



## CHARTER UPDATE 2010: ASP SUBSTANTIATION DOSSIER: AUTOMATIC DISHWASHING (ADW) DETERGENTS - FINAL VERSION 23 FEBRUARY 2012-

*A.I.S.E. is the voice of the Soaps, Detergents and Maintenance Products Industry in Europe. Its membership comprises of 37 National Association in 42 countries and 9 companies that are direct members. In total, A.I.S.E. represents more than 900 companies that are involved in the household market and/or in the Industrial & Institutional cleaning domain, thus representing the vast majority of the companies in this domain.*

### 1) Introduction

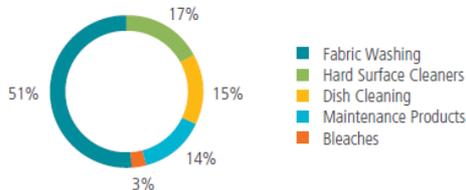
A.I.S.E. strongly believes that it has a key role to play in driving mainstream changes for more sustainable consumption and production patterns. In this spirit, it has developed and implemented over the last 14 years a number of voluntary initiatives aimed at the whole sector. The objective of these various initiatives is to help drive sustainability/environmental improvements for the majority of products in its sector, by steering all players towards more sustainable practices in the industry and helping to deliver substantial savings of resources to society.

Its main horizontal project is the **A.I.S.E. Charter for Sustainable Cleaning**. Launched in 2004, this voluntary initiative is a comprehensive life-cycle-based framework for promoting a common industry approach to sustainability improvement and reporting.

From the outset, the Charter has been seen as a living scheme, with a broad commitment to update it regularly. In October 2010, A.I.S.E. launched the “**Charter Update 2010**”. A key component of the Charter Update 2010 is the addition of a product dimension. The inclusion of a product dimension further strengthens the scheme by enabling it to more completely cover the whole life of a product in terms of sustainability, from manufacturing to end-use. This will also signal to consumers that a product is environmentally compatible, allowing them to make a more informed choice of products. This is achieved by creating “**Advanced Sustainability Profiles**” (ASPs) for each major product group. The ASPs are designed to determine a set of minimum criteria that a product must meet, in order to be considered as an example of a product with a good sustainability profile.

**This document provides details on the processes used to develop the Advanced Sustainability Profile for the product group “Automatic dishwashing detergents (powders and unit doses with rinse function, powders and unit doses without rinse function and liquids) for household use”.**

## 2) The market (EU, plus Norway and Switzerland)



A. Household	100%	Total EU 27+CH+NO million euros	Growth 2010 vs 2009 %
Fabric Washing	51%	14.500	0,8
Hard Surface Cleaners	17%	4.893	1,3
Dish Cleaning	15%	4.183	1,4
Maintenance Products	14%	3.987	1,5
Bleaches	3%	896	-2,8

Results: Aggregated Nielsen data

Source: A.I.S.E. Activity and Sustainability Report 2010-2011

### Dish cleaning:

=> 15 % of A.I.S.E. total household market value; the industry's third biggest market in Europe.

=> Market Value: 4.18 billion Euros in 2010

Estimated proportion for the value of Automatic Dishwashing Detergents: about 50 % i.e. about 2.09 billion Euros.

Market volume 2010: 321,800 tonnes

- Tablets: 212,000 tonnes (66 %)
- Powders: 93,700 tonnes (29 %)
- Liquids: 16,100 tonnes (5 %)

(Source: Euromonitor)

## 3) ASP principles

The principles applied to the setting of the ASP criteria are as follows:

1. The ASP criteria should represent a target that is **aspirational, but reasonably achievable by all using readily available technology**. Our vision is that the product within the category should be able to achieve the ASP targets within a reasonable timeframe.
2. The ASP criteria will reflect as completely as possible the key drivers of reduced environmental impact (hot spots), as identified by Life Cycle Analysis (LCA).
3. The Advanced Sustainability Profile, like the Charter, is a living system, with the implicit intention to periodically review the criteria and thresholds in order to move the category in the direction of continuous improvement of sustainability.
4. The setting of ASP criteria must always follow the established evaluation and consultation process detailed in the next section.

