A Response to *Canada Gazette* Part I, Vol. 143, No. 34 — August 22, 2009: NGO comments on Proposed Risk Management Approach for Specific Chemicals in Batch 5 of the Industry Challenge of the Chemicals Management Plan

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Introduction

The Canadian Environmental Law Association (CELA) and Chemical Sensitivities Manitoba (CSM) are submitting the following comments in response to the *Canada Gazette,* Part I, Vol. 143, No. 31— August 22, 2009 release of the proposed risk management approach reports for selected substances identified under the Chemicals Management Plan (CMP), Batch 5 of the Industry Challenge.

CELA (www.cela.ca) is a non-profit, public interest organization established in 1970 to use existing laws to protect the environment and to advocate for environmental law reform. It is also a legal aid clinic that provides legal services to citizens or citizens' groups who are unable to afford legal assistance. In addition, CELA also undertakes substantive environmental policy and legislation reform activities in the area of access to justice, pollution and health, water sustainability and land use issues since its inception. Under its pollution and health program, CELA has been actively involved in matters that promote the prevention and elimination of toxic chemicals addressed in the *Canadian Environmental Protection Act*, including the categorization process and implementation of the CMP.

Chemical Sensitivities Manitoba (CSM), a volunteer organization, was founded in 1997 by four individuals who saw the need to address the affects of toxic chemicals on human health and the possible link between the onset of chemical sensitivities and chemical exposure and, in particular, chronic low-level exposure. CSM raises awareness of the presence of toxic chemicals in the home and the environment and strongly advocates for the safe substitution of these toxins.

Our respective organizations along with other Canadian environmental and health non-governmental organizations (NGOs) have submitted substantial comments on assessment results and proposed management options for substances in Batches 1 through 6, including the final assessments and draft risk management options for Batch 1 to 4.

For these batches, our organizations supported some of the proposed assessment results but, at the same time, have elaborated on the gaps and limitations on specific aspects of the risk assessment and the proposed management instruments for specific chemicals. Consequently, we have developed substantial recommendations to address these gaps and limitations.

For this submission, we have provided detailed commentary to the proposed risk management measures on two substances in Batch 5 considered toxic under CEPA 1999: (2-Propenamide (Acrylamide), CAS RN 79-06-1; and Ethanol, 2-chloro-, phosphate (3:1) (Tris(2-chloroethyl)phosphate)(TCEP), CAS RN 115-96-8). We may not have addressed every matter in respect to the measures proposed for these substances but have touched on the major proposals by your departments. We expect to provide substantial feedback on the government's proposed efforts when they are released for further review by the public. These comments are intended to provide you with a broad understanding of the public interest expectations of the government to protect Canadians and their environment from these toxic chemicals.

Furthermore, our organizations continue to have many concerns about the gaps in the assessment process conducted on the other chemicals under Batch 5. However, we are unable to provide substantial commentary on the final risk assessment results for these substances in this submission due to the short time periods available between the public comment periods for each of the batches released under the Industry Challenge. While we understand the time commitments made by the government to complete these assessments, we feel that the public's interest has been somewhat under-represented to the extent that our concerns are not being fully realized and reflected in the outcome of the assessment results. Regardless of the absence of additional comments, we urge your departments to review comments and recommendations submitted by CELA and CSM in April 2009 in response to draft assessment reports for batch 5 chemicals. These comments remain relevant to the findings of the final assessments. Our organizations want to ensure that the government utilizes the full extent of its authority under *CEPA 1999* to promote and implement the elimination or phase out of the most toxic substances found in the Canadian market.

Batch 5 Chemicals with Proposed Risk Management Scope Documents

a) 2-Propenamide (acrylamide) - (CAS RN 79-06-1)

Our specific comments on the final assessment results and proposed management measures for acrylamide (CAS RN 79-06-1) are provided in Table 2.

