

**Draft**

About Swan-labelled

# **Dishwasher detergent**

Version 4.0

**Background to ecolabelling**

**Date**



**Nordic Ecolabelling**

## Swan-labelled dishwasher detergent - Background to ecolabelling

017 / 4, Date

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# 1 Summary

The criteria document for dishwasher detergent covers detergents intended for household machines. Rinsing agent may be included if it is in combination with the dishwasher detergent.

The most significant aspect in the LCA for dishwasher detergent comes from the energy required to warm the water used during washing. Following this, in order of importance, are chemicals, manufacture and distribution. The greatest environmental gains can be achieved by lowering the wash temperature from 65°C to 55°C.

In this review, a holistic approach has been adopted with a focus on sustainability.

Dishwasher detergent contains chemicals such as alkalis, water softeners, bleaching agents, surfactants, protective colloids and corrosion inhibitors. To ensure the product's performance and to minimise energy consumption, it is required that the detergent shall produce satisfactory results in a 55°C performance test. In addition, requirements are set on packaging, dosage and consumer information.

## 2 General facts about the criteria

### Products that can be labelled

This document covers dishwasher detergent and dishwasher detergent with an associated rinsing agent for domestic dishwashers. The rinsing agent may be integrated in the product or belong to the same product series. Rinsing agent alone **cannot** be labelled. If the rinsing agent is a separate product, the combination of the rinsing agent and dishwasher detergent must fulfil the ecolabelling requirements.

### Relevance – potential – controllability

#### Relevance

The use of dishwasher detergent can lead to eutrophication and the spread of toxic and persistent substances. Energy consumption and distribution lead to CO<sub>2</sub> emissions. Waste from packaging is a further problem.

#### Potential

There are differences in the fill ratio, required dosage and chemical content of dishwasher detergents. It is therefore possible to set requirements to differentiate products.

#### Controllability

This product group is suitable for Swan labelling. The retail trade is interested in selling ecolabelled dishwasher detergents. The label communicates complex information to the consumer in a simple way. The energy consumption of the wash cycle, which is the most significant aspect of the life cycle, is not considered to be controllable with these criteria.

Further, many consumers use energy efficient wash programmes to save energy and for environmental reasons.

## Criteria version and validity

The first version of the criteria document was adopted by the Nordic Ecolabelling Board on 3 September 1993. The criteria have focused on three areas: chemicals, packaging and function. The criteria have previously been revised twice.

### *Version 1, 1993-09-03*

Requirements on toxic and ecotoxic aspects. The criteria also include requirements on surfactants, other chemical substances, packaging, dosage and wash performance (with function test).

### *Version 2, 1997-02-06*

The most significant change in this version was the addition of a worksheet for points calculation and Nordic Ecolabelling's chemical list.

### *Version 3, 2002-12-17*

This version prohibits perborates.

## The Nordic market

The use of household dishwasher detergents in Sweden in 2005 totalled 5000 tons/year, of which 70% of detergents were tablets and 30% powders. In Finland in 2005, consumption totalled 4,300 tons/year and the proportion of powder was somewhat higher than the proportion of tablets. In Norway, dishwasher detergent use in 2006 totalled 3,200 tons, of which 33% was tablets and 67% powder. The Nordic market for dishwasher detergent for professional use is roughly 500 ton and is divided 85% powders and 15% tablets.

## Other labels

### **European Eco-label – the Flower**

The EU Flower has an equivalent ecolabel for dishwasher detergents for household machines that has existed since 1999. The requirements are similar to version 3 of the Swan criteria for dishwasher detergent, and include a scoring matrix and performance requirements. The mandatory requirements in the new Swan criteria are still largely the same as the Flower criteria. Also, classification is reported in the same way in the new Swan criteria as in the Flower criteria.

### **Good Environmental Choice**

The Swedish Society for Nature Conservation has issued Good Environmental Choice criteria for dishwasher detergents that apply to both household machines and professional use. There are currently xx licences. The Good Environmental Choice criteria are currently being revised. The society will publish a document that applies to all chemical products.

