

Government
of CanadaGouvernement
du Canada

Canada

Français
HomeContact us
About usHelp
HistorySearch
FAQCanada Site
Site Map

Canada Gazette

Welcome to the official newspaper of the Government of Canada published since 1841

[Notice](#)**News and
announcements****Mandate****Consultation****Recent *Canada
Gazette* publications****Part I:
Notices and
proposed regulations****Part II:
Official regulations****Part III:
Acts of Parliament****Learn more about
the *Canada Gazette*****Publishing information****Publishing
requirements****Deadline schedule****Insertion rates****Request for
insertion forms****Subscription
information****Useful links****Archives (1998-2007)****RSS news feeds**

Vol. 142, No. 26 — June 28, 2008

Regulations Amending the Phosphorus Concentration Regulations

Statutory authority

Canadian Environmental Protection Act, 1999

Sponsoring department

Department of the Environment

REGULATORY IMPACT ANALYSIS STATEMENT

(This statement is not part of the Regulations.)

Executive summary

Issue: The release of phosphorous into the environment from the use of detergents and cleaners contributes to the over-fertilization of freshwater ecosystems, including the growth of harmful algae ([see footnote 1](#)) blooms that are proliferating in Canada's lakes and rivers.

Description: Canada's Phosphorus Concentration Regulations (the Regulations) came into effect in 1989, and include a concentration limit of 2.2% for laundry detergents. The proposed Regulations Amending the Phosphorus Concentration Regulations (the proposed amendments) would broaden the scope of the Regulations to include other detergents and cleaners, and to lower the limits on permissible phosphorus concentrations. Specifically, the proposed amendments would

- | lower the phosphorus concentration limit for household laundry detergents from the current limit of 2.2% to 0.5%;
- | clarify that a phosphorus concentration limit of 2.2% would still apply to commercial and industrial laundry detergents;
- | introduce a phosphorus concentration limit for household dish-washing compounds of 0.5% (including hand dish-washing soap and detergent for automatic dish-washers); and
- | introduce a phosphorus concentration limit for household cleaners of 0.5%.

The proposed amendments would come into force on July 1, 2010.

Cost-benefit statement: The proposed amendments would decrease

the release of phosphorus into the environment by an estimated 28 400 tonnes over 25 years. Benefits are expected to include reductions in phosphorus removal at wastewater treatment facilities, improvements in water quality in Canadian lakes and rivers, and reductions in human and environmental exposure to algae blooms. The proposed amendments would not be without cost to manufacturers; however, many industry stakeholders have expressed a willingness to meet the proposed concentration limits and timelines. The present value of costs to Government for compliance promotion, enforcement activities and administration are estimated to be \$212,400.

Business and consumer impacts: The proposed amendments are not expected to result in any additional administrative burden for regulatees. However, where testing is done, regulatees would be required to retain these records. The proposed amendments may result in some increases in the price of dishwashing compounds; however, this impact is expected to be small, as most manufacturers have indicated a high readiness to make the changes and competitive pressures and innovation should ensure that prices remain close to baseline levels. The proposed amendments would increase consumer access to low-phosphorus detergents and cleaners.

Domestic and international coordination and cooperation: The proposed amendments would align (see footnote 2) Canada's regulation of phosphorus in detergents and cleaners with similar requirements in many U.S. states, and would set nationally consistent concentration limits, thereby supporting manufacturer access to regulated domestic and export markets.

Issue

Phosphorus is used in certain detergents and cleaners to soften water, reduce spotting and rusting, keep dirt particles in suspension, and enhance surfactant performance. Phosphorus is also considered a key nutrient that, when present in excess, leads to the over-fertilization of freshwater ecosystems, including the growth of harmful algae blooms in Canada's lakes and rivers. The over-fertilization of freshwater ecosystems and the proliferation of algae blooms have become matters of concern for human health and the environment, as well as economic issues affecting governments and individual homeowners across Canada.

A full assessment of the risks associated with nutrients, including phosphorus, can be found at www.nwri.ca/issues/nr/impact-e.html.

Objectives

Canada's laundry detergent manufacturers and importers are currently subject to the provisions of the Phosphorus Concentration Regulations. The Regulations have not been updated since they came into effect in 1989. The objectives of the proposed amendments are to

- I address the concerns of Canadians regarding the recent proliferation of harmful algae blooms and the role played by phosphorus in detergents and cleaners;
- I support, through an approach based on pollution prevention, the various actions that are currently being taken by municipalities, provincial governments and the federal government to combat harmful algae blooms;
- I respond to industry requests to create a level playing-field for manufacturers and importers of detergents and cleaners;

- | provide nationally consistent concentration limits for manufacturers and importers;
- | align 's regulations with those emerging among our major trading partners, in particular the ; and
- | reduce the need for consumers to evaluate phosphorus concentrations based on product labeling at the point of sale.

Description

The proposed amendments

The proposed amendments would

- | Lower the phosphorus concentration limit for household laundry detergents from 2.2% by weight of phosphorus to 0.5%, and would clarify that a concentration limit of 2.2% would still apply to commercial and industrial laundry detergents. [\(see footnote 3\)](#)
- | Introduce a limit on the concentration of phosphorus in household dish-washing compounds of 0.5% by weight. Dish-washing compounds include traditional hand dish-washing soap, and detergent for automatic dish-washers.
- | Introduce a limit on the concentration of phosphorus in household cleaners of 0.5% by weight. Household cleaners include general or all-purpose cleaners that are intended for household use, excluding laundry detergents and dish-washing compounds (which would be subject to other proposed limits), and metal cleaners and de-greasing compounds (which may require higher levels of phosphorus). Examples of other household cleaners include glass cleaners, floor cleaners, sink, tub and tile cleaners, carpet cleaners, disinfectants, waxes and polishes, scouring powders, spot removers, toilet bowl cleaners, and kitchen cleansers.

The proposed amendments would not require regulatees to conduct testing. However, Environment Canada (EC) enforcement officers would use the test methods contained in sections 7 and 8 of the proposed amendments to measure the concentration of phosphorus in regulated products and may request access to available test data to verify compliance with the Regulations. Where testing is done in the normal course of business, regulatees would be required to retain these records, as indicated in section 9 of the proposed amendments.

The proposed concentration limits, summarized in Table 1, would come into force on July 1, 2010.