## 4) Process for the development of ASPs for automatic dishwashing detergents

### 1. Identification of product category and installation of A.I.S.E. Task Force

The A.I.S.E. Sustainability Steering Group (SSG) proposed on 17 June 2010 to develop ASPs for automatic dishwashing detergents. The ASP Task Force; which was set up to develop such ASPs, met for the first time on 31 August 2010. It was composed of experts from eight companies, namely Dalli, Henkel, Jeyes, Luhns, McBride, P&G, ReckittBenckiser and Unilever. Work was coordinated by the A.I.S.E. Secretariat.

### 2. Development by the Task Force of ASP criteria and thresholds

Based on an existing generic Life Cycle Analysis [LCA] (see chapter 5) the TF identified relevant LCA parameters. In 2010 and 2011 a data collection on those parameters was organised by the A.I.S.E. secretariat. All eight companies represented in the TF provided data on a representative sample of the EU market<sup>1</sup>. It is on that basis that the calculations below have been made. The data was collected and aggregated under strict confidentiality by the A.I.S.E. secretariat.

### 3. Internal A.I.S.E. consultation and endorsement

This recommendation on the ASPs and thresholds was presented for approval to the SSG on 11 July 2011, the A.I.S.E. Legal Panel on 17 August 2011 and 26 September 2011 and the A.I.S.E. Board on 6 October 2011. In addition this dossier was developed in order to substantiate in a transparent way the processes and the proposed thresholds.

### 4. Industry consultation and activation

The ASPs and the substantiation dossier were subject to consultation with Charter member companies and the industry from 10 October till 30 November 2011. Companies were asked to comment/input on the relevance and technical feasibility of the proposed thresholds.

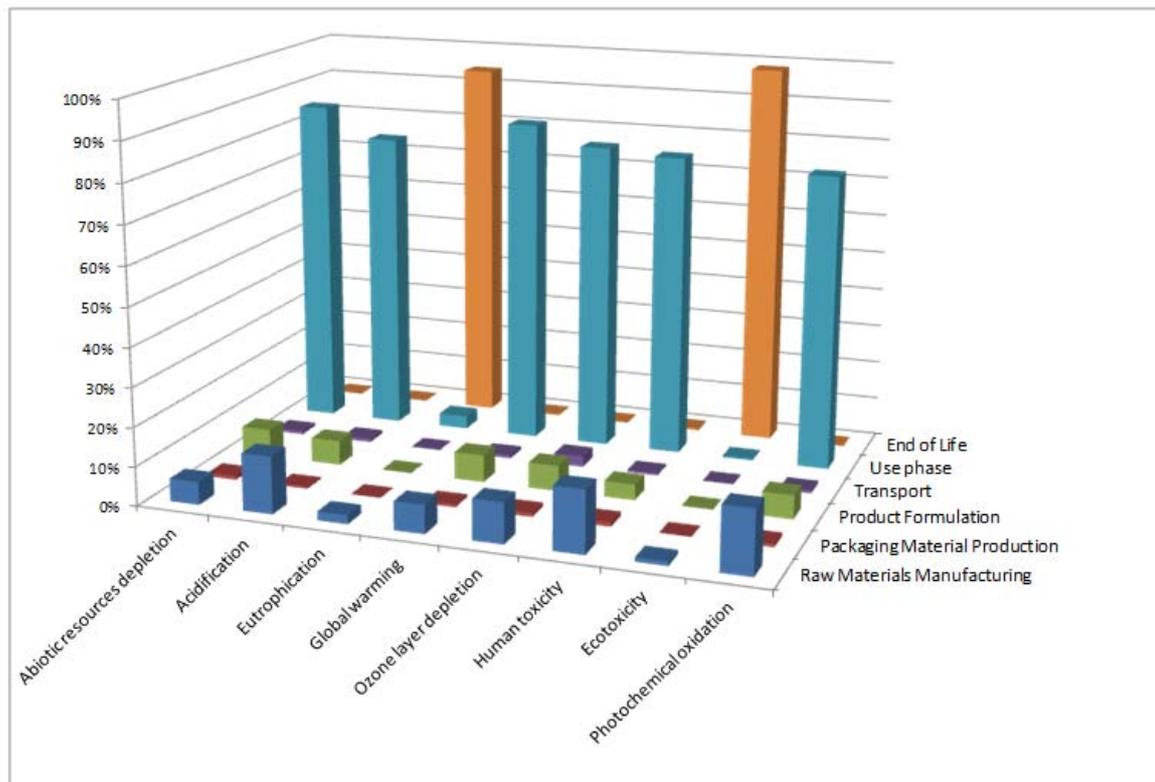
Based on the received input, these ASPs were finalised as part of the Charter and are made available to industry from 1 April 2012.

