of 0.287 if mixed by 5:5, and 0.37 if mixed by 2:8, using the toxic data of the same biospecies of Cetyl Alcohol and Stearyl Alcohol

CAS NO	Substance Name	96 hours EC_{50} algae	SF(acute)	TF(acute)
36653-82-4	Cetyl Alcohol	676	10000	0.0676
112-92-5	Stearyl Alcohol	235	1000	0.235

B. List

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
	Anionic surfactants									
1	Linear alkyl benzene sulphonates 11,5-11,8 (LAS)	4.1	1000	0.0041	0.69	10	0.069	0.05	R	N
2	LAS (C10-13 alkyl) triethanolamine salt	4.2	1000	0.0042	3.4	100	0.034	0.05	R	O
3	C 14/17 Alkyl sulphonate	6.7	5000	0.00134	0.44	10	0.044	0.05	R	N
4	C 8/10 Alkyl sulphate	132	5000	0.0264			0.0264	0.05	R	Y
5	C 12/14 Alkyl sulphate (AS)	2.8	1000	0.0028	2	100	0.02	0.05	R	Y
6	C 12/18 Alkyl sulphate (AS) (#)			0.0149			0.027	0.05	R	Y
7	C 16/18 Fatty alcohol sulphate (FAS)	27	1000	0.027	1.7	50	0.034	0.05	R	Y
8	C 12/15 A 1-3 EO sulphate	4.6	1000	0.0046	0.1	10	0.01	0.05	R	Y
9	C 16/18 A 3-4 EO sulphate	0.57	10000	0.000057			0.000057	0.05	R	Y
10	Dialkyl sulpho succinate	15.7	1000	0.0157			0.0157	0.5	I	N
11	C 12/14 Sulpho- fatty acid methylester	9	10000	0.0009	0.23	50	0.0046	0.05	R	N
12	C 16/18 Sulpho- fatty acid methylester	0.51	5000	0.000102	0.2	50	0.004	0.05	R	N
13	C 14/16 aDFa Olefin sulphonate	3.3	10000	0.00033			0.00033	0.05	R	N
14	C 14/18 aDFa Olefin sulphonate	0.5	5000	0.0001			0.0001	0.05	R	N
15	Soap C>12-22	22	1000	0.022	10	100	0.1	0.05	R	Y
16	Lauroyl Sarcosinate	56	10000	0.0056			0.0056	0.05	R	Y
17	C9/11 2-10 EO Carboxymethylated, sodium salt or acid	100	10000	0.01			0.01	0.05	R	O
18	C12/18 2-10 EO Carboxymethylated, sodium salt or acid	8.8	1000	0.0088	5	100	0.05	0.05	R	O
19	C 12/18 Alkyl phosphate esters	38	1000	0.038			0.038	0.05	R	N
54	AES (C 15, 5 EO)			0.016	1.6	100	0.016	0.05	R	Y
	Non-ionic surfactants									
20	C8 A 1-5 EO	7.8	1000	0.0078			0.0078	0.05	R	Y

