Title: Amendment to the Detergents Regulations 2010 **IA No:** DEFRA2075 **Lead department or agency:** Department for Environment, Food and Rural Affairs **Other departments or agencies:** HSE	**Impact Assessment (IA)** **Date:** 10/08/2016 **Stage:** Final **Source of intervention:** EU **Type of measure:** Secondary legislation **Contact for enquiries:** Barbara Anning, Area 3D, Nobel House, London SW1P 3JR 020 8026 2784 barbara.anning@defra.gsi.gov.uk

Summary: Intervention and Options

RPC Opinion: confirmed as a non-qualifying regulatory provision

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB on 2009 prices)	**In scope of One-In, Two-Out?**	**Measure qualifies as**
Not applicable	Not applicable	Not applicable	No	NA

What is the problem under consideration? Why is government intervention necessary?

Phosphorus pollution harms aquatic life in water bodies. Consumer automatic dishwasher detergents (CADDs) have recently contributed about 9% of the total phosphorus loading to the freshwater environment. The impacts on the water environment, and the costs imposed on water companies to deal with phosphorus from detergents, are externalities imposed by those who use dishwasher detergents. From 2017, EU regulation 259/2012 on detergents imposes a limit on the amount of phosphates in dishwasher detergents. The Regulation's limit helps to reduce pollution and the energy and chemicals used by the water industry in phosphorus removal from sewage treatment. The widely-known Regulation is directly applicable in the UK and has already led to changes in manufacturer practice, but UK regulations are needed to provide domestic enforcement mechanisms.

What are the policy objectives and the intended effects?

The policy objective is to prevent consumer automatic dishwasher detergents that do not conform with the relevant part of the EU Regulation from being placed on the market. The intended effects are to bring the UK enforcement framework into line with the EU regulation, to fully ensure reductions of phosphorus in the aquatic environment and avoid infraction risks associated with not having adequate enforcement arrangements.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Policy Option 1 - To amend UK regulation in line with the coming into force of dishwasher requirements in the European Regulation.
This option amends the UK regulations to prevent consumer automatic dishwasher detergents from being placed on the UK market if they contain phosphates above a specified limit. This option will: help to minimise the impact of phosphorus on the water environment; help to mitigate some of the operational costs faced by the water industry, by reducing the chemical usage and energy consumption used by larger waste water treatment plants in the removal of phosphorus; and will avoid the risk of infraction proceedings from the Commission for not providing for penalties for non-compliance with the EU regulation.
This is the preferred option.
Policy Option 2 - Do nothing.
If we do not update the existing legislation, the UK would be unable to enforce the EU Regulation and is at risk of infraction proceedings from the Commission if the enforcement of the relevant part of the Regulation is not adequately transposed into domestic law. A lack of enforcement could also have a negative impact on water quality although detergent manufacturers have already been working to reduce phosphorous levels for reputational reasons and given they operate across a number of EU markets.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 01/2022

Does implementation go beyond minimum EU requirements?			No		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** Yes	**< 20** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** N/A	**Non-traded:** N/A	

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

Signed by the responsible Minister Thérèse Coffey Date 29th November 2016

Summary: Analysis & Evidence

Policy Option 1

Description: To amend UK regulation in line with European Regulation

FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2016	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low:	**High:**	**Best Estimate:** Not applicable

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low				
High				
Best Estimate	Not applicable		Not applicable	Not applicable

Description and scale of key monetised costs by 'main affected groups'

None

Other key non-monetised costs by 'main affected groups'

Manufacturers regularly reformulate products and produce low phosphate products for other jurisdictions, so it is thought that there would be at worst very minor extra costs of product modification and artwork changes arising from regulation in UK. Manufacturers did expect that there could be slight reduction in profitability in some cases as the costs cannot be passed on in a highly competitive market. However manufacturers were unable to provide any further information on costs and it has not been possible to make any estimate beyond noting that this is minor.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low				
High				
Best Estimate	0		0	**0**

Description and scale of key monetised benefits by 'main affected groups'

None

Other key non-monetised benefits by 'main affected groups'

Preventing consumer automatic dishwasher detergents that do not conform with the relevant part of the EU Regulation from being placed on the UK market will provide assurance of a level-playing field for companies selling products within the UK and EU as part of the EU single market. It also has the benefit to the UK taxpayer of avoiding infraction proceedings. Alongside the EU Regulation (which applies directly), the domestic enforcement framework assessed in this IA will further help ensure the minimisation of environmental impacts and the reduction in the use and impacts of resources, chemicals and energy use for sewage treatment.