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<sup>1</sup> Data available at A.I.S.E. secretariat.

## 5) ASP criteria and rationale

Before the Charter ASP targets were set, a generic Life Cycle Analysis (LCA) on automatic dishwashing products was carried out, to get an understanding of the environmental impacts of the various stages of a detergent's life cycle.



The stages of the life cycle process considered were:

- raw material manufacturing
- packaging material production
- product formulation
- transport
- use phase
- end of life

and the parameters evaluated were:

- abiotic resources depletion
- acidification
- eutrophication
- global warming
- ozone layer depletion
- human toxicity
- ecotoxicity
- photochemical oxidation

The analysis confirms that most important factors in Life Cycle Analysis for automatic dishwashing detergents are as follows:

1. The most significant impact on the environment is in the use and disposal phases of the product's life, due to the significant amounts of energy and water consumed by the dishwasher. Therefore any LCA based criteria must take usage into account.
2. The second most important factor to reduce environmental impact is through the reduction in resources used to manufacture the product. By concentrating or compacting automatic dishwashing detergents, the use of chemical ingredients is reduced and this delivers significant savings in energy (hence CO<sub>2</sub>) and waste, as well as delivering substantial savings in freight as more product can be carried per truck.
3. Given that automatic dishwashing detergents end up as water-borne waste, it is essential that a more sustainable product poses a significantly reduced (or: minimized) risk for the environment. Therefore, all "down-the-drain" product categories must pass the Environmental Safety Check (ESC).
4. A further outcome of the analysis is the impact of automatic dishwashing products on eutrophication. Several studies, however, revealed that the relevance of phosphorous from automatic dishwashing detergents compared to phosphorus from other sources is minor for the aquatic ecosystem.  
A.I.S.E. is committed to working on the subject of eutrophication and has expressed that at this stage (2011), no sufficient cost-effective and good performing alternatives are widely available in the domain of automatic dishwashing detergents to allow such pan industry limitations. A.I.S.E. however considers that a future restriction on phosphates for household automatic dishwasher detergents could be acceptable for the sake of pan-European harmonisation of legislation, provided it is implemented at the right time, and in such a way that it does not restrict innovations.

Using the above life-cycle analysis as a starting point, the A.I.S.E. Task Force in charge of setting the ASP criteria for automatic dishwashing detergents worked on the following main components:

- activities at product level, under the direct control of manufacturers:
  - by determining a maximum dosage of ingredients per wash cycle
  - by determining a maximum dosage of packaging materials per wash cycle
  - by setting a minimum level of recycled content in primary and secondary packaging.
  - by allowing the use of 50° C or lower temperature wash programs
- activities at consumer level given that this represents the highest environmental impact:
  - providing on-pack guidance for the most sustainable product use

Implicit in the ASP criteria is that a product must deliver an acceptable level of performance at the 50° C or lower temperature programs.

In order for a product to meet the criteria of the Advanced Sustainability Profile, it must meet the conditions in each and every domain as detailed below:

**ASP Criteria for ADW powders and unit doses (e.g. tabs, gel sachets, liquid sachets) with rinse function**

The following requirements in each of these domains should be fulfilled in order to reach Advanced Sustainability Profile (ASP) status.

<p><b>Product formulation</b></p>	<p>Pass successfully Environmental Safety Check (ESC) on all ingredients</p> <p><b>AND</b></p> <p>Dosage g/job (1 dish wash cycle, normal soil, excluding free water from liquid / gel unit doses): <b>≤ 25 g</b></p>
<p><b>Packaging weight per job</b></p>	<p>Total (primary + secondary but excluding tertiary) packaging g/job: <b>≤ 3.5 g</b></p>
<p><b>Board packaging – recycled content</b></p>	<p>Minimum requirement: <b>≥ 60 %</b></p> <p><b>OR</b></p> <p>Where 100% of the board used is certified made from fibre sourced from sustainable forests under an endorsed certification standard such as FSC, SFI or PEFC: <b>no minimum.</b></p>
<p><b>Materials other than board – recycled content</b></p>	<p>No minimum, but any recycled plastic content may be excluded from the calculation of total packaging weight per job</p>
<p><b>End User Information</b></p>	<p><b>Safe use tips</b></p> <p><b>AND</b></p> <p><b>Autodish Cleanright Panel on-pack (see annex of ASP documentation)</b></p>
<p><i>Performance</i></p>	<p><i>Evidence has to be provided (in case of external verification organised by A.I.S.E.) that the product has been performance tested and reached a level acceptable to consumers consistent with claims made.</i></p>