Table 1: Summary of Current and Proposed Phosphorus Concentration Limits

	Current	Proposed
Household laundry detergents	2.2%	0.5%
Commercial and industrial laundry detergents	2.2%	2.2%
Household dish-washing compounds	None	0.5%
Household cleaners	None	0.5%

Background and context

Releases of phosphorus into Canada's lakes and rivers can result in the over-fertilization of these water bodies, increased plant growth, and an

overabundance of algae. Over-fertilized water bodies are characterized by increased water cloudiness, reduced aesthetic appeal and decreased recreational use. Highly over-fertilized systems tend to be predominated by algae that form dense, foul-smelling and noxious blooms, often as surface scums. Many species of algae produce potent toxins which can poison fish, avian waterfowl, terrestrial wildlife, livestock, pets and humans.

Algae blooms are a problem across Canada, and in particular where there is urban and/or recreational development in the vicinity of water bodies. Examples of regions where algae blooms and/or over-fertilization are serious issues include: Lake Simcoe in Ontario, Lake Winnipeg in Manitoba, the Bow River in Calgary, Alberta, Saskatchewan's Qu'Appelle River System, the Okanagan Basin and other water bodies in British Columbia, water bodies in Prince Edward Island, and the province of Quebec. ([see footnote 4](#))

Releases of phosphorus into Canada's lakes and rivers originate from diffuse "non-point" sources, and from specific "point" sources. The largest non-point sources of phosphorus releases into Canada's lakes and rivers are believed to be mineral fertilizers and animal manure used for agriculture or other purposes, accounting for an estimated 82% of total phosphorus loadings in 1996 (see Table 2). The largest point sources are effluent and overflow from wastewater systems. Improperly designed or maintained on-site wastewater systems (e.g. septic systems) also release phosphorus into water bodies in rural Canada. Together, municipal wastewater, sewer and septic systems accounted for an estimated 14.3% of total phosphorus loadings in 1996 (see Table 2). In some areas, with large numbers of cottages, limited agricultural activity and no municipal wastewater treatment, releases from septic systems may be the largest single source of phosphorus loadings to nearby lakes and rivers.

Table 2: Main Contributions to Canada's Total Phosphorus Loadings, 1996 ([see footnote 5](#))

	Phosphorus (tonnes)	Contribution to total
Municipal wastewater, sewers and septic systems	9.8	14.3%
Industry	2.0	2.9%
Agriculture	56.0	82.0%
Aquaculture	0.5	0.7%

As indicated in Table 3, laundry detergents, dish-washer detergents and other household cleaners together contributed approximately 11% of phosphorus loadings to wastewater in 1996. Given that more Canadian households now use dishwashers than in 1996 (there has been no change in the proportion of Canadian households using washing machines), it is expected that the contribution from these detergents to phosphorus loadings in municipal wastewater will be significantly higher in 2010, when the proposed amendments would come into effect. It is also expected that releases from laundry detergents and other household cleaners are now less than in 1996, as most of these products have since moved to lower-phosphorus formulations.

Table 3: Phosphorus Sources in Canadian Municipal Wastewater, 1996 ([see footnote 6](#))

--	--	--

Source	Phosphorus Load (tonnes per year)	% of total
Human waste	18 952	53
Laundry detergents	165	<1
Automatic dishwasher detergents	2 520	7
Other household cleaners	1 188	3
Commercial and industrial sources	12 763	36
Total	35 588	

Many stakeholders, including EC, other federal government departments, provinces, municipalities, individual farms, homeowners and cottagers have roles to play to ensure that the algae bloom and over-fertilization problems are addressed and to ensure a cleaner, healthier environment. Contributing to improvements in non-point source releases of phosphorus into Canada's lakes and rivers, Agriculture and Agri-Food Canada's National Farm Stewardship Program ([see footnote 7](#)) provides technical and financial assistance to support the adoption of beneficial management practices (BMPs) by agricultural producers and land managers. BMPs include improved manure storage and handling, farmyard runoff control, relocation of livestock confinement facilities, riparian area management and other practices. As of December 31, 2007, more than 28 000 BMPs have been implemented in Canada.

The Government of Canada is committed to taking action to reduce releases of human-induced pollutants, including from point sources like municipal wastewater treatment facilities. On September 26, 2007, the Minister of the Environment announced that the Government of Canada intends to regulate wastewater effluent under the Fisheries Act. The proposed amendments and other actions that reduce phosphorus loadings into wastewater systems would complement these draft regulations by reducing the need for phosphorus removal at wastewater treatment facilities, and potentially reducing costs at these facilities.

In addition to policy guidance laid out in Canada's Federal Water Policy, ([see footnote 8](#)) the proposed amendments add to and complement the actions being taken in Canada at all levels of government to reduce the damage of phosphorus and nitrogen nutrients on water environments. These actions include those outlined in the Federal Nutrients Agenda, ([see footnote 9](#)) the Canada-wide Strategy for the Management of Municipal Wastewater Effluent under the auspices of the Canadian Council of Ministers of the Environment, ([see footnote 10](#)) the Agricultural Policy Framework, ([see footnote 11](#)) the National Programme of Action for the Protection of the Marine Environment from Land-Based Activities ([see footnote 12](#)) and the Canada-United States Great Lakes Water Quality Agreement. ([see footnote 13](#))

On February 15, 2008, ([see footnote 14](#)) the Minister of the Environment announced that the Government of Canada would introduce regulations to further reduce the concentration of phosphorus in laundry detergents, and limit the amount found in dish-washing detergents and, as warranted, in other cleaners.

Sector profile

Canada imports, exports and manufactures both detergent ingredients and fully formed detergents. Canada's broad soap and cleaning compound

manufacturing sector (NAICS 32561) includes domestic manufacturers of laundry and dish-washer detergents and other household cleaners to which the proposed amendments would apply.

The domestic soap and cleaning compound manufacturing sector has been in a state of decline for several years, with shipments decreasing by 23% between 1997 and 2006, and employment decreasing by 37%. During that period, exports increased by 55%, and imports increased by 76%. (see footnote 15) EC has identified 132 enterprises that are specifically involved in the manufacture or import of laundry detergents, dish-washing compounds and/or household cleaners. An estimated 76% of these enterprises are located in Ontario and Quebec, and as many as 89% are believed to be small and medium-sized enterprises (SMEs), having fewer than 500 employees and less than \$50 million in annual gross revenue.