Key assumptions/sensitivities/risks **Discount rate (%)**

100% compliance, or very close to 100% is a reasonable assumption given the reputational risk to the companies involved and the length of lead in time they have had to comply.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 0	**Benefits:** 0	**Net:** Not applicable	No	NA

Evidence Base (for summary sheets)

Problem under consideration

Phosphorus in the environment is a nutrient, however when there is too much phosphorus in surface and ground waters it can have a serious impact on an ecosystem function and acts as a pollutant. Phosphorus is one of the main causes of freshwater eutrophication, the process by which human activities, such as runoff from agriculture, give rise to an excess of nutrients in rivers and lakes. This causes excessive growth of algae and plants, affecting the quality of the water and how we use it, as well as damaging the local ecology. Eutrophication increases the cost of drinking water abstraction and treatment, adversely affects angling, water sports and other recreational activities and detracts from the wildlife conservation interest of water bodies.

Standards for phosphorus in UK rivers and lakes were introduced under the Water Framework Directive (WFD) in 2009. Of all the water quality pressures, phosphorus is the most common cause of failure of WFD standards. Using Environment Agency classification data published in December 2015, 3,694 river water bodies (excluding canals and surface water transfers) in England were assessed for phosphate. Of those assessed, 2,022 (55%) were found to be below Good Status for phosphates. There were also 315 English lake water bodies assessed for total phosphorus, here the figure was even higher, with 228 (72%) of those water bodies below Good Status for total phosphorus.

Rationale for intervention

Sewage effluent is one of the main sources of phosphorus entering freshwaters, and detergents have been one source contributing to the phosphorus loading within this. Most recent figures indicate dishwasher detergents contributed around 9%[1] of the total phosphorus loading in 2013. Restriction in the use of phosphates in dishwater detergents (laundry detergents were restricted from 2013) will help to minimise the impact of phosphorus on the water environment.

Research[2] has suggested that, without regulation, the increasing ownership of automatic dishwashers is likely to negate any savings associated with the ban on phosphates used in laundry products within approximately a decade. Therefore restricting the use of phosphorus in dishwasher detergents would be a positive move in protecting the environment. The main author of the report has confirmed that this finding remains valid.

The environmental cost of removing phosphorus at Waste Water Treatment Plants (WWTP) is also significant. Since 2000 the water industry has invested around £1.3billion capital in reducing phosphorus loadings in sewage

Policy objective

EU Regulation 259/2012 already provides for an EU wide phosphate limit in laundry (by 2013) and dishwasher detergents (by 2017). These regulations apply directly though require supporting UK regulations to allow enforcement. We have already amended our UK enforcement regulations for laundry detergents, but we must now update our regulations to enforce the restriction on dishwasher detergents. The policy objective is to prevent consumer automatic dishwasher detergents (CADDs) that do not conform with this part of the EU Regulation from being placed on the UK market (including from non-EU countries).

By restricting the products on the market to only those that conform with the relevant part of the EU Regulation will help to reduce phosphorus in the aquatic environment and therefore improve water quality. Also the reduction in the use of resources for sewage treatment will reduce costs and the environmental impact of the treatment process.

Description of options considered (including do nothing)

Policy Option 1 - To amend UK regulation in line with the European Regulation.

EU Regulation 259/2012 provides for an EU wide phosphate limit in dishwasher detergents from 1st January 2017. This option amends the UK regulations to prevent CADDs that do not conform with this part of the EU Regulation from being placed on the UK market. This means that any dishwasher detergent that has a phosphorus content of 0.3grams or above in a standard dosage will no longer be allowed on the UK (and EU) market.