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
21	C 9/11 A, >3-6 EO predominantly linear	5.6	1000	0.0056			0.0056	0.05	R	Y
22	C 9/11 A, >6-10 EO predominantly linear	5	1000	0.005			0.005	0.05	R	Y
23	C 9/11 A, 5-11 EO multibranched	1	1000	0.001			0.001	0.05	R	O
24	C10 A, 5-11 EO multi br. (Trimer-propen-oxo-alcohol)	10	1000	0.01			0.01	0.05	R	Y
25	C 12/15 A, 2-6 EO predominantly linear	0.43	1000	0.00043	0.18	50	0.0036	0.05	R	Y
26	C12/14 5-8 EO 1 t-BuO (endcapped)	0.23	1000	0.00023	0.18	100	0.0018	0.05	R	O
27	C 12/15 A, 3-12 EO multibranched	1	1000	0.001	3.2	100	0.032	0.05	R	O
28	C 12/15 (mean value C<14) A, >6-9 EO	0.63	1000	0.00063	0.24	10	0.024	0.05	R	Y
29	C 12/15 (mean value C>14) A, >6-9 EO	0.4	1000	0.0004	0.17	10	0.017	0.05	R	Y
30	C 12/15 A, >9-12 EO	1.1	1000	0.0011			0.017	0.05	R	Y
31	C 12/15 A >12-20 EO	0.7	1000	0.0007			0.0007	0.05	R	O
32	C 12/15 A >20-30 EO	13	1000	0.013	10	100	0.1	0.05	R	O
33	C 12/15 A, >30 EO	130	1000	0.13			0.13	0.5	I	O
34	C 12/18 A, 0-3 EO	0.3	1000	0.0003			0.0003	0.05	R	Y
35	C 12/18 A, 5-10 EO	1	1000	0.001	0.35	100	0.0035	0.05	R	O
36	C 12/18 A, >10-20 EO	1	1000	0.001			0.0035	0.05	R	O
37	C 16/18 A, 2-8 EO	3.2	1000	0.0032	0.4	100	0.004	0.05	R	Y
38	C 16/18 A, >9-18 EO	0.72	1000	0.00072	0.32	10	0.032	0.05	R	Y
39	C 16/18 A, 20-30 EO	4.1	1000	0.0041			0.0041	0.05	R	Y
40	C 16/18 A, >30 EO	30	1000	0.03			0.03	0.5	I	Y
41	C12-15 A 2-6 EO 2-6 PO	0.78	1000	0.00078	0.36	100	0.0036	0.05	R	O
42	C10-16 A 0-3 PO 6-7 EO	3.2	5000	0.00064	1	100	0.01	0.05	R	O
43	Glycerin (1-5 EO) cocoate	16	1000	0.016	6.3	100	0.063	0.05	R	Y
44	Glycerin (6-17 EO) cocoate	100	1000	0.1			0.1	0.05	R	Y
45	C 12/14 Glucose amide	13	1000	0.013	4.3	50	0.086	0.05	R	Y
46	C 16/18 Glucose amide	1	1000	0.001	0.33	50	0.0066	0.05	R	Y

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
47	C 8/10 Alkyl polyglycoside	28	1000	0.028	5.7	100	0.057	0.05	R	Y
48	C8/12 Alkyl polyglycoside, branched	480	1000	0.48	100	100	1	0.05	R	N
49	C 8/16 or C12-14 Alkyl polyglycoside	5.3	1000	0.0053	1	10	0.1	0.05	R	Y
50	Coconut fatty acid monoethanolamide	9.5	1000	0.0095	1	100	0.01	0.05	R	Y
51	Coconut fatty acid monoethanolamide 4-5 EO	17	10000	0.0017			0.0017	0.05	R	Y
52	Coconut fatty acid diethanolamide	2	1000	0.002	0.3	100	0.003	0.05	R	O
53	PEG-4 Rapeseed amide	7	1000	0.007			0.007	0.05	R	Y
55	AE (C 6~12, 10~15 EO 8~12 PO)			0.02	1	50	0.02	1	P	N
	Amphoteric surfactants									
60	C12/15 Alkyl dimethylbetaine	1.7	1000	0.0017	0.1	100	0.001	0.05	R	O
61	alkyl C12/18 Amidopropylbetaine	1.8	1000	0.0018	0.09	100	0.0009	0.05	R	Y
62	C12/18 Alkyl amine oxide	0.3	1000	0.0003			0.0003	0.05	R	Y
	Cationic surfactants									
70	Alkyl trimethyl ammonium salts	0.1	1000	0.0001	0.046	100	0.00046	0.5	I	O
71	Alkyl ester ammonium salts	2.9	1000	0.0029	1	10	0.1	0.05	R	Y
	Preservatives									
80	1,2-Benzisothiazol-3-one	0.15	1000	0.00015			0.00015	0.5	I	N
81	Benzyl alcohol	360	1000	0.36			0.36	0.05	R	Y
82	5-bromo-5-nitro-1,3-dioxane	0.4	5000	0.00008			0.00008	1	P	O
83	2-bromo-2-nitropropane-1,3-diol	0.78	1000	0.00078	0.2	100	0.002	0.5	I	O
84	Chloroacetamide	55.6	10000	0.00556			0.00556	1	O	O
85	Diazolinidylurea	35	5000	0.007			0.007	1	P	O
86	Formaldehyde	2	1000	0.002			0.002	0.05	R	O
87	Glutaraldehyde	0.31	1000	0.00031			0.00031	0.05	R	O