Table 2: Acrylamide (CAS RN 79-06-1) - Comments and recommendations to specific risk management proposals

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
Section 1.3 Proposed measure	• The Ministers proposed to recommend the addition of acrylamide to the List of Toxic Substances in Schedule 1. • The Ministers will develop a regulation or instrument respecting preventive or control actions to protect the health of Canadians and the environment from the	• Given the carcinogenic potential of acrylamide, it is appropriate for this chemical to be listed on the Toxic Substances List (Schedule 1) of CEPA. • The manufacturing volume for acrylamide in Canada is low, 100 – 1000 kg, but the import volume is very high with a range between 1 million – 10 million kilograms. However, these figures do not include a significant source of acrylamide - residual acrylamide that may be present in products, including imported products that contain polyacrylamide.	Rec.: We support the listing of acrylamide on the Toxics Substances List (Schedule 1) of CEPA. Rec.: An action plan to outline how to reduce or prevent acrylamide, in particular, residual acrylamide, in consumer products and food sources should be developed. This action plan should include the regulatory foundation and provide consideration

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
	potential effects of exposure to this substance.	• Due to the wide range of applications for consumer and industrial uses, and its residual presence in imported products, we are very disappointed that the proposed management options outlined did not provide the level of detail required to address acrylamide comprehensively in specific products or industrial processes. Furthermore, the proposed measures currently lack a level of certainty that acrylamide will be addressed through regulatory measures. It is our view that regulatory measures aimed at the phase out of acrylamide are needed to fully protect Canadians and the environment from this chemical.	of safe substitutes to polyacrylamide polymers, which are used extensively in production of many of consumer products.
Section 3.2 Exposure of children	For most age groups, approximately 90% of the daily intake was from food. A significant association was observed between consumption of french fries and the level of urinary metabolites of acrylamide in children (i.e., concentrations of metabolites were 2–3 times higher in children consuming french fries more than 3 times a week compared with those who consume them less than once a month) (Canada 2008).	• There were no recommendations that specifically deal with children's health with respect to acrylamide intake – not just fat intake. The study of evaluation should have included other foods that children are likely to eat that expose them to acrylamide intake. • While there is information on Health Canada's website about acrylamide, the public, by and large, remains unaware of acrylamide's impact on health, particularly children's health. The government should undertake more aggressive measures in its approach that include strong educational and awareness efforts on these substances along with strong regulatory measures to eliminate these substances from all sources. Additional awareness efforts should include facilities frequently attended by children and their parents such as target daycare centres, schools, pre- and postnatal centres, and hospitals. However, the most effective measure that will ensure protection to human health is an emphasis on prevention and elimination of known sources, including food sources. • Even with educational programs aimed at protecting children, the role of industrial releases has not been effectively targeted by the government's proposed measure.	Rec.: The government should undertake an aggressive plan with a regulatory basis to protect children from exposure to acrylamide from food sources as well as industrial sources. Children should be specifically targeted for protection, not only from a dietary perspective, but by promoting awareness about the foods that would increase acrylamide intake and the resulting health effects of the substance.

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
		The lack of attention in this area will result in the continued exposure to human health, in particular vulnerable populations. Regardless of the evidence that industrial sources are not the main source of exposure for human, it is quite concerning if the government avoids taking action on industrial sources, since it would place the burden on consumers to effectively protect themself from exposure to acrylamide.	
Section 6.1.1 Existing Canadian risk management Releases to the environment – NPRI reporting	Acrylamide is a substance reported under the National Pollutant Release Inventory. For facilities to report to the NPRI there is a 10-ton manufacturing, processing or use threshold. Releases under this quantity were reported in 2006 but were low. Only certain industrial sectors are included in this inventory.	• Since only certain industrial facilities and sectors are included in reporting their releases and transfers of pollutants under the NPRI, it is quite likely that the actual releases of acrylamide to the environment are higher than recorded given the high volume usage of this substance. Furthermore, the current thresholds for reporting are high and therefore, there may be facilities that release and transfer acrylamide that are not required to report to NPRI. • Because of its toxic properties, the reporting threshold for this chemical should be removed to ensure that all facilities releasing or transferring acylamide are required to report under the NPRI.	Rec.: The reporting thresholds for acrylamide should be removed due to its toxicity. This will ensure that all releases and transfer of acrylamide are reported to the NPRI.
Section 6.1.1 Existing Canadian risk management National Sanitation Foundation Standard 60/61 – additives in drinking water	Acrylamide containing additives are permitted in drinking water in Canada. There are voluntary health-based standards for additives that limit the amount of acrylamide residual that can be present in the finished drinking water (National Sanitation Foundation Standard 60/61) (NSF International 2005).	• The current approach to acrylamide in additives to drinking water is inadequate. There are two issues with the possible addition of acrylamide containing additives to the drinking water: 1) Due to the toxic properties of acrylamide, it should not be permitted in additives added to finished drinking water, regardless of its concentration. 2) A voluntary health based standard is very questionable. Such a standard does not provide the necessary safe guards that such standards are required to meet because enforcement mechanisms for these standards may not be required.	Rec.: Eliminate the use of additives in drinking water that contain acrylamide. Rec.: Voluntary health based standards for drinking water should be eliminated. A regulation to ensure that acrylamide in drinking water is not permitted should be implemented.