### **Swedish Environmental Management Council and EKU**

The EKU instrument has been designed in Sweden as a tool for public procurement. EKU lays down basic requirements of various products and services as guidelines for procuring authorities. The Swedish Environmental Management Council is responsible for the EKU instrument. Criteria are available for chemical products for professional cleaning.

### **Environmental Management System**

The ISO 14001 and EMAS environmental management systems can in some regards be considered competitors, but ecolabelling can also be a simple way to attain a goal. Since increasing numbers of consumer companies choose to apply for ISO certification, the purchase of ecolabelled dishwasher detergent may be one step in improving environmental activities.

## **3 About the revision**

### **Background**

The previous revision concluded that, using the existing principles for establishing requirements, there was limited scope of tightening criteria and raising environmental benefit. The group therefore decided to develop criteria with a combination of point score and mandatory requirements, and introduce totally new criteria based on sustainability. However, the group found it unsuitable to set requirements on the manufacture of the dishwasher detergent, since this is a fairly low-intensity process with regard to energy consumption, water consumption and emissions.

### **Purpose of the revision**

The purpose of the revision is to generate at least one measurable environmental benefit through innovation and the inclusion of sustainability in a life-cycle perspective.

### **Activity plan:**

Meetings with stakeholders began at an early stage.

The following areas were considered in the revision:

Dosage

Phosphates

Performance test

Packaging

Multi-function tablets

Fragrances

Environmentally hazardous substances

Rinsing agent

Surfactants

Zinc

Action plans

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## 4 Justification of the requirements

The majority of mandatory requirements concern the use of chemicals.

### Recipe

To confirm that all requirements regarding chemicals are fulfilled, the applicant must provide details of the composition of the dishwasher detergent and, if applicable, rinsing agent.

The exact recipe shall include the trade name, chemical name, quantity, CAS register number and DID number of each ingredient.

### DID-list

The DID-list is common to the European ecolabel and Nordic Ecolabelling. The list has been established in collaboration with stakeholders from consumer organisations, environmental bodies and industry. The list contains information on the toxicity and degradability of substances that may be used in chemical products. The DID-list does not show which substances can be used in ecolabelled products.

The DID-list cannot be used to document the toxicity of individual substances for classification purposes. For this purpose, MSDS, pertinent literature and information from the raw material supplier shall be used.

The DID-list is available from the ecolabelling body in each country and their websites.

Valid to these criteria is the DID-list established in June 2004 or later.

### Classification of the product

Requirements are stipulated that the product must not be classified as environmentally hazardous, toxic, corrosive or harmful since the Swan aims to minimise the health and environmental impact of the dishwasher detergent. It is today straightforward to make performance dishwasher detergents that are not subject to classification.

### Carcinogenic, reproduction toxic and mutagenic substances

Biological effects on the environment and humans occur that we are presently unable to explain. One of the reasons may however be the dispersion of chemicals. One goal is to free

the environment from substances that are created or extracted industrially and that may pose a threat to human health. These substances are considered particularly harmful to humans, often over long periods and diffuse exposure. Swan ecolabelling therefore has a general ban on such substances.

## **Environmentally hazardous substances**

Persistent substances may cause environmental problems now or in the future. The consequences can be very serious if such a substance also has high acute toxic effects. Accordingly, there is a general prohibition against substances carrying the risk phrase R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (common to fragrances).

The inclusion of substances classified as toxic, harmful and persistent (R51-53 and R52-53) is controlled by the same upper limit as in the previous version and a points score.

Substances that are classified as very toxic to aquatic organisms (R50) are not subject to requirements since these are often highly reactive and readily biodegradable. Used for this application, we do not consider such substances to present a significant risk of environmental impact in the receiving body of water or sewage treatment plant. Accordingly, no special requirements are set for these substances but they are covered by the CDV calculation.