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
88	Guanidine, hexamethylene-, homopolymer	0.18	1000	0.00018	0.024	100	0.00024	1	P	O
89	CMI + MIT in mixture 3:1 (§)	0.0067	1000	0.0000067	0.0057	50	0.000114	0.5	I	O
90	2-Methyl-2H-isothiazol-3-one (MIT)	0.06	1000	0.00006			0.00006	0.5	I	O
91	Methyldibromoglutaronitrile	0.15	1000	0.00015			0.00015	0.05	R	O
92	e-phtaloimidoperoxyhexanoic acid	0.59	5000	0.000118			0.000118	1	P	O
93	Methyl-, Ethyl- and Propylparaben	15.4	5000	0.00308			0.00308	0.05	R	N
94	o-Phenylphenol	0.92	1000	0.00092			0.00092	0.05	R	O
95	Sodium benzoate	128	1000	0.128			0.128	0.05	R	Y
96	Sodium hydroxy methyl glycinate	36.5	5000	0.0073			0.0073	1	O	O
97	Sodium Nitrite	87	10000	0.0087			0.0087	1	NA	NA
98	Triclosan	0.0014	1000	0.0000014	0.00069	10	0.000069	0.5	I	O
99	Phenoxy-ethanol	344	1000	0.344	200	100	2	0.05	R	O
	Other ingredients									
110	Silicon	250	1000	0.25			0.25	1	P	N
111	Paraffin	1000	10000	0.1			0.1	1	P	O
112	Glycerol	4400	5000	0.88			0.88	0.05	R	Y
113	Phosphate, as STPP(sodium tripolyphosphate)	1000	1000	1			1	0.15	NA	NA
114	Zeolite (Insoluble Inorganic)	1000	1000	1	175	50	3.5	1	NA	NA
115	Citrate and citric acid	825	1000	0.825	80	50	1.6	0.05	R	Y
116	Polycarboxylates	200	1000	0.2	106	10	10.6	1	P	N
117	Nitrilotriacetat (NTA)	494	1000	0.494	64	50	1.28	0.05	R	O
118	Ethylenediaminetetraacetic acid (EDTA)	121	1000	0.121	22	50	0.44	0.5	I	N
119	Phosphonates	650	1000	0.65	25	50	0.5	1	P	N
120	ethylenediaminedisuccinate (EDDS)	320	1000	0.32	32	50	0.64	0.05	R	N
121	Clay (Insoluble Inorganic)	1000	1000	1			1	1	NA	NA
122	Carbonates	250	1000	0.25			0.25	0.15	NA	NA
123	Fatty acids C>=14	3.7	5000	0.00074			0.00074	0.05	R	Y
124	Silicates	250	1000	0.25			0.25	1	NA	NA