**ASP Criteria for ADW powders and unit doses (e.g. tabs, gel sachets, liquid sachets) without rinse function**

The following requirements in each of these domains should be fulfilled in order to reach Advanced Sustainability Profile (ASP) status.

<p><b>Product formulation</b></p>	<p>Pass successfully Environmental Safety Check (ESC) on all ingredients</p> <p><b>AND</b></p> <p>Dosage g/job (1 dish wash cycle, normal soil, excluding free water from liquid / gel unit doses): <b>≤ 20 g</b></p>
<p><b>Packaging weight per job</b></p>	<p>Total (primary + secondary but excluding tertiary) packaging g/job: <b>≤ 3.5 g</b></p>
<p><b>Board packaging – recycled content</b></p>	<p>Minimum requirement: <b>≥ 60 %</b></p> <p><b>OR</b></p> <p>Where 100% of the board used is certified made from fibre sourced from sustainable forests under an endorsed certification standard such as FSC, SFI or PEFC: <b>no minimum.</b></p>
<p><b>Materials other than board – recycled content</b></p>	<p>No minimum, but any recycled plastic content may be excluded from the calculation of total packaging weight per job</p>
<p><b>End User Information</b></p>	<p><b>Safe use tips</b></p> <p><b>AND</b></p> <p><b>Autodish Cleanright Panel on-pack (see annex of ASP documentation)</b></p>
<p><i>Performance</i></p>	<p><i>Evidence has to be provided (in case of external verification organised by A.I.S.E.) that the product has been performance tested and reached a level acceptable to consumers consistent with claims made.</i></p>

### ASP Criteria for ADW liquids

The following requirements in each of these domains should be fulfilled in order to reach Advanced Sustainability Profile (ASP) status.

<b>Product formulation</b>	Pass successfully Environmental Safety Check (ESC) on all ingredients  <b>AND</b>  Dosage ml/job (1 dish wash cycle, normal soil): <b>≤ 35 ml</b>
<b>Packaging weight per job</b>	Total (primary + secondary but excluding tertiary) packaging g/job: Mono chamber style <b>≤ 4.5 g</b> Multi chamber style <b>≤ 6 g</b>
<b>Board packaging – recycled content</b>	Minimum requirement: <b>≥ 60 %</b>  <b>OR</b>  Where 100% of the board used is certified made from fibre sourced from sustainable forests under an endorsed certification standard such as FSC, SFI or PEFC: <b>no minimum.</b>
<b>Materials other than board – recycled content</b>	No minimum, but any recycled plastic content may be excluded from the calculation of total packaging weight per job
<b>End User Information</b>	<b>Safe use tips</b>  <b>AND</b>  <b>Autodish Cleanright Panel on-pack (see annex of ASP documentation)</b>
<i>Performance</i>	<i>Evidence has to be provided (in case of external verification organised by A.I.S.E.) that the product has been performance tested and reached a level acceptable to consumers consistent with claims made.</i>

### **Product formulation**

Based on the outcome of the Life Cycle Analysis, the LCA experts identified the concentration of a product as one of the key factors, in order to reduce the environmental impact. Following industry experts' opinion, a dosage of

- 25 g/job for powders and unit doses with rinse function (excluding water from liquid/gel unit doses)
- 20 g/job for powders and unit doses without rinse function (excluding water from liquid/gel unit doses)
- 35 ml/job for liquids

currently appears as the threshold that distinguishes a concentrated automatic dishwashing detergent from a diluted automatic dishwashing detergent when looking at the market. A survey of products, representing the automatic dishwashing detergent market in Europe has indicated that about 50 % of those products would meet the respective thresholds. Those experts who were involved in the ASP criteria and thresholds development (see page 1) have judged this level of ambition as a fair amount of products in the market that comply with the criteria. As one outcome of the consultation with industry, the proposed thresholds were confirmed.