Performance improving additives are used in several products, such as zinc compounds for glass protection and benzotriazol for metal protection. Zinc in readily soluble compounds and as zinc ions are environmentally harmful and subject to R50-53, while certain non-readily soluble zinc salts are not classified. Test institutes and manufacturers have notified us that glass corrosion primarily occurs at temperatures above 65 degrees Celsius, which is the temperature used to test the effect of a product.

Since we require that a temperature of 55 degrees be recommended to consumers and used for testing, glass corrosion should be limited. We can therefore not justify special treatment for zinc compounds carrying R50-53. Nor have we received concrete indicators of any environmental benefit of such additives, such as fewer rewashes and longer service life of glass items. It is also difficult to justify a risk-based evaluation for the approval of such environmentally hazardous additives. In addition, significant environmental gains can be made by lowering the wash temperature.

Since we lack knowledge on how various compounds behave during and after the washing process and know, for example, that environmentally hazardous metal compounds can be released during the process, we should take the precaution of laying down requirements on substances that can be released during the washing process. It may be difficult to differentiate between products from the viewpoint of environmental impact purely based on the classification of the raw material.

**EDTA (ethylene-diamine-tetra-acetate and its salts), NTA (nitrilotriacetate) and DTPA** are suspected to mobilise heavy metals in certain environments due to the formation of complexes. EDTA is also not readily degradable. The toxicity to aquatic organisms of NTA is moderate to low. The results of degradability tests vary. NTA will in 2007 be classified as R40 and is readily biodegradable on the DID-list. Accordingly, both these substances are banned. DTPA has the same properties as EDTA.

More information about EDTA and risks can be found in the Official Journal of the European Union, (2006/C 90/04).

**Reactive chlorine compounds** are harmful on skin contact and if swallowed, and toxic to aquatic organisms. Chemical compounds that contain active chlorine can at high temperatures and high levels of soiling form dangerous organic chlorine compounds. Organic chlorine compounds can also form in the sewage system. These may be toxic, persistent and bioaccumulable. There are therefore good grounds to prohibit the use of active chlorine compounds. There are today less harmful and less environmentally hazardous alternatives available.

**Perborates** change in an aquatic environment to form hydrogen peroxide and borate ions. Borate ions react further to form boric acid. Boric acid (CAS 10043-35-3) has reproduction toxic properties. It is likely that perborates have the same properties. The reaction is reversible and depends on the pH of the solution. Borates and boric acid have been shown to have reproduction toxic effects on mammals, including the impairment of male fertility and foetal development. Borate is expected to be classified as reproduction toxic (Rep2, Rep3) in Europe. From an environmental viewpoint, an increase in the concentration of borates in bodies of water receiving large amounts of wastewater can be seen. A high concentration of borates in water that is used for irrigation can also produce problems with boron-sensitive plants such as potatoes. The environmental effects at today's concentrations are considered to have little significance, but a further increase could produce effects.

The prohibition of perborates is primarily due to their reproduction toxic properties and since less harmful and less environmentally harmful alternatives are now available.

**Surfactants** must be readily biodegradable. Ready biodegradability is a very important characteristic of organic substances. Persistent substances accumulate in the environment. These may present a present and future risk even though they do not cause acute toxicity. Knowledge about the long-term environmental effects of persistent substances is often inadequate. Rapid biodegradability in aerobic environments is therefore essential from an ecological viewpoint. The availability of readily biodegradable surfactants is considered good.

**Alkylphenoethoxylates (APEO)** are banned since their decomposition products are considered to be environmentally hazardous and since the EU has declared that certain APEOs cause hormonal imbalance (e.g. nonylphenol).

**Alkyl phenol derivatives (APD)** are derived from APEO. Their use is prohibited since they are harmful and not readily biodegradable.

**Linear alkylbenzene sulphonates (LAS)** are prohibited from use since they are toxic to aquatic organisms. Toxicity and biodegradability vary with carbon chain length and the position of the benzene ring.