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
125	Polyasparaginic acid, Na-salt	410	1000	0.41			0.41	0.05	R	N
126	Perborates (as Boron)	14	1000	0.014			0.014	1	NA	NA
127	Percarbonate (See carbonate)	250	1000	0.25			0.25	0,15	NA	NA
128	Tetraacetylethylenediamine (TAED)	250	1000	0.25	500	100	5	0.05	R	O
129	C1-C4 alcohols	1000	1000	1			1	0.05	R	Y
130	Mono-, di- and triethanol amine	90	1000	0.09	0.78	100	0.0078	0.05	R	Y
131	Polyvinylpyrrolidon (PVP)	1000	1000	1			1	0.5	I	N
132	Carboxymethylcellulose (CMC)	250	5000	0.05			0.05	0.5	I	N
133	Sodium and magnesium sulphate	1000	1000	1	100	100	1	1	NA	NA
134	Calcium- and sodiumchloride	1000	1000	1	100	100	1	1	NA	NA
135	Urea	1000	5000	0.2			0.2	1	NA	NA
136	Silicon dioxide, quartz	1000	1000	1			1	1	NA	NA
137	Polyethylene glycol, MW>4000	1000	10000	0.1			0.1	1	P	N
138	Polyethylene glycol, MW<4000	1000	10000	0.1			0.1	0.05	R	O
139	Cumene sulphonates	450	1000	0.45			0.45	0.5	I	N
140	Na-/Mg-/KOH	30	1000	0.03			0.03	0,05	NA	NA
141	Enzymes/proteins	25	5000	0.005			0.005	0.05	R	Y
142	Perfume, if not other specified (**)	2	1000	0.002			0.002	0.5	I	N
143	Dyes, if not other specified (**)	10	1000	0.01			0.01	1	P	N
144	Starch	100	1000	0.1			0.1	0.05	R	Y
145	Anionic polyester	655	1000	0.655			0.655	1	P	N
146	poly-2-vinylpyridine-N-oxide (PVNO) Povidone-iodine (PVPI)	530	1000	0.53			0.53	1	P	N
147	Zn Ftalocyanin sulphonate	0.2	1000	0.0002	0.16	100	0.0016	1	P	N
148	Iminodisuccinat	81	1000	0.081	17	100	0.17	0.05	R	N
149	FWA 1	11	1000	0.011	10	100	0.1	1	P	N
150	FWA 5	10	1000	0.01	1	10	0.1	1	P	N
151	1-decanol	2.3	5000	0.00046			0.00046	0.05	R	O
152	Methyl laurate	1360	10000	0.136			0.136	0.05	R	O

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
153	Formic acid (Ca salt)	100	1000	0.1			0.1	0.05	R	Y
154	Adipic acid	31	1000	0.031			0.031	0.05	R	O
155	Maleic acid	106	1000	0.106			0.106	0.05	R	Y
156	Malic acid	106	1000	0.106			0.106	0.05	R	O
157	Tartaric acid	200	10000	0.02			0.02	0.05	R	O
158	Phosphoric acid	138	1000	0.138			0.138	0.15	NA	NA
159	Oxalic acid	128	5000	0.0256			0.0256	0.05	R	O
160	Acetic acid	30	1000	0.03			0.03	0.05	R	Y
161	Lactic acid	130	1000	0.13			0.13	0.05	R	Y
162	Sulphamic acid	75	1000	0.075			0.075	1	NA	NA
163	Salicylic acid	46	1000	0.046			0.046	0.15	R	O
164	Glycollic acid	141	5000	0.0282			0.0282	0.05	R	O
165	Glutaric acid	208	5000	0.0416			0.0416	0.05	R	O
166	Malonic acid	95	5000	0.019			0.019	0.05	R	O
167	Ethylene glycol	6500	1000	6.5			6.5	0.05	R	Y
168	Ethylene glycol monobutyl ether	747	5000	0.1494			0.1494	0.05	R	O
169	Diethylene glycol	4400	10000	0.44			0.44	0.05	R	Y
170	Diethylene glycol monomethyl ether	500	1000	0.5			0.5	0.15	R	O
171	Diethylene glycol monoethyl ether	3940	5000	0.788			0.788	0.05	R	O
172	Diethylene glycol monobutyl ether	1254	1000	1.254			1254	0.05	R	O
173	Diethylene glycol dimethyl ether	2000	10000	0.2			0.2	0.5	I	O
174	Propylene glycol	32000	1000	32			32	0.15	R	Y
175	Propylene glycol monomethyl ether	12700	5000	2.54			2.54	0.05	R	O
176	Propylene glycol monobutyl ether	748	5000	0.1496			0.1496	0.05	R	O
177	Dipropylene glycol	1625	10000	0.1625			0.1625	0.05	R	O
178	Dipropylene glycol monomethyl ether	1919	5000	0.3838			0.3838	0.05	R	O
179	Dipropylene glycol monobutyl ether	841	5000	0.1682			0.1682	0.05	R	O
180	Dipropylene glycol dimethyl ether	1000	5000	0.2			0.2	0.5	I	O