Household, commercial and industrial laundry detergents (proposed concentration limit to be lowered from 2.2% to 0.5% for household detergents)

Since 1989, the Regulations have required that all household, commercial and industrial laundry detergents contain no more than 2.2% phosphorus by weight. Since the Regulations came into force, household laundry detergents in Canada have moved away from the use of phosphorus, with a significant proportion of household laundry detergents on the market today containing at most trace amounts. Major brands are manufactured by large multinational enterprises, although smaller enterprises also manufacture formulations that are marketed directly to consumers or under private labels. There are an estimated 40 enterprises manufacturing or importing household laundry detergent in Canada, with 83% of these enterprises located in Ontario and Quebec.

Household dish-washing compounds (proposed concentration limit of 0.5%)

When the Regulations were first introduced for laundry detergents, fewer households used dishwashers, and alternatives to phosphorus were not widely available or affordable for application in household dish-washing detergents. In recent years, phosphorus alternatives have become available for dish-washing detergents without a significant loss in performance, although there has been limited uptake by some manufacturers. Existing dish-washing detergents typically contain concentrations of phosphorus less than or equal to 8.7% by weight. There are an estimated 42 enterprises manufacturing or importing household dish-washing detergents in Canada; of these, 83% are located in Ontario and Quebec. Large volumes are manufactured by multinational enterprises. However, as with other types of detergents, SMEs are engaged in the business through the import and manufacture of dish-washing detergents and/or detergent ingredients for sale directly to consumers or through private labels.

Current formulations of hand dish-washing soap are not reported to contain phosphorus, and therefore do not yield any releases of phosphorus into Canadian lakes and rivers at this time.

Other household cleaners (proposed concentration limit of 0.5%)

As indicated above, other household cleaners include general or all-purpose cleaners that are intended for household use, excluding laundry detergents, dish-washing compounds, metal cleaners and de-greasing

compounds. There are an estimated 113 enterprises manufacturing or importing other household cleaners in Canada; of these, 79% are located in Ontario and Quebec.

In spring 2008, EC tested over 200 products in Ontario retail stores, including products manufactured by SMEs and large enterprises. None of the products that would be subject to the provisions of the proposed amendments were found to contain concentrations of phosphorus greater than the proposed 0.5% limit. Many household cleaners manufactured in or imported into Canada are manufactured by enterprises that also serve the U.S. market, where many states require that these products meet concentration limits not exceeding the proposed 0.5%.

Actions in other jurisdictions

United States

As of the spring of 2008, at least 25 states had introduced or were in the process of introducing limits on the concentration of phosphorus in household laundry detergents, household dish-washing compounds, and/or other household cleaners. The proposed limits for laundry detergents and household cleaners are aligned with the limits proposed or introduced in a majority of these states. Ten U.S. states have introduced or proposed a 0.5% concentration limit for household dish-washing detergents. The main U.S. industry association continues to advocate in favour of a common North American approach to the regulation of household dish-washing detergent, based on a 0.5% concentration limit standard, the same limit included in the proposed amendments.

European Union

In the European Union, phosphorus discharges are addressed in part through reductions in phosphorus concentrations in laundry detergents, but largely through wastewater treatment directives to reduce phosphorus releases into European lakes and rivers. This approach reflects fundamental differences in the nature of the issue in a European context, including significantly greater population densities, and the resulting need for strict controls that go beyond what may be necessary in many Canadian regions.

European Union Directive 91/271/EEC requires tertiary treatment at wastewater treatment plants serving agglomerations of more than 10 000 population equivalents, and which discharge into areas sensitive to over-fertilization. European Union Directive 2000/60/EC, the Water Framework Directive (WFD), has led to an increased focus on over-fertilization and to a more comprehensive approach to water management. Member states must enact programs to ensure that water bodies throughout the European Union reach “good status” by 2015. In cases where WFD monitoring and assessment shows that phosphorus inputs are significantly contributing to over-fertilization, member states must implement measures to address this problem.

Regulatory and non-regulatory options considered

Several regulatory and non-regulatory measures have been considered, and descriptions of each are provided below.

Status quo

Under the status quo, it is expected that many manufacturers and importers would move voluntarily to the proposed concentration limits, given movement in that direction by many U.S. states and a desire to have a consistent standard throughout North America. It is expected that some provinces, including Quebec and Manitoba, would move forward with provincial regulations. In this environment, it is expected that some high-phosphorus formulations would still be available to consumers, and phosphorus loadings in Canadian lakes and rivers would remain above what is technologically and economically feasible. In addition, there is a risk that different provinces may introduce different limits, resulting in a patchwork of regulation across Canada. In general, the status quo would not achieve the objectives, and was therefore rejected.

Voluntary measure to reduce phosphorus concentration in detergents and cleaners

A voluntary measure was considered during the development of the proposed amendments. Industry representatives have indicated a willingness to move towards low-phosphorus dish-washing detergent formulations; however, in the absence of the proposed amendments, high-phosphorus detergents may still be marketed to Canadians. In the presence of these substitutes, manufacturers that participate in a voluntary measure, through the dedication of resources towards the manufacture and marketing of low-phosphorus detergents, would potentially be at a cost disadvantage to manufacturers or importers unwilling or unable to make these investments. It is expected that this disadvantage would be particularly acute for SMEs that choose to make this transition, for which a cost disadvantage may have a more significant impact. In addition, it is expected that some provinces, including Quebec and Manitoba, will move forward with provincial regulations, and within a few years, manufacturers may face a patchwork of regulation across Canada, potentially resulting in inconsistent treatment of the same products and the need for multiple formulations of the same product in order to serve Canadians from coast to coast.

A voluntary measure is therefore not expected to yield the desired reduction in phosphorus releases. This measure would not create a level playing field in the manufacture of detergents, and would not create nationally consistent concentration limits.

Market-based instrument

Eco-taxation could be used as a means of reducing releases of phosphorus into Canada's wastewater systems, lakes and rivers. Taking into consideration that household expenditure on laundry detergents, dish-washing detergents and other household cleaners is a very small proportion of total household spending; that consumer demand for detergents is expected to be unaffected by small tax-induced changes in prices; and that a tax on such a wide range of products would likely impose a significant increase in paper burden on SMEs and large enterprises alike, a tax was rejected as a tool for achieving the public policy objective.