Our engagement with the industry suggests manufacturers are changing the composition of dishwasher detergents in any event, given the widely-known implementation of the EU-level regulation from 2017, and the fact manufacturers generally operate in a number of international markets. However, Policy Option 1 will help to ensure a level playing field and the desired environmental benefits are delivered in terms of minimising the impact of phosphorus on the water environment, and mitigating some of the operational costs faced by the water industry. The latter includes the reduction in chemical usage and energy consumption in larger waste water treatment plants

[1] Figure taken from 'Phosphorus in Food Additives' – an EA Report published in 2013

[2] Source Control of Phosphorus from Domestic Sources – Options and Impacts - UKWIR/SNIFFER/UKTAG Report published 2008

in the removal of phosphorus. Policy Option 1will also avoid the risk of infraction proceedings from the Commission for not being able to enforce an EU regulation. This is the preferred option and does not go beyond the minimum requirements.

Policy Option 2 - Do nothing.
If we do not update the existing legislation, the UK would be unable to enforce the EU Regulation and is at risk of infraction proceedings from the Commission if domestic provisions for enforcement of this part of the Regulation is not adequately transposed into domestic law. There are no legally respectable arguments for non-transposition.

Monetised and non-monetised costs and benefits of each option (including administrative burden)
We are not aware of any existing enforcement powers that could be relied on to transpose the enforcement obligations under the Regulation but expect costs of this amendment to be low. As for the earlier introduction of enforcement regulations relating to laundry detergents, manufacturers have already been responding in advance of the implementation date, and we do not expect enforcement powers to be used. We have no knowledge of the existing enforcement powers in the UK Detergents Regulations having to be used for laundry detergents.

Wider impacts of pre-existing EU Regulations
The main source of information on the costs and benefits of the wider phosphorous standards is a study undertaken for the European Commission at EU scale[3], This included a literature review and a consultation seeking the views of stakeholders such as Member State authorities, water management facilities, NGOs, industry associations, detergent manufacturers and suppliers partners. The study found that detergent manufacturers reformulate on average once every three and a half years to remain competitive with new technologies, so the cost incurred by this restriction in CADD may be considered "business as usual", especially as the detergent manufacturers would have had in total four years to prepare themselves for phosphates-free CADDs. Most of the manufacturers are supplying multiple international markets where they will be required to comply with similar standards.

Defra's consultation with the UK Cleaning Products Industry Association (UKCPIA), representing manufacturers in this area, broadly confirmed the findings of the Commission's study. UKCPIA members thought, as well as formulation costs, there will be one-off costs such as for R&D and artwork changes but the main cost will be a slight reduction in profitability as the costs cannot be passed on to the retailer/customer in a highly competitive market. However manufacturers were unable to provide any information on costs beyond noting that they would be minor. Information on costs and product formulations is commercially sensitive and not made public.

That said, discussions with industry did suggest that the wider EU regulatory change could have some cost implications for some UK manufacturers of dishwasher detergents. The UKCPIA said that it depended on the individual business - those operating on a global scale will most likely already have phosphate-free formulae for other markets where this change has already happened (or at least have experience of developing the formula). Whereas others, that are only supplying the UK or EU market, may have fewer resources to develop a formula. However, as above, the industry were unable to provide any estimates of cost implications, which in any event are believed to be minor.

Concerns over the performance of phosphate free CADDs remains an issue. The UKCPIA said that there were concerns in some parts of the industry about the technical aspects of producing a formula which gives comparable performance. The CADD study also looked at several performance studies carried out in Germany, Belgium and the UK which all concluded that some products didn't perform well on certain food residues whereas others did clean well but left watermarks. However tests undertaken by "Que Chosir?"in France concluded that the results of their test proved that phosphates are no longer necessary for cleaning efficiency. And ICAkuriren in Sweden compared results from a test conducted 7 years previously and concluded that the CADD had been largely improved. However, the UKCPIA gave Defra examples of many chemical types that can be used as an alternative to phosphates. Recent and continuing R&D has improved both the performance and cost of these alternatives in commercial CADD formulations.