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
		Therefore, there should be no voluntary health-based standards for additives that limit the amount of acrylamide residue that may be present in finished drinking water. As a result, efforts should be undertaken to phase out acrylamide from drinking water. This should be undertaken using regulatory measures. • Finally, the presence of acrylamide in additives in drinking water may also result in the presence of this chemical in effluents from waste water treatment plants. The impacts of this may be unclear. However, on-going concerns on the management of effluent to receiving waters, disposal in landfills as sludge and potential application of sludge for agriculture purposes are relevant matters in this regard.	
Section 7.1 Alternative chemicals or substitutes	• Potential biopolymer alternatives to polyacrylamide for soil water retention and erosion control - recent studies - charged polysaccharides, whey and industrial cellulose derivatives. • Their performance characteristics are generally not as long lived. • These substitutes have not undergone an assessment to determine whether they meet the criteria under section 64 of CEPA 1999.	• It is valuable to note the inclusion of potential substitutes for acrylamide. However, the government's efforts should be expanded to provide additional support for further identification and promotion of alternatives particularly when cited toxicity of the alternatives has not been assessed. • As part of its effort, the government should ensure that alternatives are also evaluated for their safety to human health and the environment. This level of accountability is needed.	Rec.: The government should expand their efforts to identify alternatives to acylamide. Rec.: A process to determine the safety of all appropriate substitutes for polyacrylamide (in effect acrylamide) should be undertaken under CEPA before they are used as replacements.
Section 8.1 Environmental or human health objective	The proposed human health objective for this substance is to minimize exposure to the	• The human health objectives for developing management measures for acrylamide are considered inadequate because this substance has been	Rec.: Based on its extensive health effects, the human health objective for acrylamide should be

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
	substance to the extent practicable.	identified for its carcinogenicity, genotoxicity, neurotoxicity, developmental and reproductive toxicity. The U.S. Scorecard website noted the following health effects associated with acrylamide: it is a carcinogen and suspected immunotoxicant, neurotoxicant, reproductive toxicant and skin or sense organ toxicant.[1] The health of Canadians will continue to be at risk if the human health objective focuses only on minimizing exposure. • Given its extensive use and the potential for its presence as a residue in many consumer products, its formation in popular food sources such as French fries, and its releases through industrial processes and products, a goal to protect human health through eliminating unnecessary exposure to this substance is more appropriate.	strengthened to aim for the elimination of human exposure to this substance when it is an added substance in consumer products. Rec.: We urge the government to revise the word "minimize" to "eliminate" in its environmental or human health objective.
Section 8.2 Risk management objective	To prevent increases in exposure due to environmental emergency situations in the manufacturing and industrial sector and to ensure, to the greatest extent possible, that Canadians' exposure to acrylamide from food sources is kept as low as possible.	• The proposed risk management objective requires strengthening as it focuses mainly on preventing exposure though emergency situations. With emphasis needed to prevent exposure at the source, it is necessary to provide industry the appropriate triggers to review their use of the chemical throughout industrial processes as well as in products. • The risk management objectives emphasis on emergency situations is quite narrow in scope as it implies that acrylamide exposure occurs only when there is an emergency event. We have several concerns with this approach. The management objective does not provide details on what would constitute environmental emergencies and the assessment report outlines extensive uses for acrylamide but does not provide any details of the industrial processes (use of close loop systems) and where	Rec.: We do not support the proposed management objectives for acrylamide because they do not adequately protect human health from exposure to this substance and focus on only emergency situations. Rec.: We urge the government to expand its management objectives to seek an elimination and prevention of exposure to acrylamide from all sources.

[1] U.S. Scorecard at http://www.scorecard.org/chemical-profiles/summary.tcl?edf_substance_id=79%2d06%2d1#hazards, downloaded on October 16, 2009.