Regulatory measure to reduce phosphorus effluent from wastewater and septic systems

Many municipal wastewater facilities have the capacity to remove phosphorus as part of the wastewater treatment process, and some are required to meet specific standards of phosphorus discharge into lakes and rivers ([see footnote 16](#)). A regulatory measure to reduce phosphorus

effluent from wastewater systems would likely be a high cost option, would not likely achieve significant reductions from thousands of existing septic systems, and may face significant jurisdictional challenges. This option was therefore rejected.

Regulatory measure to reduce phosphorus concentration in detergents and cleaners

A regulatory measure to reduce phosphorus concentration in detergents and cleaners would apply at the point of manufacture and import, and provide a means of preventing pollution by reducing phosphorus releases from the use of detergents and cleaners to wastewater or septic systems, and into Canada's lakes and rivers. This regulatory approach would create a level playing field in the manufacture of detergents and cleaners, ensuring that those manufacturers willing to transition to low-phosphorus formulations are not disadvantaged by the continued availability of high-phosphorus alternatives. This regulatory approach would also provide nationally consistent concentration limits, ensuring that manufacturers can supply their products to Canadians from coast to coast and in key export markets.

Benefits and costs

The proposed amendments would require reformulation of many dish-washing detergents and to a lesser extent, household laundry detergents and household cleaners, imported into or manufactured in Canada.

The provinces of Quebec and Manitoba have both proposed to introduce 0.5% phosphorus concentration limits for dish-washing detergents, limits that would come into force on July 1, 2010. Both provinces have expressed support for the proposed federal approach. For the purposes of the following analysis, these provincial initiatives are included in the baseline scenario. As a result, the household dish-washing detergent provisions of the proposed amendments would have no incremental impact in these provinces. Notwithstanding the omission of these impacts on technical grounds, it is clear that phosphorus concentration limits in each of these provinces would result in benefits to the environment in each case.

The following sections summarize the costs and benefits associated with the incremental impacts of the proposed amendments.

Costs

The costs of the proposed amendments are expected to manifest themselves in the operations of Canadian manufacturers, and/or through higher prices and increased spending on detergents and cleaners by Canadian consumers.

Detergent and cleaner manufacturers

Manufacturers and importers of regulated products would be required to ensure that these products are compliant with the proposed phosphorus concentration limits. For products that are currently non-compliant (mainly household dish-washing detergents), manufacturers may incur one-time reformulation costs, as well as incremental recurring administrative and raw material costs. Importers would need to ensure that their suppliers are making the necessary changes to detergent and cleaner formulations to achieve the proposed concentration limits.

Feedback from some manufacturers indicates that reformulation costs for many products available to Canadian consumers would be incurred outside of Canada (e.g. the United States). As well, given the anticipated availability of cost-effective phosphorus alternatives (e.g. zeolites), it is not expected that there would be a significant incremental impact on raw material costs.

Many manufacturers have expressed a willingness to move to household dish-washing detergent formulations containing a maximum of 0.5% phosphorus by weight, and have indicated that alternatives are available to ensure that this move does not result in reduced performance. In the absence of quantified costs estimates, but given the existence of compliant products, the availability of alternatives to phosphorus, and the expected technological and economic feasibility of reformulation, it is not expected that this transition would be cost prohibitive.

More than 95% of household laundry detergents currently available to Canadians contain at most trace amounts of phosphorus. Environment Canada expects that, for the negligible volume of detergent that is not currently compliant with the proposed limits, a transition to alternative formulations would be technologically and economically feasible. Most household cleaners currently available to Canadians contain less than 0.5% phosphorus by weight, and costs of compliance are therefore expected to be negligible. For all regulated products, the proposed amendments would prevent the re-introduction of products containing concentrations of phosphorus above the proposed limits.

Given the current state of compliance of many laundry detergents and household cleaners, it is expected that the costs of the proposed amendments would largely result from transitions necessary to meet the concentration limits for household dish-washing detergents. It is likely that most enterprises would be able to make this transition, and EC expects that a transition to low-phosphorus formulations would also be achievable for most, if not all SMEs. Although EC did not identify any SMEs that would be negatively impacted by the proposed amendments, enterprises that are already vulnerable may have difficulties making the transition to low-phosphorus formulations. To date, no concerns have been raised by SMEs with respect to the proposed concentration limits.

Phosphorus manufacturers

Detergent uses of phosphorus account for a small portion of total demand for this mineral worldwide, with an estimated 10% of phosphorus used for detergents, ([see footnote 17](#)) and Canada is not a significant player in this market. Given that the market for phosphorus is a global market, and taking into account the expectation that the North American market for dish-washing detergents is moving to align under a 0.5% concentration limit standard, the proposed amendments would have a negligible incremental impact on the global and domestic markets for phosphorus.

Consumers

Impacts on consumers are expected to be limited to increases in the price of household dish-washing compounds, should manufacturers “pass on” the compliance costs identified above. Manufacturers have already signaled a willingness to reformulate major detergent brands, and it is expected that through the application of significant economies of scale to the manufacture of phosphorus alternatives and compliant formulations,

price increases would be negligible.

It is not expected that there would be any significant impact on the price of household laundry detergents, hand dish-washing soaps or household cleaners. Compliant products are already widely available, reformulation is expected to be technologically and economically feasible, and the markets for these products are generally competitive. Manufacturers would therefore have limited need or capacity to increase prices above those expected in the absence of the proposed amendments.

Government

Costs to Government would include the cost of compliance promotion and enforcement. Taking into account industry awareness of, and support for the proposed amendments, and the relatively small expected size of the regulated community, it is expected that compliance promotion and enforcement activities would not involve significant costs.

Compliance promotion activities are intended to encourage the regulated community to achieve compliance. In 2010, compliance promotion would include mailing out the final Regulations, answering inquiries, developing and distributing promotional materials (e.g. a fact sheet, Web material) and organizing information sessions to explain the Regulations, with an estimated cost of \$26,000. In 2011, compliance promotion activities would be limited to sending reminders, responding to and tracking inquiries, and contributing to the compliance promotion database, with an estimated cost of \$5,000. Compliance promotion would remain at a maintenance level from 2012 to 2014, and would be limited to responding to and tracking inquiries and contributing to the compliance promotion database, with an annual cost of \$2,000. A higher level of effort for compliance promotion may be required if, following enforcement activities, compliance with the Regulations is found to be low. The discounted present value of these costs would be \$35,400.