**Enzymes** To reduce dust forming when added, enzymes that are used must be encapsulated or mixed in a slurry. This requirement is set to reduce working environment problems with enzymes during production of the detergent, since enzymes are given risk phrase R42 (May cause sensitization by inhalation). Major suppliers conform to this requirement.

**Fragrances** may be toxic to aquatic organisms, may not be readily biodegradable, may be allergenic and/or may bio-accumulate. Regarding detergent performance, fragrances are unnecessary. However, producers consider fragrances to be an important component that is demanded by customers. Fragrances are used to mask bad odours from the washing process and to give the product an fragrant identity in its packaging.

Of the 34 Swan-labelled products presently available, 23 contain fragrances. 6 of these 23 products contain fragrances that carry risk phrase R50-53. The majority of other fragrances carry R51-53 or R52-53.

The handling of dishwasher detergent is relatively confined which means that the risk of skin contact is limited. However, since the availability of fragrances besides the 26 listed allergens is good, requirements are set of the maximum content and declaration of these. The most significant requirement regarding fragrances is that regarding ecotoxicity. The requirements on environmentally hazardous substances thus also apply to fragrances. Several manufacturers have already started to replace environmentally hazardous substances and proved it is possible to use less dangerous substances.

The obligatory requirements treat fragrances as a substance. Formulations with fragrances can contain small quantities of environmentally hazardous substances. It is therefore justified to award a point score to fragrance-free formulations and recipes that do not contain substances classified as R51/53 or R52/53.

Since nitro-musk compounds have been found in mother's milk and food (fatty fish) and are also suspected to be carcinogenic, the following substances in fragrances are forbidden: musk xylene, musk ambrette, moskene, musk tibetine and musk ketone.

In addition, fragrances must fulfil IFRA's international guidelines for the selection of substances and levels, and EU legislation and declaration of allergens.

**Colorants** are not necessary for detergent performance. But the producers consider colorants to be important to sales and demanded by customers, above all to indicate different functions in tablets. All organic colorants in the product, introduced either as ingredients or through a raw material, shall be approved for use in foodstuffs or not be bioaccumulating ( $\log K_{ow} < 3.0$  or  $BCF < 100$ ).

Colorants approved as food additives have proven not to pose a significant environmental problem and their availability is good.

**Preservatives** are not included in the dishwasher detergents on the Nordic market since these are in solid form. Rinsing agents, however, may contain preservatives. These are intentionally harmful to micro-organisms and in many cases other organisms. Several are allergens and some may be bio-accumulating. Bio-accumulation is especially serious and thus prohibited for preservatives. Also, environmentally hazardous substance are subject to the requirement, i.e. substances carrying risk phrase R50-53 are prohibited. Our study of the list of contents of rinsing agents has shown it possible to formulate an agent without preservatives.

**Phosphates:** Nordic Ecolabelling believes it is important to aim towards phosphate-free products. However, Nordic Ecolabelling also believes that this should be done as suitable substitute complexing agents become available. In Norway, 3.8 wt% of phosphate is permitted in dishwasher detergent. Denmark has hard water and phosphates provide a superior complexing agent for such conditions. Phosphates also mean that the dosage can be reduced. Other complexing agents such as citrates necessitate a greater quantity of chemicals and thus increase the required dose. Nordic Ecolabelling promotes low dosage quantities since this reduces both chemical consumption and the impact of transport.

The present alternative to phosphates in dishwasher detergent is citrates and these appear to work well, for example in Norway, which currently has phosphate-free products. Also, 2-3 phosphate-free products are available outside Norway. The selection is limited but should increase if we and other players encourage their use. There is a total ban on other alternatives such as EDTA and NTA in ecolabelled products as discussed earlier.

The mandatory phosphate level has been lowered from 2.5 g/wash to 1.5 g/wash and has been augmented with a point score requirement rewarding phosphate-free products.

Despite most households in the Nordic region being connected to municipal sewers, many homes are not and thus pose a risk of phosphorous entering the aquatic environment. Therefore, the Swan requires clear information notifying whether the product contains phosphorous and if so that it must not be used if the house is not connected to municipal sewers.