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
		there are possible losses of acrylamide to the surrounding environment (including occupational settings). And also, what efforts have been initiated to reduce the level of free acrylamide in polyarcylamide need to be examined. • All sources of acrylamide should be carefully considered for risk management regardless if they are considered small source or large sources (e.g. foods). Currently, the assessment noted human health exposure to acrylamide is mainly from food intake while other sources such as industrial releases are considered low in exposure. The government's proposal for management of this chemical is very limited in its scope and focuses on reduction rather than prevention at the source. • The consideration of limiting the concentration levels of polyacrylamide (in effect acrylamide) in consumer and industrial products would only control exposure levels. This method of "prevention" may control the level of the chemical (as a residue) at the end of the process but cannot fully ensure that acrylamide is not present. A strategy that employs elimination at the source is more protective of human health. • Even with the present technology to detect and reduce levels of this chemical in the polymer, the process for reviewing and updating levels is slow and resource intensive, leaving human health vulnerable to exposure to these chemicals. • In addition, the data demonstrating that this chemical is a carcinogen with several possible exposure routes which have not been fully assessed, should be given more consideration. • The possible breakdown products of acrylamide/ polyacrylamide should also be considered in the risk management approach. • There should be an aim to prohibit the	

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
		use of acrylamide/polyacrylamide in cosmetics and consumer products. Although data show that human exposure through these products is low compared to exposure through food intake, the government's attention to this route of exposure is nonetheless inadequate.	
Section 9.1.1 – Proposed risk management: Polyacrylamide manufacturing sector	It is proposed that there will be no risk management of acrylamide for the polyacrylamide manufacturing sector for the following reasons: • Industrial chemical uses are governed under provincial health and safety regulations and all workplace chemicals must comply with the *Controlled Products Regulations*, which includes Workplace Hazardous Materials Information System (WHMIS) labelling, supply of Material Safety Data Sheets (MSDSs) and worker training. • The polyacrylamide manufacturing sector is the largest user of acrylamide monomer in Canada and it is expected that the exposures to the public from these products are negligible.	• We are concerned that the government is not placing adequate emphasis on addressing the industrial sources of acrylamide. Many options to address industrial sources are available through pollution prevention strategies that include implementing substitutes and the consideration of green chemistry aimed at promoting reductions as well as elimination. It is very concerning that none of these options have been proposed in the government's approach. • Occupational health and safety with respect to exposure to this chemical has not been addressed under CEPA. This is seen as a major gap in the CMP – Industry Challenge, as attempts to improve occupational health and safety for workers in Canada would be more difficult. While occupational health and safety are under provincial jurisdiction, it is felt that there would be more effective management of workplace chemicals with federal input. • There has been no definite plan stated by government to address how pertinent information gathered from the assessment and risk management documents would be communicated to provincial workplace and safety departments, universities, environmental health departments, occupational health departments/clinics and unions. Similarly, there are no explicit processes to ensure the appropriate government agency will follow-up on these findings. • While there are regulations in place to protect workers in industry, monitoring and enforcement are not as frequent as	Rec.: We urge the government to include the polyacrylamide manufacturing sector in its efforts to manage acrylamide in support of a prevention approach. Rec.: The government should provide details to the public on their efforts to work with provinces, affected industry and unions to ensure protection from occupational exposure to acrylamide. This would include the exchange of data about the assessed chemical and the proposed measures for managing the chemical. Rec.: It is also imperative that other stakeholders be involved in the process, such as labour, environmental and health organizations, etc.

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
		they should be. As a result, the lack of awareness and knowledge about the hazards of workplace chemicals still remain contentious issues. • It is simply inadequate to rely on MSDS sheets to ensure protection to people in workplaces.	
Section 9.1.2 – Proposed risk management: Food sector	Health Canada will continue to press the food industry towards the development and implementation of acrylamide reduction strategies by food processors and the food service industry: • While Health Canada is aware of changes implemented by food processors that have already resulted in the reduction of acrylamide levels in certain foods, Health Canada will actively engage the food industry in the development of a guidance document outlining best practices for acrylamide reduction in prepackaged foods. • Health Canada will continue to support the development and implementation of additional tools that will minimize acrylamide formation in foods. This includes the use of the enzyme asparaginase in food processing. • Health Canada will work with the Canadian food service industry to encourage the adoption	• The development of a guidance document outlining best practices should be one element of a substantial review of acrylamide in the food sector. In particular, the government should take steps that will focus on the elimination, rather than reduction, of acrylamide as a by-product of certain food processing activities. • Currently, the government's approach towards this goal emphasizes education rather than preventing the formation of acrylamide in food products. While education has significant benefits in this regard, there will be long term health impacts to consumers who rely on the government to set out stringent regulations to protect food and food quality. The education activities should be accompanied by strong accountability measures through regulations targeting the food sector. • For prepackaged foods in which acrylamide levels have been detected, the use of a labeling system may help in informing consumers. However, the onus of responsibility in determining an acceptable risk of exposure remains with the consumer rather than the industry responsible for the product. • The government notes the use of the enzyme asparaginase to address acylamide reduction in prepackaged foods. However, the safety and use of the enzyme itself has not been evaluated for health or environmental impacts in the context of this assessment. The absence of such an analysis on this enzyme raises additional concern about the government's reliance on this	Rec.: We urge the government to strengthen its plans to target the food sector. Rec.: The government should impose a mandatory requirement for the food industry to eliminate acrylamide levels in prepackaged foods within a specified timeframe. Rec.: The development of a guidance document outlining best and safe practices for acrylamide reduction in prepackaged foods is one of the key elements for eliminating acylamide levels in prepackaged food. This guidance document should be made publicly available. However, this should be part of a larger strategy to support the prevention of acylamide being used in the food industry. Rec.: Data from acrylamide monitoring must continue to be available to the public in an understandable format, including a summary of findings. The results monitoring should inform the level of progress made towards the management goals for acrylamide.