### **Packaging**

Based on the outcome of the Life Cycle Analysis, the LCA experts identified the reduction of packaging as a further key factor, in order to reduce the overall environmental impact. The below mentioned thresholds have been proposed on the basis that those are achievable using readily available technology:

- 3.5 g/job for powders and unit doses with rinse function: about 50 % of the products representing the market meet this threshold
- 3.0 g/job (option 1) or 3.5 g/job (option 2) for powders and unit doses without rinse function: the ASP TF agreed to consult on those two options with industry; about less than 50 % of products, representing the market in Europe would fulfil the 3.0 g/job and about more than 50 % would meet the 3.5 g/job.
- 4.5 g/job for liquids mono chamber style and 6g/job for liquids multi chamber style: about 65 % of the products representing the market meet this threshold; since ADW liquids with rinse function are quite new and the segment has a low market penetration, developments of the market have to be monitored and thresholds might be reviewed soon.

The thresholds of 3.5g/job for powders and unit doses (for both formats, with and without rinse function) and 4.5 g/job for liquids mono chamber style and 6g/job for liquids multi chamber style were confirmed by the industry.



### **Packaging re-cycled content**

The data provided to A.I.S.E. of current re-cycled packaging content used by several major manufacturers, representing the majority of the automatic dishwashing detergents market, indicates that the percentage of re-cycled packaging material varies from 30 % to 80 %. A threshold of 60 % has been identified as achievable by manufacturing companies, using conventional technologies yet leading to environmental benefit. This is in line with existing ASP criteria for laundry detergents and fabric conditioners. The relevance of 60 % re-cycled packaging board was confirmed as one outcome of the consultation. As a further consultation outcome, a second option was added in order to fulfil this ASP criteria: the complete amount of packaging virgin board has to come from fibre sourced in a managed way, using certified forest content from an endorsed certification standard such as FSC, SFI or PEFC (FSC: Forest Stewardship Council; SFI: Sustainable Forestry Initiative; PEFC: Programme for the Endorsement of Forest Certification).

### **End user information**

Considerable savings, both environmentally (water, energy, CO<sub>2</sub>, chemicals), and economic (financial savings for consumers due to correct dosing and efficient use of the appliance), could be reached through better sustainable consumer behaviour. In addition to formulating products that are compact and efficient at lower temperatures, it is also key to continue providing the consumers with advice about dishwashing parameters. Companies will be requested to use the 'Autodish Cleanright Panel', introduced by A.I.S.E. in 2012 (see annex of advanced sustainability profiles), e.g. inviting consumers to use the 50° C or lower temperature programs. Evidence has to be provided that the product has been performance tested and fulfills a level acceptable to consumers consistent with claims made (e.g. the ability to perform at the 50° C or lower temperature programs). This was confirmed in the consultation.

## **6) Value of industry self-regulation**

A.I.S.E. has a long tradition of successful voluntary initiatives initiated for the whole industry (e.g. A.I.S.E. Code of Good Environmental Practice, A.I.S.E. Charter for Sustainable Cleaning, version 2005, Laundry Sustainability Projects), which have all achieved significant savings.<sup>2</sup>

In the specific case of a sustainability programme for automatic dishwashing detergents, the life cycle analysis developed in Section 5 of this report demonstrates that:

- Detergent concentration (formulation and packaging)
- Environmental Safety of ingredients
- Optimal use of the product at low temperature ...

... are the critical parameters to be addressed. It is A.I.S.E.'s view and experience that in these specific circumstances, industry association-led initiatives are more reliable than "business as usual"/individual company led initiatives for the following reasons:

- Detergent concentration: By raising the industry standards to the proposed levels of concentrations, this will help move the whole market to such standards in a self-regulatory way, as successfully as regulation whilst leaving innovation potential for companies.
- Environmental Safety; the ESC tool offers a common set of data that the whole industry can have access to, and against which they can benchmark their formulation; this offers a common level playing field for all market players in a free, public way that is also transparent to all stakeholders.
- Optimal use of products: A.I.S.E. has already had in place since 2006 the Save Energy and Water campaign to drive low temperature washing. The habits data generated have already indicated savings in consumer habits over the last 5 years. Common industry communication to drive

<sup>2</sup> After the 5 years of the "Code" initiative (ending 2001), the industry achieved: energy consumption – 6.4 % reduction per wash; laundry detergent use – 7.9 % reduction per capita, 16.0 % reduction per wash; packaging use – 6.7 % reduction per capita, 14.9 % reduction per wash; poorly biodegradable ingredients – 23.7 % reduction per capita, 30.4 % reduction per wash.