Environment Canada estimates that, in the first five years after the proposed amendments come into force, enforcement would require an estimated undiscounted annual budget of \$23,950 for inspections (which includes operations and maintenance costs, transportation and sampling costs), \$14,330 for investigations and \$2,760 for measures to deal with alleged violations (including environmental protection compliance orders and injunctions). The discounted present value of these costs, between 2010 and 2014, would be \$177,000.

Benefits

The proposed amendments would reduce phosphorus releases into Canadian lakes and rivers, and thus are expected to contribute to improvements in environmental quality and human health.

As indicated above, given the current state of compliance of many laundry detergents, household cleaners, and hand dish-washing soaps, it is expected that the benefits of the proposed amendments would largely result from the introduction of concentration limits for household dish-washing detergents. There would, however, be an intangible benefit associated with ensuring that high-phosphorus formulations are not re-introduced into Canada.

Detergent and cleaner manufacturers and importers

The proposed amendments would establish nationally consistent phosphorus concentration limits. This consistency would ensure that Canadian manufacturers and importers would not face different concentration limits across provinces, with possible impacts on manufacturing costs (e.g. should manufacturers be required to manufacture different formulations of the same product for sale in different provinces).

Canadian wastewater treatment facilities

The proposed amendments would reduce the quantity of phosphorus released into municipal wastewater systems from household dish-washing detergents by 56 300 tonnes between 2010 and 2035. Depending on the phosphorus removal efficiency of a given municipal wastewater treatment facility and standards for phosphorus content in facility effluent, this reduction in phosphorus loadings should reduce the quantity of phosphorus that needs to be removed from wastewater. Environment Canada estimates that the proposed amendments may decrease the amount of phosphorus to be removed by these facilities by 1 100 tonnes in 2011, and a total cumulative reduction of 36 300 tonnes over the 25-year period to 2035.

A significant decrease in the amount of phosphorus to be removed is expected to result in a cost savings for these facilities. The magnitude of this benefit depends on a number of factors, including the size of a given treatment facility and the specific phosphorus removal processes used. Although the cost savings at a particular facility are uncertain, it is expected that the cumulative reduction in expenditure on phosphorus removal would be significant. This reduction in expenditure may be offset to some extent if manufacturers and importers of dish-washing detergents transition to phosphorus alternatives. Phosphorus also contributes to the creation of sludge at wastewater treatment facilities, therefore adding associated removal costs. Nevertheless, it is expected that the proposed amendments would result in an overall net benefit to these facilities.

Environmental benefits

The reduction in phosphorus concentration in detergents and cleaners would reduce the amount of phosphorus entering Canada's aquatic ecosystems. Phosphorus loadings from detergents and cleaners are a small proportion of total phosphorus loadings to the environment in some regions (about 1% of total loadings across Canada). However, this proportion would be higher where other sources of phosphorus (e.g. agriculture) are less significant contributors to phosphorus loadings.

The most advanced wastewater treatment technologies and processes available to Canadian municipalities still can not totally eliminate phosphorus loadings. As a result, some phosphorus from detergents and cleaners will ultimately be released into Canada's lakes and rivers. With a 56 300 tonne reduction in phosphorus released into municipal wastewater systems over 25 years, it is expected that there would be a resulting reduction in releases of phosphorus from these systems into the environment. The magnitude of this reduction would depend on how phosphorus levels are managed at a given treatment facility. Environment Canada estimates that the cumulative reduction in releases to the environment may be as high as 20 000 tonnes by 2035.

For septic systems and lagoons, of the 6 600 tonne reduction in phosphorus releases to these systems, EC estimates that there would be

a 3 300 tonne reduction in releases to the environment. There would be an additional reduction of 5 100 tonnes of phosphorus that are released directly into the environment in untreated wastewater. Environment Canada estimates that the proposed amendments would initially reduce total phosphorus releases from all sources by 900 tonnes in 2011, and cumulatively by 28 400 tonnes by 2035.

The contribution of these releases to the over-fertilization of Canada's lakes and rivers, relative to other phosphorus sources, is uncertain. It is however expected that the proposed amendments would result in improved water quality, decreased risks to pets and wildlife that drink affected water, improved aesthetics, increased recreational use potential, increased property values, and reduced risk of human exposure to algae blooms. These impacts would be greatest where the contribution to total phosphorus loadings by wastewater and septic systems is high relative to other sources of phosphorus (e.g. agriculture), and in regions where wastewater facilities are less effective in removing phosphorus from wastewater. Environment Canada estimates that benefits of phosphorus reductions would be more significant in Quebec, Atlantic Canada, British Columbia, and in the vicinity of cottages and non-agricultural rural communities across Canada.

Manufacturers of alternatives to phosphorus

There is no single substance that can fully replace phosphorus in detergents. Reformulations are therefore likely to include a number of different substances depending on the manufacturer's preference and the expected use of the detergent or cleaner. Some may be based on zeolite, ([see footnote 18](#)) or other compounds, all of which have been implemented to some extent in existing formulations.

Manufacturers of these alternatives to phosphorus are expected to see increased demand for their products. Although some of this demand would be filled by imported substances, some Canadian firms, including SMEs, may benefit from the proposed amendments with increased sales.

Consumer awareness and human health

The proposed amendments would complement other government actions to reduce human and environmental exposure to human-induced pollutants. Through the establishment of consistent, national concentration limits, the proposed amendments would also ensure that consumers across Canada have access to low-phosphorus formulations, and by eliminating the presence of high-phosphorus detergents and cleaners on store shelves, would reduce the need for consumers to evaluate phosphorus concentrations based on product labelling at the point of sale.

Competitiveness

The proposed amendments would have no impact on the competitiveness of those products that are already compliant with the proposed concentration limits.

The costs associated with reformulation and achieving compliance with the proposed amendments are not expected to be cost-prohibitive in general, and are not expected to result in a significant increase in prices. As a result, the proposed amendments are not expected to have a significant impact on competitiveness of Canadian manufacturers.