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
	of acrylamide reduction strategies. • Health Canada will also continue to update its acrylamide monitoring program to evaluate the effectiveness of these reduction strategies and to assess industry's compliance with identified acrylamide reduction best practices. This program could possibly lead to the development of reduction targets. • Health Canada will regularly update and reissue its consumption advice to consumers on how to reduce their exposure to acrylamide from food sources, based on the most up-to-date scientific and monitoring data. • Health Canada will coordinate its risk management efforts for acrylamide in food with key food regulatory partners in the United States, Europe, Australia, New Zealand and Japan. Where required, Health Canada will support targeted toxicology research to better understand possible chronic effects of exposure to acrylamide in food. • Health Canada will also update its food-related health risk assessment, based on emerging	enzyme to protect the health of Canadians from acylamide. • For acrylamide in pre-packaged foods, the government has stated that it will be considering 'the development and implementation of additional tools'. It is uncertain if these tools are strictly related to the processing procedures or the addition of other 'food additives' for acrylamide reduction. • With the continuation of the acrylamide monitoring program, it is unclear how the government will determine which products actually have reduced acrylamide levels in order to continue monitoring. This would have to be done in conjunction with industry. • The data from this monitoring program should be publicly available with trade names listed. • The government should focus on the long term health effects of acrylamide particularly because of the increase in usage of prepackaged foods that could contain acrylamide. • There is agreement that Canada should share information and coordinate its risk management efforts for acrylamide in food with other key regulatory bodies in other countries.	Rec.: The government should release for public comments, the government's tools for acrylamide reduction in food. Rec.: The use of enzyme asparaginase should be evaluated for its safety to the environment and human health. The data regarding the use of the enzyme asparaginase to reduce acrylamide in food should be made available for public comment. Rec.: The government should develop stringent measures to protect children from foods containing acylamide. Rec.: Advances made in the reduction of acrylamide in prepackaged food, in Canada and in conjunction with other countries, should be made available on Health Canada's website.

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
	findings available internationally and stemming from its own research and monitoring activities related to acrylamide occurrence in food and its impacts on human health.		
Section 9.1.3 – Proposed risk management: Cosmetics sector	The addition of acrylamide to the Health Canada Cosmetic Ingredient Hotlist.	• There is agreement that acrylamide should be added to Health Canada's Cosmetic Ingredient Hotlist. However, the addition of the chemical to this list should be part of a larger strategy to eliminate acylamide from industrial and consumer products. • The efficacy of listing harmful chemicals on the Cosmetic Ingredient Hotlist remains uncertain since the government is not required to provide a comprehensive report to the public outlining compliance with this list under the *Food and Drug Act*. • Because of its carcinogenicity, acrylamide should be listed as a substance that should be prohibited from cosmetics and personal care products, at any level regardless if the product is to left on or rinsed off. • The government's proposals have not provided information to outline whether the cosmetics industry has gathered information on potential safe alternatives for this sector.	Rec.: The addition of acrylamide to the Hotlist should be as a prohibited substance in cosmetics and personal care products. Rec.: Safe alternatives to acrylamide (its polymer – polyacrylamide) for the cosmetic industry should be investigated with full public disclosure.
Section 9.1.4 – Proposed risk management: Natural health products sector	• As natural health products are regulated under the *Food and Drugs Act*, this sector will not be a candidate for risk management. • Concentrations of polyacrylamide in licensed natural health products (e.g. skin cleansers, moisturizers) range from 0.8% to	• We have a significant concern with the government's approach not to include the natural health products sector for managing acrylamide. Although the presence of polyacrylamide/acrylamide in natural health products may be found at low concentration levels, the government should review the residual acylamide levels in these products as well as in other sources. • In particular, consumers may falsely believe that natural health products do	Rec.: We recommend that the government eliminate polyacrylamide, hence acrylamide, from natural health products in keeping with previous recommendations. Rec.: All sources of acrylamide should be examined and pollution prevention strategies