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
181	Triethylene glycol	4400	1000	4.4			4.4	0.5	I	O
182	Tall oil	1.8	1000	0.0018			0.0018	0.5	I	O
183	Ethylenebisstearamides	140	5000	0.028			0.028	0.5	I	O
184	Sodium gluconate	10000	10000	1			1	0.05	R	O
185	Glycol distearate	100	5000	0.02			0.02	0.05	R	Y
186	Hydroxyl ethyl cellulose	209	5000	0.0418			0.0418	1	P	O
187	Hydroxy propyl methyl cellulose	188	5000	0.0376			0.0376	1	P	O
188	1-methyl-2-pyrrolidone	500	1000	0.5			0.5	0.05	R	O
189	Xanthan gum	490	1000	0.49			0.49	0.05	R	O
190	Trimethyl Pentanediol mono-isobutyrate	18	1000	0.018	3.3	100	0.033	0.05	R	O
191	Benzotriazole	29	1000	0.029			0.029	1	P	O
192	Piperidinol-propanetricarboxylate salt	100	1000	0.1	120	100	1.2	0.5	I	O
193	Diethylaminopropyl-DAS	120	1000	0.12	120	100	1.2	1	P	O
194	Methylbenzamide-DAS	120	1000	0.12	120	100	1.2	0.5	I	O
195	Pentaerythritol-tetrakis-phenol-propionate		1000	0.038			0.038	1	P	O
196	Block polymers (***)	100	5000	0.02			0.02	1	P	N
197	Denatonium benzoate	13	5000	0.0026			0.0026	1	O	O
198	Succinate	374	10000	0.0374			0.0374	0.05	R	O
199	Polyaspartic acid	528	1000	0.528			0.528	0.05	R	N
200	Xylene Sulphonate	230	1000	0.23	31	100	0.31	0.5	I	N
201	Proteinhydrolizates, wheatgluten	113	5000	0.023			0.023	0.05	R	O
202	Fatty acid, C6-12 methyl ester	21	10000	0.0021			0.0021	0.05	R	O
203	Mn-Saltren (CAS 61007-89-4)	39	1000	0.039	4.3	100	0.043	0.5	I	O
204	Tri-Sodium methylglycine diacetat	100	1000	0.1	16.7	50	0.334	0.05	R	O
205	Disilicates	1000	10	100				0.05	R	Y
206	Triethanolamine			0.078	0.78	10	0.078	0.05	R	Y
207	Calcium formiate			10				0.05	R	Y
208	Silica			10				0.05	R	Y
209	PEG, high MW (MW>4000)			10				1	P	Y
210	PEG, low MW (MW<4000)			10				0.05	R	Y

DID No.	Materials	Acute toxicity			Chronic toxicity			Biodegradability		
		LC50/ EC50	SF (Safety Factor)	TF (Toxicity Factor)	NOEC(*)	SF(*) (Safety Factor)	TF (Toxicity Factor)	DF (Degradation factor)	aerobic	anaerobic
211	Cumene sulfonate	66	100	0.66				0.05	R	N
212	Toluene sulfonate	66	100	0.66				0.05	R	N
213	Monosaccharides (mannitol, sorbitol)	40000	5000	8				0.05	R	Y
214	Hydrogen peroxide			0.016	1.6	100	0.016	0.05	R	Y
215	Magnesium chloride	32	5000	0.0064				0.05	R	Y
216	Ammonium chloride	109	5000	0.0218				0.05	R	Y
217	Boric acid			0.1	10	100	0.1	0.05	R	Y
218	Butylene glycol	1070	1000	1.07				0.05	R	Y

Note)Abbreviation

<Insoluble inorganic substance> Inorganic substance have no or a very low possibility of solution.

(*) If there is no chronic data, leave this column blank. In this case, identify TF(chronic) value with TF(acute)

(**) According to the general approval rules, be sure to use the data in this DID list. However, exclude incense and dyes. If a certification applicant submits toxicity data values, the submitted data may be used to calculate TF values or decide degradability. Otherwise, use the values in the list.