The proposed amendments would require that the increasing volume of imported products meet the proposed limits, thus maintaining the competitiveness of Canadian manufacturers in the domestic market. Several U.S. states have introduced or are in the process of introducing similar regulations with respect to dishwasher detergents. Canada's proposed amendments with respect to dish-washer detergents are aligned with this approach, ensuring that Canadian firms would continue to have access to important export markets in the United States.

It is expected that the proposed amendments would level the playing field by requiring the small number of manufacturers and importers who may be unwilling to voluntarily make this transition to switch to low-phosphorus formulations as well.

As indicated above, although EC did not identify any SMEs at risk due to the proposed amendments, enterprises that are already vulnerable may have difficulties making the transition to low-phosphorus formulations. To date, no concerns have been raised by SMEs with respect to the proposed concentration limits.

Summary of expected incremental impacts

Costs of the proposed amendments would be distributed among manufacturers of household dish-washing detergents. With 83% of these facilities located in Ontario and Quebec, costs would impact these provinces disproportionately.

Any consumer impacts associated with higher dishwasher detergent prices are expected to be distributed in proportion to population levels across Canada. Since low-income Canadians are less likely to own dishwashers, there would not be a disproportionate impact on these households.

Manufacturers would benefit from consistent, national concentration limits, limits that would be aligned with those in many U.S. states. As well, the proposed amendments would create a level playing field, ensuring that high-phosphorus formulations are not competing with low-phosphorus formulations.

Municipal wastewater treatment facilities would benefit from the proposed amendments to the extent that preventing phosphorus from entering wastewater decreases the cost of wastewater treatment. These benefits would ultimately accrue to municipalities, with greater benefits to those municipalities with more costly treatment processes. Environmental and human health benefits would be greatest where wastewater treatment is limited or septic systems are used, and where other sources of phosphorus loadings are less significant.

These impacts are summarized in the cost-benefit statement in Table 4.

Table 4: Cost-benefit Statement

A. Quantified costs (present value \$)		
	Government – compliance promotion	\$35,400
	Government – enforcement	\$177,000
	Total quantified costs	\$212,400

B. Quantified environmental benefits (cumulative number)		
	Reduction in phosphorus releases from municipal wastewater treatment facilities (over 25 years)	20 000 tonnes
	Reduction in phosphorus releases from septic systems (over 25 years)	3 300 tonnes
	Total reduction in phosphorus releases to the environment (including 5 100 tonnes from untreated municipal wastewater) [over 25 years]	28 400 tonnes
C. Qualitative benefits and costs		
Benefits		
	Nationally consistent concentration limits	
	Reduced expenditure on phosphorus removal at wastewater treatment facilities	
	Reduced incidence of toxic algae blooms	
	Improved human and environmental health	
	Increased consumer awareness	
Costs		
	Manufacturer reformulation costs	
	Municipal wastewater treatment facility non-phosphorus sludge removal costs	

Rationale

There are significant costs associated with alternatives to the proposed amendments. Voluntary initiatives and the status quo would not achieve the same level of reductions, may result in inconsistent limits between provinces and lead to barriers to inter-provincial trade, and could disadvantage those firms willing to make the necessary expenditures to transition to low-phosphorus formulations. The use of a market-based instrument would likely result in a significant increase in administrative burden for all enterprises, including SMEs. Efforts to achieve the same level of reductions in phosphorus releases through regulation of municipal wastewater and septic systems may be costly and likely unachievable for the thousands of existing septic systems.

The selected option is the most cost-effective method to achieve the public policy objectives and reduce phosphorus releases from the regulated products into Canadian wastewater and septic systems, and into Canadian lakes and rivers.

Coordination and cooperation

Environment Canada consulted with European and U.S. federal and

state government agencies, and carried out research to ascertain the scope and nature of phosphorus limitations in detergents and cleaners in Europe and the United States. As indicated in the description of actions in other jurisdictions, many U.S. states have passed or proposed to pass laws to limit the concentration of phosphorus in detergents and cleaners. Taking into account the level of integration between the Canadian and U.S. economies, the volume of trade of detergents and cleaners between the two countries, the cost-effectiveness of the proposed approach, and the achievability of the public policy objectives, the proposed amendments would align Canada's regulations with similar measures in many U.S. states.

Consultation

On February 16, 2008, EC published in the Canada Gazette, Part I, for a 60-day public comment period, a Notice of Intent communicating the Government's intent to develop the proposed amendments. Relevant provincial governments and Aboriginal communities were consulted through the CEPA National Advisory Committee (CEPA NAC) on the Notice of Intent, which included elements of the proposed amendments. Environment Canada also consulted directly with Agriculture and Agri-Food Canada and Health Canada.

During the 60-day comment period, the industry (SMEs and large enterprises), two industry associations, one non-governmental organization, and one provincial government provided comment on the Notice of Intent. There was broad support among these stakeholders for the proposed concentration limits for household laundry detergent, household dish-washing compounds, and other household cleaners.

On March 26, 2008, a consultation session with representatives from industry, government, non-governmental organizations and cottage owners was held to facilitate and encourage further stakeholder comment on the Notice of Intent and the proposed phosphorus concentration limits. At the session, there was broad support for the concentration limits proposed for household applications of laundry detergents, dish-washing compounds and other household cleaners.

Specific stakeholder comments and concerns, raised during the comment period and the consultation session, as well as EC responses are provided below.

1. An environmental non-governmental organization has called for a January 2009 implementation date, given the benefits of reduced phosphorus releases to 's lakes and rivers. Environment Canada has considered this option but has proposed an implementation date of July 1, 2010, to take into consideration the need expressed by manufacturers for sufficient time for repackaging and reformulation of safe and effective products, and to align the proposed amendments with timelines in many U.S. states. In addition, for some SMEs, the proposed implementation schedule would ensure that the transition to low-phosphorus formulations is not cost prohibitive. Additional time makes the transition easier.
1. An industry association requested that the proposed amendments apply to end-use product formulations (following dilution by the consumer) and not to products sold in concentrated forms, given the benefits of reduced packaging associated with the use of concentrated products. Environment recognizes the benefits of marketing products in concentrated forms to reduce packaging volume and transportation costs. The proposed concentration limits

would, however, apply to all products including those sold in concentrated forms for dilution by the consumer. Environment is unaware of any concentrated products currently available to Canadian consumers that would exceed the proposed regulatory limits. In the event that concentrated products are developed that would require a higher limit, EC would consider an appropriate course of action at that time to balance the environmental benefits of reduced phosphorus releases with the benefits of reduced packaging and transportation costs.