Phosphates contribute to eutrophication, which primarily results from nitrogen and phosphorous. One result of the eutrophication of lakes, seas and waterways is oxygen deficiency, which leads to dead bottom zones. An excess of phosphorous can also lead to abnormally high levels of cyanobacteria in the summer. Phosphorous is also a limited resource subject to overmining and limited recycling. Phosphates can also contain heavy metals and contaminants.

**Phosphonates** are generally not readily biodegradable. The strong complexing properties, combined with limited biodegradability means that they can increase the mobility of heavy metals in sewage works and nature.

**Polyvinyl alcohol (PVA)** is used to replace the plastic film around tablets and thus eliminate the need to remove the packaging and direct contact with the tablet. PVA is water soluble and is dissolved during the wash. It makes up a considerable proportion of the organic material (or fossil origin) in the tablet. It is not known to be toxic or harmful to aquatic organisms and is generally fully biodegradable. PVA is generally treated as part of the formulation since it enters the waste water.

## **Limitations to the content of chemical substances**

Several of the most common substances have been assessed by Nordic Ecolabelling and are described in a separate DID-list. The substances in the dishwasher detergent and rinsing aid shall be evaluated based on the DID-list valid at the time of application. The parameter values

stated shall as a general rule be used for all components included in the "Detergents Ingredients Database" (version 30 June 2004 Part A). If the list does not include the substance, the applicant must provide documentation for the substance. The documentation shall be of good scientific quality and relevance. The method used for components that are not included is described in an appendix to the criteria document.

The parameters that are relevant in this document are critical dilution volume (CDV), which is regulated by both obligatory and point-score requirements. Surfactants that are aerobically non-biodegradable (aNBO) are prohibited and the total quantity of substances that are anaerobically non-biodegradable (anNBO) are controlled by a maximum limit. All limit values exclude water. The limit values are set based on know-how at Nordic Ecolabelling and detergents that currently hold a Swan licence.

No limits are set regarding the total quantity of aerobically non-biodegradables. These substances are controlled by the CDV calculation.

Requirements have been set to reduce the environmental impact from the dishwasher detergent. The aspects regulated are the emissions of chemicals, which can be:

Toxic, persistent or from the toxic products generated during degradation. The waste water passes via the sewage system, and often also a sewage works, to the recipient. This requires that the toxicity of the waste water and sludge from sewage works and levels of environmentally hazardous substances are as low as possible.

The CDV limit of 70,000 is a halving of today's limit, which also halves the products toxicity. Lower CDV levels are rewarded through a points score. The limit has been set with reference to the values of ecolabelled products based on the DID-list. Substances classed as R50/53 are excluded since these are prohibited in the new criteria.

## Dosage

Excessive dosage leads to over consumption of dishwasher detergent and unnecessary amounts of chemicals entering the sewage system. Dosage is to some extent self-regulating since dishwashers have a dispenser compartment of a limited sized. Nordic Ecolabelling considers dosage an important parameter. There is therefore a maximum limit and bonus points to promote lower quantities. The levels are based on present standard required dosages for dishwasher detergents or tablets with rinsing agent. Previously, the limit was 22.5 g/wash.

### Average dosage

- Tablet:	18.0 g/wash	(4)
- Tablet with rinsing agent:	20.5	(2)
- Tablet with water softener:	18.4	(6)
- Tablet with water softener and glass protector:	17.0	(6)
- Tablet with water softener, glass protector and rinsing agent:	19.5	(4)
- Powder	18.6	(3)
- Powder with water softener:	19.6	(5)
- Powder with glass protector	20.0	(2)

- Powder with rinsing agent: 20.0 (1)

## Point score requirements

Ecolabelling has eliminated older, problematic substances and current products have similar formulations, with the exception of zinc compounds. Simply tightening the present requirements would not lead to any significant environmental gains. To move forwards, Swan ecolabelling must widen its view from a mere chemical level and see the life cycle from a sustainability viewpoint.