(***) Apply the application data on the aerobic biodegradation of DID no196 block polymer after presenting a test report

(#) Calculate TF value as an average of C 12/14 Alkyl sulphate (AS) and C 16/18 Alkyl sulphate (AS) for the lack of toxicity results.

(§) Mix 5-Chloro-2-Methyl-4-isothiazolin-3-one with 2-Methyl-4-isothiazolin-3-one at a rate of 3:1.

NOEC : No observed effect concentration, concentration having no influence on dosage concentration

EO : ethylene oxide

PO : propylene oxide

FWA 1 : disodium 4,4'-bis(4-anilino-5-morpholino-1,3,5-triazin-2-yl) amino stilbene-2, 2'-disulfonate

FWA 5 : disodium 4,4'-bis(2-sulfostryryl) biphenyl

<Aerobic degradation>

R : Means being easily biodegradable pursuant to the OECD Directives

I : Means being inherently biodegradable pursuant to the OECD Directives

P : Not biodegradable Failure in the test of inherent biodegradation

O : Test not performed

NA : Not applicable

<Anaerobic degradation>

Y : Biodegradable under aerobic conditions

N : Not biodegradable under aerobic conditions

O : Test not performed

NA : Not applicable

<Appendix 3> Data on Construction Methods not Existing in DID [Related to 3. Certification Standard (1)]

A. General Matters

(1) Data supporting documents for materials not existing in DID shall include authorized laboratory test reports, the company's internal experimental data, and LC50 and EC 50 data described in MSDS, risk assessment report, etc.

(2) However, in the event that a company's internal experiment data, experimental resources, and the data related to MSDS and risk assessment report are submitted, verification shall be conducted by the Eco-label certification review committee.

B. Data Construction Method

(1) Toxic Factor (TF)

(a) TF value shall be constructed by dividing the median value of numerical multiple toxicity tests [mg/L] by the uncertainty factor (SF). Herein, for the purpose of constructing the eco-toxicological assessment data, the acute or chronic toxicity data affecting green algae, daphnia and fish shall be considered.

Toxicity Data	Uncertainty Factor
Case in which NOEC data related to green algae, daphnia and fish exist	10
Case in which NOEC data exists for two of green algae, daphnia and fish	50
Case in which NOEC data exists for either green algae, daphnia or fish	100
Case in which L(E)C50 data related to green algae, daphnia and fish exist	1000
Case in which L(E)C50 data exist for two of green algae, daphnia and fish exist	5000
Case in which L(E)C50 data exist for either green algae, daphnia or fish	10000

Note1) In regard to the testing method, the following test method or equivalent methods can be applicable to OECD 201 green algae toxicity tests, OECD 202 daphnia toxicity tests, OECD 203, 204 fish toxicity tests: Regulations regarding the designation of research institutes of hazardous of chemical substances, <Appendix 2> Chemical substances testing method, 2. Ecological effect test, 1. Algae growth inhibition test, 2. Daphnia acute toxicity test, and 3. Fish acute toxicity test.

Note 2) The data extracted from QSARs (Quantitative Structure Activity Relationship)-(referring

to the following 1) can be used. However, there shall be 1 or two L(E)C 50 fish toxicity (LC50), green algae, daphnia and fish toxicity (EC50) data. In addition, you shall prove that the substance having L (E) C50 data shows the lowest toxicity value using NOEC of other homologue substance-(referring to the following 2) through quantitative structure activity relationships with the species.

1) QSAR represents an attempt to statistically correlate a descriptor (hydrophobicity, shape, electronic properties and spatial layout of the atom) on the chemical structure and properties of the mixture and activity (including chemical measurement and biological analysis). The object of QSAR is to search for substances including potential toxicity in light of ecological and public health needs and limited testing resources. If the characteristics of a compound are known, it will be possible to easily find suitable candidate material for the purpose using the characteristics identified through QSAR.