From 2006 to 2010, Charter member companies achieved: Chemicals covered by HERA: +10 %; Energy consumed per tonne of production: -13 %; CO<sub>2</sub> emitted per tonne of production: -14.3 %; Waste: -7.5 %; Water: -2.8 %; Products with at least two safe use icons: +129 %.

sustainable consumption, in line with other A.I.S.E activities such as the Washright campaign for laundry make a lot of sense, and also have the value of potentially being further relayed to the public by other stakeholders especially if they are industry led. This is because such an approach can build on and benefit from a coordinated communication campaign with consistent messages that can only be possible in such a context.

Moreover the potential of such initiatives has been increasingly recognized by the European Commission to the point that it has been explicitly addressed in the SCP/SIP Action Plan.

## 7) Expected benefits

With the implementation of the Advanced Sustainability Profile for automatic dishwashing detergents the following benefits are expected EU wide:

- Reassurance that ingredients in the product formulation have an environmental concentration at or below the predicted no-effect level for aquatic toxicity
- Optimal use of ingredients due to product compaction/concentration:  
→ **Expected benefits: 10,000 tonnes of ingredients**<sup>3</sup>
- Optimal use of packaging due to product compaction/concentration:  
→ **Expected benefits: 290 tonnes of packaging material.**
- Optimisation on transport  
→ **Expected benefits: About 500 truck journeys** due to reduction of product volume
- Savings on energy due to the use of lower temperature programs:  
→ **Expected benefits: About 500 million kWh**<sup>4</sup>
- Savings on water due to the use of lower temperature programs:  
→ **Expected benefits: About 5 billion litres of water**<sup>5</sup>
- Reassurance of companies' responsibility on sustainability
- Promotion of sustainable behaviour of end users

<sup>3</sup> This calculation is based on Euromonitor figures (see chapter 2) and experts' assumptions: Prior to the implementation of Charter ASPs for ADW detergents, it is estimated that about 15 % of the overall product volume do not fulfill the ASP requirements, representing about half of the ADW detergent powders market. For our calculation on potential ingredients' savings we assume that 50 % of regular products will be reformulated in order to fulfill the Charter ASP requirements. Since the volume of liquid automatic detergent products is negligible, this product category has not been taken into account for the calculation of expected benefits.

<sup>4</sup> Results are the outcome of calculations which are based on following input:  
- a total number of 12 billion washes per year in Europe can be derived from the overall volume of the ADW detergent market;  
- it is assumed that about 50 % of those consumers who use the 60° C and higher temperature programs will move to the use of 50° C or even lower temperature programs (28 % of European households use still the 60° C and higher temperature programs - see: URS: Potential impacts on Carbon emissions associated with automatic dishwashing as a result of the EU prohibition of Phosphate containing detergents, 2 March 2011 - analysis available at A.I.S.E. secretariat);  
- the energy use of standard wash programs per wash is 1.42 kWh, whereas the energy use for 50° C/lower temperature programs is 1.13 kWh - see: Final report: Preparatory Studies for Eco-design Requirements of EuPs - Lot 14: Domestic Washing Machines & Dishwashers, December 2007, page 299 ([http://www.ebpg.bam.de/de/ebpg\\_medien/014\\_studyf\\_08-12\\_part6-7.pdf](http://www.ebpg.bam.de/de/ebpg_medien/014_studyf_08-12_part6-7.pdf)).

<sup>5</sup> Results are the outcome of calculations based on available data – for references see footnote above; water saving per wash when using 50° C/lower temperature programs compared to the 60°C and higher temperature programs is about 3 litres (Based on analysis of average water consumption of common dish washers in Europe – data available at A.I.S.E. secretariat).



## 8) Timing

- From 10 October till 30 November 2011: Industry consultations on ASPs for automatic dishwashing detergents
- By 1 April 2012: Finalisation of ASP packages
- By 1 April 2012: Availability of ASPs to the industry
- 1 April 2012 till 31 March 2013: Preparation period for implementation of ASPs
- As from 1 April 2013: Activation – products complying with ASP requirements for automatic dishwashing detergents can start to appear on shelves with ASP logo