By introducing a points system, we wish to make the document clearer and generate a mindset that produces greater environmental benefit from a life cycle perspective.

The most significant aspect in the LCA for dishwasher detergent comes from the energy required to warm the water used during washing and the mining and manufacture of certain primary products. However, it is difficult for ecolabelling to influence these parameters. Following these parameters, in order of importance, are environmentally hazardous chemicals, manufacture and distribution. The points awarded in point score requirements are weighted based on a life cycle perspective.

The parameters cover fragrances, phosphorous, environmentally hazardous substances, dosage and packaging. The points have been weighted based on three areas in which they impact on the environment. Fragrances, environmentally hazardous substances and phosphorous increase the chemical's environmental impact. Dosage reduces the quantity of chemicals that is used, and fill ratio and the weight-to-benefit influence distribution.

## Fill ratio

The fill ratio of dishwasher detergent packages, in particular tablets, has proven to be low. The ratio is often 55-60 % on store shelves. A higher fill ratio means less packaging material and makes distribution more efficient.

The requirement on weight-to-benefit ratio has proved unsuccessful regarding fill ratio. As a result a specific requirement on fill ratio has been introduced. A higher fill ratio gives a higher score. The fill ratio is calculated directly after filling during production and can be taken as an average for all sizes of packaging. The fill ratio is calculated as the number of doses per litre of package. The limit values are calculated based on retail packages.

Some manufacturers claim that the low fill ratios depend on the technical limitations of filling equipment and that the same packaging is used for promotional campaigns with extra detergent since stores wish to avoid different packaging sizes. Another reason is that consumers often choose a detergent from the visual size of the package rather than the price per wash. The Swan's present criteria on chemical content has also meant that international companies have reduced the size of their tablets but still use the same size of packaging as for larger tablets. There are however companies that claim that it is possible to fill packaging up to 85% full but that the detergent can compact during transport. And we have seen tablets packaged with a fill ratio of approximately 75-80%.

Furthermore, the EU packaging directive stipulates that packaging must not be underfilled and thereby seem to contain more than it actually does, also contributing to the transport of air. There is however a general opinion that packaging techniques do not allow a 100% fill ratio.

Weight-to-benefit ratio (WBR) is still a mandatory requirement to ensure present levels are maintained.

## **Packaging and consumer information**

Consumer information and washing advice are required to avoid incorrect, excessive dosage. This saves energy and resources and limits the amount of chemicals.

The recommended dosage must only be stated for soft water to avoid misunderstanding and overdosing. If the water is hard, the water can be softened with salt in the dishwasher instead of increasing the quantity of detergent.

To limit the quantity of packaging material, the weight-to-benefit ratio has been kept. The requirement has two parts: one for paper packaging and one for plastic packaging. Points are awarded for a high content of recycled material or favourable weight-to-benefit ratio. The requirement also includes a mandatory component.

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Weight-to-benefit ratio (WBR) is still a mandatory requirement to ensure present levels are maintained.

Plastic materials shall be marked in accordance with DIN 6120 part 2 or equivalent. The aim of the requirement is to make sorting and recycling simpler.

PVC and other chlorinated plastics must not be used for packaging or labels. This requirement prevents the use of plastic materials that can be problematic if burnt or during the removal of packaging.

### **Performance requirements**

The performance test is a quality and energy requirement that guarantees that washing performance is satisfactory at 55°C with the standard recommended dosage of the ecolabelled product. The dishwasher detergent is required to be equally as good as or better than a reference dishwasher detergent in the performance tests. Also new to these criteria is that the reference detergent can be one of three market-leading equivalent dishwasher detergents available on the Nordic market at the time of application, and that a product carrying the Flower label is sufficient to document the requirement. An appendix provides an example of a framework test.

### **Environmental and quality management**

This requirement is included to ensure that the requirements of the ecolabelling criteria are upheld during the period of the licence.

### **Laws and regulations**

This requirement ensures that the holder of an ecolabelling licence is responsible for following safety, working environment, labour, and facility-specific terms and concessions during the production of the ecolabelled product.