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
	3.375%. The concentration of acrylamide in polyacrylamide-containing formulations should not exceed 0.0005%. It is listed as a non-medicinal ingredient.	not contain toxic chemicals. The onus of determining the safety of products should not be placed on the consumer. The burden of responsibility in this situation is too high. • Based on the properties of acrylamide and the potential for long term use of natural health products, particularly on the skin, this substance should be eliminated from these products. Pollution prevention strategies that include the implementation of safer alternatives to this substance should be investigated and promoted.	should be given consideration, including the implementation of substitutes.
Section 9.1.5 – Proposed risk management: Drugs sector	Drugs are regulated under the *Food and Drugs Act* therefore this sector will not be considered for risk management. Rationale: Polyacrylamide is also present as a non-medicinal ingredient in several licensed topical therapeutic products, with concentrations ranging from 0.3% to 1.08%. Although not in frequent use, it can also be utilized in gelatin capsules for rigidity. Also, gelatin capsules containing polyacrylamide are not used for products intended for human consumption but rather for skin preparations.	• Although polyacrylamide is utilized at low levels of concentration, we are not in agreement that this substance should have continued use in the drug sector because of its properties and topical use. • As a non-medicinal ingredient, it is easier to replace this substance with a tested safe alternative that maintains the desired properties of the polyacrylamide. Lack of effort to regulate the use of acrylamide for this sector leaves consumers at risk. In particular, for those consumers that rely on specific therapeutic products that use acrylamide, the unnecessary exposure to this chemical is unwarranted. • Because of the above opinions and concerns, this sector should come under further evaluation by the government.	Rec.: Although the application of this substance in the drug sector is topical and not via ingestion, we recommend that polyacrylamide/acrylamide be eliminated from these products and safe, government tested alternatives be used in these products.
Section 9.1.6 – Proposed risk management: Environmental	The federal government has assessed acrylamide in the event that it were to enter the environment as a result of an	• Based on our review of the Risk Evaluation Framework for Section 199 and 200 of *CEPA 1999*, it remains unclear how the threshold of 9100 kg for this chemical was determined. Due to	Rec.: We support the addition of acylamide to the list of chemicals under the *Environmental Emergency Regulations*. However, the

Specific sections of risk management scope – 2-propenamide (acrylamide) CAS RN 79-06-1	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
emergencies	environmental emergency and has concluded that the substance meets one of the criteria set out in section 200 of *CEPA 1999*. Therefore, the government intends to propose adding acrylamide to the *Environmental Emergency Regulations* with a proposed threshold of 9100 kg set through the Risk Evaluation Framework for sections 199 and 200 of *CEPA 1999* (Environment Canada 2002).	the high import levels of this chemical, the threshold of 9100 kg should be lowered to ensure that all users and releasers of acylamide are required to produce environmental emergency plans. Environmental emergency plans should be required as part of a comprehensive strategy to eliminate free acylamide from industrial sources. • The government's current approach to acrylamide is not a prohibition and as such, there may be stockpiles of this chemical in facilities. The potential presence of stockpiles at the facility plants should be addressed in the emergency plans. • The inclusion of emergency plans provides a response plan should accidents or spills occur, particularly for workers and the surrounding communities.	threshold of 9100 kg should be removed to ensure that all facilities using or releasing acrylamide be required to prepare environmental emergency plans regardless of volume thresholds. Rec.: The environmental emergency plans should also address potential stockpiles of acrylamide.

b) Ethanol, 2-chloro-, phosphate (3:1) (TCEP) (CAS RN 115-96-8)

Our specific comments on the final assessment results and proposed management measures for TCEP (CAS RN 115-96-8) are provided in Table 2.