The change to phosphate free CADDs has been an issue for consumers and was a major factor in setting the later deadline compared to laundry detergents. Although, according to both the UKCPIA and the Commission's study, there is not expected to be a significant price increase for consumers, an effective phosphate free CADD in a few instances may be more expensive than a cheaper version, and the cheaper version, if not effective, may mean an increase in the number of washes (to achieve effective results) which would increase the amount of water and energy used.

[3] Evaluation of the use of phosphates in Consumer Automatic Dishwasher Detergents – a European Commission report published 2014

Rationale and evidence that justify the level of analysis used in the IA (proportionality approach)

As these proposals will only affect a small number of stakeholders (not many UK companies manufacture CADDs), Defra decided to run a targeted consultation for a 4 week period. The UK Cleaning Products Industry Association, who represent all UK manufacturers in this area, sent out the consultation questions to its members and discussed them at their bi-monthly technical meeting, received a response rate of between 50% - 60%. Below are some of the comments we received:

Do you think that Industry will be ready by the 1st January 2017 deadline?
Yes the Industry will meet the 1 January deadline.

Do you feel there are any barriers to the industry being ready? If so, please describe.
The technical aspects of producing a formula which gives comparable performance was a concern in some parts of the Industry.

What do you expect to happen to these products by 1st January? Do you think they will all be able to comply? Do you think some may cease to exist?
It is expected that the majority would be in compliance from the deadline but it is possible that products brought in from outside UK/EU might be unaware of the changes.

Please give reasons for your answers.
Due to the lead time to implement the changes the Industry has had time to develop new formulae and so are expected to be in compliance.

Has this regulatory change had any cost implications?
Yes and this depends on the individual business. Those operating on a global scale will most likely already have P free formulae for other markets where this change has already happened (or at least experience of developing the formula). Other that are only supplying the UK or EU market may have less resources to develop the formula. In each case though it is not thought that the costs would be significantly negative.

What will be the main monetised costs to industry following the regulatory change?
There are one-off costs such as R&D and artwork changes but the main cost will be slight reducing in profitability (estimated at 1%) as the costs cannot be passed on to the retailer/customer.

What do you perceive to be the negative impacts of this regulation on industry?
Formulations costs will be increased and in some cases performance may be reduced.

Do you think the effectiveness of products is likely to be compromised in any way due to the reduction in phosphates?
Possibly.

If so, in what way?
It is possible to formulate both effective and less effective products depending on alternatives used, costs, etc. Where cost is a determining factor it may mean the products will be less effective. Less effective products will also have a knock on effect if it leads to increases in the number of washes (to achieve effective results) on water and energy use.

Based on your knowledge of general trends in the market, which active ingredients do you think are likely to replace phosphates?
There is a number of alternatives the most common being Sodium citrate, MGDA (MethylGlycine DiAcetate) or GLDA (GLutamic acid DiAcetate) or sodium silicates. Other ingredients that can (partially) be used as substitutes for phosphates are -Sodium Gluconate; -HEIDA: sodium 2-hydroxyethyliminodiacetate; -ASDA: L-aspartic-N,N-diacetic acid; -IDS : Iminodissuccinic acid. Typical additional ingredients that can be added at low concentrations to help improve performance of phosphate replacers are Sodium phosphonate; Polycarboxylates; and new compounds including new enzymes, new polymers.

What impact do you perceive this change will have on the price of the product for consumers?
There is not expected to be a significant price increase for the consumer and the manufacturers will bear the costs.

The European Commission's CADD Study remains broadly valid as a source of information. This IA draws particularly on the following sections: the performance studies (Annex J), the 'Economic Impact on Consumers (at 5.1.3) and the 'Impact on Small and Medium Enterprises' (at 5.1.6).

In addition Defra also obtained an informal independent academic view confirming key elements the assessment of the available evidence as set out here.

Risks and assumptions

There are still a significant percentage of retailer own label products that, at the time of writing, do not comply. However, due to the lead in time to implement the changes industry, according to the consultation results, has had enough time to develop new formulae and so are expected to be in compliance by the deadline.

Although it is expected that UK manufacturers will be in compliance with the EU Regulation by the deadline, there is a possibility that products brought in from outside the UK/EU might be unaware of the changes and therefore would be unable to sell their product in the UK (and the EU) market.