2) This refers to a group of compounds differentiated by CH_2 in the composition of organic compounds. The homologue substances include the very similar chemical properties and show the same reaction depending on the common functional groups. In addition, the physical properties such as melting point and boiling point vary regularly according to the increase of the number of carbon atoms. For example, LAS refers to the LAS including a different carbon coefficient, and AE refers to the AE including different added moles.

(2) Partition coefficient (DF)

(A) General Matters

Division	DF
Readily biodegradable - referring to note 1)	0.05
Readily biodegradable - referring to note 2)	0.15
Inherently biodegradable	0.5
Non-biodegradable	1

Note 1) In the following cases, although 10% or more of a 10-day window is non-biodegradable, it shall be considered as being readily biodegradable.

- Surfactant
- Substances composed of homologous substances and meeting the final biodegradation requirements (during 28 days, biodegradable of 60 to 70% or more)

Note 2) Case in which the final 28 days biodegradation is 60% or more, but non-biodegradation is 10% or more within 10 days.

(B) Inorganic substances

Division	DF
Biodegradable within 5 days	0.05
Biodegradable within 15 days	0.15
Biodegradable within 50 days	0.5

(C) Aerobic biodegradation ability

Division	Indication
Readily biodegradable	R
Inherently biodegradable, but not readily biodegradable	I
Persistent	P
Not tested for aerobic biodegradability	0

(4) Anaerobic biodegradation ability

Test or Non-test	Division	Indication
○	Not anaerobically biodegradable	N
	Anaerobically biodegradable	Y
X	There is no test result, but it will be verified by analogy. (e.g: The result of biodegradation prediction program developed by EPA such as BIOWIN)	
	-	0

Note 1) Name of Specifications

▪ KS M ISO 11734 [Water quality - Evaluation of the ultimate anaerobic biodegradability of organic compounds in digested sludge method by measurement of the biogas production]

▪ ECETOC Anaerobic biodegradation test (Technical Report No28, Evaluation of Anaerobic Biodegradation, 1988), or, OECD 311 (ready anaerobic biodegradability : gas production form diluted anaerobic sewage sludge)

Note 2) Explanation of Terms

▪ BIOWIN™: Estimates aerobic and anaerobic biodegradability of organic chemicals using 7 different models; two of these are the original Biodegradation Probability Program (BPP™). The seventh and newest model estimates anaerobic biodegradation potential.

Common Criteria, Notice No. 2012-36, the Ministry of Environment

1. Eco-label products must follow the following provisions with regard to the proper treatment of environmental pollution substances, such as air and water wastes and noxious chemical substances emitted in the process of manufacturing or service operation.

A. When first applying for certification, the product manufacturer should observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located for a period of one year prior to the date of application. Any case of violation of the penalty clause will be verified by confirming documents involved during a period of one year to the date of application. Regarding any violation not related to the penalty clause, confirmation will be made on the completion of appropriate measures.

B. A person who has received a certification of eco-labeling shall observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located during the period of certification. However, regarding any violation besides a penalty, confirmation will be made on the completion of appropriate measures.

2. As a general rule, information for consumers shall be indicated on the surface of the product in such a way not to be easily erased. However, in case that indication on the surface of the product is impossible or undesirable, it can be indicated on the appropriate part such as product packaging, product guidebook and user's manual that consumers can recognize. However, the service information should be indicated inside and outside of the place of service operation. In case that indication inside and outside of the place of service operation is impossible or undesirable, it can be indicated on the appropriate part such as an agreement, letter of delivery, letter of guarantee, and PR materials that consumers can recognize.

3. In order to establish fair trade and to protect consumer, the applicant for eco-label and the holder of eco-label license shall observe the Act on the Fairness of

Indication and Advertisement with respect to the environmental aspects of the product.

4. For Various standards referred in the certification criteria by target product, the latest revised edition applies at the date of application, if not specified otherwise.

5. In applying the quality related criteria for each target product, if no standard is available that can be applied as the quality criteria, the president of Korea Environmental Industry & Technology Institute (KEITI) (hereafter referred to as "president of KEITI") may establish and operate the quality criteria for the product involved after review by a competent committee.