Table 2: - Ethanol, 2-chloro-, phosphate (3:1) (TCEP) (CAS RN 115-96-8)
Comments and recommendations to specific risk management proposals

Specific sections of risk management scope - TCEP CAS RN 115-96-8	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
Section 1.3 Proposed measure	• It is proposed for the Ministers to recommend the addition of TCP to the List of Toxic Substances in Schedule 1.	• Given the carcinogenic potential of TCEP, it is appropriate for this chemical to be listed on the Toxic Substances List (Schedule 1) of *CEPA*. • Based on information gathered from the section 71 survey, TCEP is not	Rec.: We support the listing of TCEP on the Toxics Substances List (Schedule 1) of CEPA. Rec.: We do not support the proposed life-cycle approach to

Specific sections of risk management scope - TCEP CAS RN 115-96-8	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
	• The Ministers are to develop a regulation or instrument respecting preventive or control actions to protect the health of Canadians and the environment from the potential effects of exposure to this substance. • TCEP will be managed through a life-cycle approach to prevent or minimize its release into the environment as it does not meet the conditions set out in subsection 77(4) of *CEPA 1999* - so virtual elimination has not been recommended under *CEPA 1999*.	manufactured in Canada in quantities greater than or equal to 100 kg. However, in 2006, Canada imported TCEP in the range of 100,000 to 1,000,000 kg. These values may be an underestimate since they do not take into account TCEP that would be present in imported products as this may be a substantial quantity. • Apart from its application in electronics, TCEP has a wide variety of uses in products many of which are eventually used by the consumer. However, it is recognized that the amount of TCEP would vary considerably depending its application. Since TCEP is used extensively in various applications, we are concerned that the proposed management approach to consider a 'life-cycle' approach is inadequate. This substance is carcinogenic and persistent therefore making it a candidate for a preventative approach. The risk management proposal (see Section 9.1 of the risk management document) also mentions the possible prohibition of TCEP for some products, although the details for this approach are very limited. We have expressed our concern that such proposals should include sufficient detail in the risk management document to demonstrate the level of commitment by government to take action on these substances. Based on the recent surveys conducted by the government, there is a level of expectation by the Canadian public that the government protects the public from toxic chemicals such as TCEP.	promote the reduction for TCEP based on its health impacts and persistence. A more protective approach is a phase out of TCEP from industrial and consumer products. Rec.: To achieve a protective measure, we urge the government to develop an action plan that would include a regulatory framework that would aim to phase out use and release of TCEP over time and ensure the substitution of TCEP with safer substitutes.
Section 3.2. Exposure to children	The predominant sources of exposure to TCEP occur from indoor air and dust. Electronics (mainly televisions) were	• Exposure from indoor dust could be from many sources in the home including polyurethane foam, electronic equipment, backing of upholstery, fabrics, carpets,	Rec.: The government should ensure that babies and toddlers are especially protected in its plan to address public exposure to TCEP. Proposed regulations

Specific sections of risk management scope - TCEP CAS RN 115-96-8	Proposed government measures & other measures	CELA & CSM Comments	Recommendations
	cited to be a major contributor. It is not known if TCEP is in polyurethane foam used in children's toys in the Canadian marketplace. In the European Union's draft assessment on TCEP, children mouthing a foam toy had the highest exposure estimates. The toy in question has since been recalled and removed from the European Union marketplace. While exposures from TCEP through food sources may occur, it is considered a minor contribution to overall exposure.	sealants, rubbers and plastics. Through the degradation process, the exposure to TCEP is of significant concern. Furthermore, many of these products may be imported from other countries where TCEP is still being used as a plasticizer and viscosity regulator with flame-retardant properties. The entry of these products into Canada continues to create challenges for Canadian decision-makers. Effective efforts to keep products containing TCEP from entering into Canada may not be very successful, as seen with the problem of lead in children's jewelry over the years. A more substantial effort in this area is needed. The addition of this chemical to the *Prohibition of Specific Toxic Chemicals Regulation* under *CEPA*, which should include imported products in the listing, may be an appropriate measure for consideration. • With low confidence in the modeled estimates of exposure (i.e., dermal absorption and inhalation) from consumer products, there is a greater need to protect toddlers and babies from TCEP – considerations that go beyond foam used in their toys. • This awareness of the vulnerabilities of toddlers and babies to such chemicals should effectively trigger a need for a substantial response by government to protect children from exposure. They are very vulnerable to the effects of toxic chemicals as documented by key reports on the subject. In this instance, it would be more precautionary for the government to apply a phase out of TCEP in consumer products and, in particular, those products intended for indoor use, particularly in the home. • The emphasis would have to be placed on products used by children.	should be developed to ensure that vulnerable subpopulations such as children are protected and given special consideration. Rec.: The government should consider the addition of TCEP to the *Prohibition of Specific Toxic Chemicals Regulation* under *CEPA*. The addition of TCEP under this regulatory should include imported products containing TCEP.