Direct costs and benefits to business calculations

Although we consulted with industry, they were unable to provide us with any figures. As there is no alternative source of information on product formulations and production costs, it has not been possible to quantify the costs and benefits to business other than to note that they are believed to be minor.

One-In-Three-Out (OI3O) and Business Impact Target statement (BIT)

We believe that this measure does not go beyond the minimum domestic implementation of existing EU law and there is no gold-plating. For purposes of the BIT this measure is a non-qualified regulatory provision and falls outside the scope of OI3O.

Wider impacts

Economic Impact

According to the Commission's study the relatively small reduction in phosphorus production due to a phosphorus restriction in CADD would not significantly impact the global price of phosphorus. Furthermore, a restriction of phosphates would create a level playing field for EU CADD manufacturers/importers/traders as CADDs containing phosphates have already been restricted or banned in other parts of the EU (e.g. Sweden) and the world (e.g. several states in the USA, such as Illinois, Indiana, Maryland, Massachusetts, Michigan and New York).

Social Impact

Based on current scientific knowledge, the study concluded that the substitution of phosphates with alternatives would not add further risk to human health.

Environmental Impact

The 2010 Impact Assessment study for the Amendment to the EU Detergent Regulation found that a total ban of phosphate in detergent would be the most effective policy option for reducing the risk of phosphorus related eutrophication of surface water throughout the EU. While completely eliminating phosphorus in CADD would decrease the eutrophication risk even further, this is technically not feasible. However, the limit of 0.3 grams per standard dosage already reduces the amount of phosphorus in CADD by more than 75% on average.

Based on total phosphorus load data in the EU, the proportion of phosphorus coming from detergent use and the distribution between laundry and automatic dishwasher detergents, it has been estimated in the Commission's study that phosphorus from CADD made up about 10% of the phosphorus load in wastewater treatment in the EU in 2013. It is estimated that a limit on phosphorus use in CADD to 0.3 grams per wash would eventually account for ca. 1.6% of the total phosphorus load in wastewater in the EU in 2017.

Small and Micro-business

Small and micro businesses are not exempt from EU Regulation 259/2012.

In Sweden it has been shown that small producers adapted very well to the restriction of CADDs containing phosphates. When restriction plans were announced, concerns were raised that the restriction would pose an obstacle to market entry for smaller domestic producers. Yet, during the transitional period the domestic production of phosphates-free CADD grew to a share of 96%, suggesting that small Swedish producers adapted to the restriction easily. It therefore suggests that the phosphate restriction in CADD at the EU level will not benefit large companies over smaller ones, but might well be a business opportunity to smaller enterprises.

Summary and preferred option with description of implementation plan.

Phosphorus pollution harms aquatic life in water bodies. Consumer dishwasher detergents have recently contributed about 9% of the total phosphorus loading to the freshwater environment. The problem is national. EU Regulation 259/2012 on detergents imposes a limit on the amount of phosphates in dishwasher detergents and is directly applicable in the UK. The intended effects of this limit will help to reduce phosphorus in the aquatic environment and therefore improve water quality. Also the reduction in the use of resources for sewage treatment will reduce costs and the environmental impact of the treatment process.

Our preferred option is to amend the UK regulations to prevent consumer automatic dishwasher detergents that do not conform with the relevant part of the EU Regulation from being placed on the UK market. This option will help to minimise the impact of phosphorus on the water environment; will help to mitigate some of the operational costs faced by the water industry; will reduce the chemical usage and energy consumption used by larger waste water

treatment plants in the removal of phosphorus; and will avoid the risk of infraction proceedings from the Commission for not complying with an EU regulation.

Implementation Plan

The amended regulations would be laid in November 2016 with a commencement date of 1st January 2017 to ensure we meet the EU Regulation deadline. Industry has had a four year lead in to these regulations and have confirmed they will be ready by the deadline.

Post Implementation Review

We will undertake a Post Implementation Review within five years of amending the UK regulations. This review will seek the views of stakeholders (manufacturers, NGOs, EA) and the Devolved Administrations to ascertain the impact of this amendment, including costs, and to see what environmental changes have occurred as a direct result.