- I Stakeholders had expressed concerns with respect to possible record keeping, testing and reporting provisions. Environment has taken these comments into consideration and has determined that there would be negligible benefit associated with testing or reporting provisions and potentially high associated costs. Manufacturers and importers would therefore not be required to conduct any testing. However, where testing is done in the normal course of business, regulatees would be required to retain these records. Environment enforcement officers would use the test methodologies contained in the Regulations to measure the concentration of phosphorus in regulated products and may request access to available test data to verify compliance with the Regulations.
- I Some stakeholders expressed the view that the definition of cleaners should be clarified to show clearly that household cleaners are being regulated but that industrial cleaners are not. Environment agrees and has clarified the definition in the proposed amendments.
- I Some stakeholders indicated that the labelling of phosphorus content should be a requirement for all detergents and cleaners. There is no authority under Part 7 of CEPA 1999 to require labelling. Environment is therefore not currently planning to introduce any labelling requirements.

Implementation and enforcement

In the year preceding the coming-into-force date, EC would supplement its existing database of prospective regulatees, and begin the process of promoting compliance with the proposed amendments. Specific actions at this time, as indicated in the cost-benefit analysis, may include mailing the regulations to prospective regulatees, answering inquiries, developing and distributing promotional materials, and organizing information sessions to explain the amended Regulations. Follow-up compliance promotion, in the following years, may include sending reminders, responding to and tracking inquiries, and contributing to the compliance promotion database.

Once the proposed amendments have come into force, EC could also begin to enforce the amended Regulations. Enforcement activities would involve EC enforcement officers conducting inspections, which may include sampling and testing of regulated products, investigations of alleged violations, and where necessary, dealing with alleged violations with enforcement measures - including issuing warnings, environmental protection compliance orders or injunctions.

Since the proposed Regulations would be made under CEPA 1999, enforcement officers would, when verifying compliance with the proposed Regulations, apply the Compliance and Enforcement Policy for CEPA 1999. The policy also sets out the range of possible responses to alleged violations: warnings, directions, environmental protection compliance orders, ticketing, ministerial orders, injunctions, prosecution, and environmental protection alternative measures (which are an alternative

to a court trial after the laying of charges for a CEPA 1999 violation). In addition, the policy explains when EC will resort to civil suits by the Crown for costs recovery.

When, following an inspection or an investigation, an enforcement officer discovers an alleged violation, the officer would choose the appropriate enforcement action based on the following factors:

- I Nature of the alleged violation: This includes consideration of the damage, the intent of the alleged violator, whether it is a repeat violation, and whether an attempt has been made to conceal information or otherwise subvert the objectives and requirements of the Act.
- I Effectiveness in achieving the desired result with the alleged violator: The desired result is compliance within the shortest possible time and with no further repetition of the violation. Factors to be considered include the alleged violator's history of compliance with the Act, willingness to cooperate with enforcement officers, and evidence of corrective action already taken.
- I Consistency: Enforcement officers will consider how similar situations have been handled in determining the measures to be taken to enforce the Act.

Environment Canada would monitor phosphorus concentrations and compliance with the proposed amendments, and review the control measure as necessary to determine whether further actions would be required to achieve additional phosphorus reductions.

Implementation, compliance promotion and enforcement activities would be resourced under existing resource capacity and allocated accordingly within the existing departmental reference level.

Performance measurement and evaluation

The proposed amendments would expand the scope of the current Regulations to include a more stringent concentration limit for household laundry detergents, and new limits for household dish-washing compounds and household cleaners. The proposed amendments would set legally binding and nationally consistent concentration limits, thereby facilitating manufacturer access to provincial markets and export markets in the U.S., ensuring widespread consumer access to low-phosphorus detergents and cleaners, and reducing releases of phosphorus into Canada's wastewater and septic systems, and into the environment.

Through its enforcement activities, EC would be in a position to evaluate to what extent the concentration of phosphorus in laundry detergents, dish-washing compounds and other household cleaners have been reduced below the proposed concentration limits considered technologically and economically feasible at this time. Reporting of the incidence of non-compliance by enforcement officers between 2010 and 2015 is expected to provide indicators of this achievement, and EC may use these indicators to pursue further action as appropriate.

The amended Regulations would be administered by EC Chemicals Sector. The Regulations would be evaluated as part of the program evaluation for risk management of chemicals under the Chemicals Management Plan and other harmful substances. This initial review is scheduled to be completed in 2010/2011. Follow-up evaluations will be scheduled as per the department's evaluation planning cycle. An evaluation plan for the Chemicals Management Plan is being developed

this fiscal year (2008/2009).

Contacts

Mary Ellen Perkin
Acting Manager
Consumer and Cleaning Products
Environment Canada
Gatineau, Quebec
K1A 0H3
Telephone: 819-997-1503
Fax: 819-994-0007
Email: maryellen.perkin@ec.gc.ca

Markes Cormier
Senior Economist
Regulatory Analysis and Instrument Choice Division
Environment Canada
Gatineau, Quebec
K1A 0H3
Telephone: 819-953-5236
Fax: 819-997-2769
Email: markes.cormier@ec.gc.ca

PROPOSED REGULATORY TEXT

Notice is hereby given, pursuant to subsection 332(1) ([see footnote a](#)) of the Canadian Environmental Protection Act, 1999 ([see footnote b](#)), that the Governor in Council, pursuant to subsection 118(1) of that Act, proposes to make the annexed Regulations Amending the Phosphorus Concentration Regulations.

Any person may, within 60 days after the date of publication of this notice, file with the Minister of the Environment comments with respect to the proposed Regulations or a notice of objection requesting that a board of review be established under section 333 of that Act and stating the reasons for the objection. All comments and notices must cite the Canada Gazette, Part I, and the date of publication of this notice, and be addressed to Joan Pollock, Acting Director, Products Division, Chemical Sectors Directorate, Environmental Stewardship Branch, Department of the Environment, Gatineau, Quebec K1A 0H3.

A person who provides information to the Minister of the Environment may submit with the information a request for confidentiality under section 313 of that Act.