### **Marketing**

This requirement ensures that the ecolabelled product is marketed in compliance with "Regulations for Nordic Ecolabelling of Products" 2001-12-12.

### **Analyses and inspection**

To ensure that sampling and testing are performed thoroughly and impartially, requirements are set for the test institute/analysis laboratory and ecotoxicological test methods.

## **5 Changes from the previous version**

The definition of the product group has been changed so that rinsing agent combined with a detergent can be ecolabelled.

R50-53 have been forbidden.

The requirement regarding R50 has been omitted.

Rather than stating the quantity of phosphorous, the same text as use for washing detergent shall be included. The text states that households not connected to a district wastewater system should not use phosphate based products. The limit for phosphates has been tightened 1 g/wash.

Rather than a scoring matrix, the criteria contains point score requirements. These are also based on different requirements. The parameters cover fragrances, phosphates, environmentally hazardous substances, dosage and packaging. The requirement on GN has been transferred to a CDV requirement based on the DID-list. The limit value has been halved.

A requirement on fill ratio has been introduced.

Regarding the performance test, the addition has been made that one of three market-leading dishwasher detergents that are well-established on the Nordic market at the time of application may also be used as the reference detergent. An example of an approved framework test is also given.

Example of how two fictitious products fair in the new criteria.

*(The figures in the table are fictitious but realistic for dishwasher detergent.)*

<b>Product</b>	<b>Tablet</b>	<b>Powder</b>
<b>Substance classed as R50/53</b>	Yes (not permitted)	No
<b>CDV</b>	160,000	30,000
<b>P content</b>	2.0 g/wash - must be reduced to 1.5 g/wash	Approx. 1.0 g/wash - permitted
<b>IAN</b>	1.0 - permitted	0.3 - permitted
<b>Dosage</b>	19 g - permitted	18 g - permitted
<b>Point score requirement:</b>		
<b>Fragrances</b>	Contains fragrance = 0 p	Fragrance free = 1 p
<b>CDV</b>	>50,000 = 0 p	30,000 = 2 p
<b>Phosphorous</b>	Contains P = 0 p	Contains P = 0 p
<b>Dosage</b>	19 g = 1 p	18 g = 0 p
<b>Fill ratio</b>	31 = 2 p	25 = 1 p
<b>Total score</b>	3 p = not OK	4 p = not OK

For the **tablet** to score 5 points requires that the CDV is cut 110,000 (69%) (2 p) or the dosage is lowered 4 g/wash (21%) (2 p). Both alternatives give two points. There are also many other possible combinations.

For the **powder**, the CDV must be lowered 5,000 (17%) (1 p extra) or the dosage lowered 1 g/wash (6%) (1 p). Either alternative gives the required extra point.

## 6 New criteria

In future criteria, sustainability aspects will be reviewed. We will consider the possibility to stipulate requirements as to the origin, extraction, production and supply of the primary products. Further, whether there is an immediate need to impose a total ban on phosphorous will be considered. The present document states that a requirement on renewable raw materials should be evaluated. We have concluded that such a requirement is not possible today but that it will be relevant in the future. One example is citrates, which can be produced from both renewable and finite raw materials.

## 7 References

*Bra kemval för tvätt och rengöring* version 2, 1998, Miljöförvaltningen Göteborg/Stockholm vatten AB.

CHEMICALS SECTION 3, PART1: PRINCIPLES AND STRATEGIES RELATED TO THE TESTING OF DEGRADATION OF ORGANIC CHEMICALS

INTRODUCTION TO THE OECD GUIDELINES FOR TESTING OF Swedish Chemicals Inspectorate, Sweden

KTF, Sweden

Licensees in Denmark, Finland, Norway and Sweden

Ecolabelling of dishwasher detergent, version 3.1

Stockholm vatten

Swan-labelling of hand dishwash detergents, version 3.0

Swan-labelling of laundry detergents and stain removers, version 5.1

Chemical Industry Federation of Finland