Ottawa, June 19, 2008

MARY PICHETTE
Assistant Clerk of the Privy Council

REGULATIONS AMENDING THE PHOSPHORUS CONCENTRATION REGULATIONS

AMENDMENTS

1. The long title of the Phosphorus Concentration Regulations ([see footnote 19](#)) is replaced by the following:

REGULATIONS RESPECTING THE CONCENTRATION OF
PHOSPHORUS IN CERTAIN CLEANING PRODUCTS

2. Section 3 of the Regulations is replaced by the following:

3. The concentration of phosphorus in any household laundry detergent shall not exceed 1.1% by weight expressed as phosphorus pentoxide or 0.5% by weight expressed as elemental phosphorus.

4. The concentration of phosphorus in any commercial or industrial laundry detergent shall not exceed 5% by weight expressed as phosphorus pentoxide or 2.2% by weight expressed as elemental phosphorus.

HOUSEHOLD DISH-WASHING COMPOUNDS

5. The concentration of phosphorus in any household dish-washing compound shall not exceed 1.1% by weight expressed as phosphorus pentoxide or 0.5% by weight expressed as elemental phosphorus.

HOUSEHOLD CLEANERS

6. The concentration of phosphorus in any household cleaner, other than a laundry detergent, dish-washing compound, metal cleaner or de-greasing compound, shall not exceed 1.1% by weight expressed as phosphorus pentoxide or 0.5% by weight expressed as elemental phosphorus.

METHOD OF ANALYSIS

ACCREDITED LABORATORY

7. For the purposes of these Regulations, the concentration of phosphorus shall be determined by a laboratory that is accredited under the International Organization for Standardization standard ISO/IEC 17025: 2005, entitled General requirements for the competence of testing and calibration laboratories, as amended from time to time, and whose accreditation includes the analysis of phosphorus within its scope of testing.

DETERMINATION OF PHOSPHORUS CONCENTRATION

8. The concentration of phosphorus in the products referred to in sections 3 to 6 shall be determined by the methods set out in

(a) A Modified Procedure for the Determination of Phosphorus in Detergents, Department of the Environment Report EPS 4-WP-74-2; or

(b) Automated Method for the Determination of the Phosphorus Content of Detergents, Department of the Environment Report EPS 1-WP-76-1.

RECORD KEEPING

9. (1) Every person that manufactures for use or sale in Canada or imports any laundry detergent, household dish-washing compound or household cleaner containing phosphorus shall keep a record that includes the results of any analysis conducted in accordance with these

Regulations to determine the concentration of phosphorus in the product, the name and civic address of the laboratory that performed the analysis and any supporting documents related to the analysis for a period of at least five years, after the date of the analysis.

(2) The record shall be kept at the person's principal place of business in Canada or at any other place in Canada where the information, results and supporting documents can be inspected. If the record is kept at any place other than the person's principal place of business, the person shall provide the Minister with the civic address of the place where it is kept.

COMING INTO FORCE

3. These Regulations come into force on July 1, 2010.

[26-1-o]

Footnote 1

This term refers to cyanobacteria, also known as blue-green algae. Some species contain toxins that are known to attack the liver (hepatotoxins) or the nervous system (neurotoxins); others irritate the skin.

Footnote 2

The proposed limits would be the same as existing and proposed limits in many U.S. states, enabling continued Canadian export access to these important markets.

Footnote 3

The current Regulations include a concentration limit of 2.2% for all laundry detergents, with no distinction between household laundry detergents and those for commercial and industrial use.

Footnote 4

In Quebec, for example, an estimated 259 freshwater lakes were reported to be affected by algae blooms in 2007. Source: Gouvernement du Québec, Ministère du Développement durable, de l'Environnement et des Parcs, www.mddep.gouv.qc.ca/eau/algues-bv/milieux_affectes/index.asp, April 2008.

Footnote 5

Nutrients and Their Impact on the Canadian Environment. Table 3.2. www.nwri.ca/nutrients-nutritifs/tables/table3_2-e.html.

Footnote 6

Nutrients and Their Impact on the Canadian Environment. Table 3.2. www.nwri.ca/nutrients-nutritifs/tables/table3_2-e.html.

Footnote 7

www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181580600540&lang=e.

Footnote 8

Environment Canada. Federal Water Policy: Specific Policy Statements: 2. Water Quality Management. Page 13, www.ec.gc.ca/water/en/info/pubs/fedpol/e_fedpol.pdf.

Footnote 9

Environment Canada. Federal Nutrient Agenda. www.npa-pan.ca/en/issues_nutrients.cfm.

Footnote 10

Canadian Council of Ministers of the Environment. Canada-wide Strategy for the Management of Municipal Wastewater Effluent.
www.ccme.ca/assets/pdf/mwwe_cda_wide_strategy_consultation_e.pdf.

Footnote 11

Agriculture and Agri-Food Canada. Canada's Agriculture Policy Framework: Environment. www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1182434256046&lang=e.

Footnote 12

Environment Canada. Canada's National Programme of Action for the Protection of the Marine Environment from Land-Based Activities.
www.npa-pan.ca/en/about.cfm.

Footnote 13

Environment Canada. Great Lakes Water Quality Agreement.
www.on.ec.gc.ca/greatlakes/default.asp?lang=En&n=FD65DFE5-1.

Footnote 14

Environment Canada. News release, "Government takes action to ensure clean water for Canadians: Phosphates in detergents to be heavily restricted," February 15, 2008.

Footnote 15

Industry Canada, Strategis.

Footnote 16

For example, City of Ottawa Sewer Use By-law limit for total phosphorus is 10mg/l.
http://ottawa.ca/residents/waterwaste/sewer_use/discharge/sanitary_sewers_en.html.

Footnote 17

Köhler, Dr. Jonathan, "Detergent phosphates and detergent ecotaxes: a policy assessment," March 2001.

Footnote 18

Zeolite is an inert, insoluble aluminosilicate. While natural zeolite can be mined, synthetic zeolite is typically used for detergents due to the high purity and potential for reformulation.

Footnote a

S.C. 2004, c. 15, s. 31

Footnote b

S.C. 1999, c. 33

Footnote 19

SOR/89-501

NOTICE:

The format of the electronic version of this issue of the Canada Gazette was modified in order to be compatible with hypertext language (HTML). Its content is very similar except for the footnotes, the symbols and the tables.


[Top of page](#)
[Important notices](#)

Updated: 2008-06-27