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		However, a complete phase out and prohibition of this chemical in all products that contain it is more appropriate because TCEP may be released to the environment due to breakdown processes over time. Without this inclusion in government regulations, this vulnerable population would continue to be exposed to TCEP.	
Section 7.1. Alternative chemicals or substitutes	o Production of TCEP has been in decline over the past two decades, as its use in rigid and flexible polyurethane foams and systems has been substituted by other flame retardants. o In Canada - TCPP has not yet been evaluated in an assessment to determine whether it meets the criteria under section 64 of CEPA 1999. It is a medium-priority substance for assessment under the Chemicals Management Plan. • The European Union has reported no production of TCEP but there have been imports. • In Europe, there is no manufacture of TCEP or use in foam applications. It has been replaced by Tris (1-chloro-2-propyl) phosphate (TCPP) which is a mixture of four isomers.	• Recognizing that TCEP has been declining in production and use in the EU, Canada should be guided by the EU regarding the import, manufacture and use of this substance. The findings of this assessment suggest that this chemical may be a good candidate for phase out. • To ensure that alternatives or substitutions do not possess toxic properties – to human health and the environment - the government should require a process to assess their safety before being used. This should include alternatives such as TCPP, which is used as a primary flame retardant. • It is unlikely that any one alternative is appropriate for all applications. Therefore, end use must also be taken into consideration during the assessment.	Rec.: The government should expand its efforts to identify safe alternatives to TCEP. Rec.: The government should take steps to assess the safety of the alternative used in Europe – TCPP. Rec.: A process to determine the safety of all appropriate substitutes for TCEP should be undertaken under *CEPA* before they are used as replacements.
Section 8.1. Human health objective	The proposed human health objective for this substance is to reduce	• On the basis of the carcinogenicity of TCEP and the probability of harm at any level of exposure, the human	Rec.: The human health objective for TCEP should be strengthened to aim for the

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	exposure to the extent practicable, as it cannot be precluded based on the currently available evidence that it is not a non-threshold carcinogen.	health objectives for developing management measures for this substance are considered inadequate. Given its extensive use and the potential for its presence in many consumer products, elimination of TCEP is seen as a more effective and appropriate measure for the protection of human health as opposed to minimizing its presence.	elimination of human exposure to this substance that is present in so many consumer products. Rec.: We urge the government to revise the word “minimize” to “eliminate” in its environmental or human health objective.
Section 8.2. Risk management objective	The proposed risk management objective for TCEP is to reduce exposures to TCEP by eliminating it from products in the home.	• While we acknowledge that there should be reduction of human exposure to TCEP by eliminating it in products used in the home, we do not consider “reduction” fully protective of human health as there are other likely and common sources of exposure to TCEP other than in the home. • There is a need for the government to look beyond the home for daily exposures to TCEP. Such sources of exposures would include foams and plastics used in airplanes, the automotive sector, heavy equipment or machinery and rail cars. These represent various types of exposure scenarios but there has been no attention given to comparing these for levels of exposure. These indoor types of exposure should be given the same risk management objective as the home environment with an aim for elimination of TCEP. • Also, these various modes of transport may represent a working environment for some individuals and in some cases, a very enclosed working environment. Not only are these individuals exposed in the workplace, they are also exposed to TCEP in their home environment as well. This re-enforces the need for the government to have a more comprehensive approach to the phase out of this substance and include other sectors where there is	Rec.: We do not support the proposed management objective for TCEP because it does not adequately protect human health from exposure to this substance. Rec.: We urge the government to expand its management objectives to seek an elimination and prevention of exposure to TCEP from all sources (consumer and industrial), in particular those sources where there is direct human exposure (including the home, workplace, transportation vehicles, recreational settings, etc.).

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		likely direct human exposure to TCEP. • The assessment report has not considered the cumulative and synergistic effects of chemicals. This gap in the assessment process creates a level of uncertainty on the effectiveness of the proposed measure to consider only products. A complete elimination or phase out of TCEP in industrial and consumer products would be more protective.	
Section 9.1. Proposed risk management	The predominant sources of exposure to TCEP occur from indoor air and dust, which is secondary to releases of TCEP from products and materials used in the home and which may include the following: polyurethane foam (PUF) in furniture; electronic products (e.g., televisions and computers); adhesives; non-apparel textiles; upholstery; the back-coating of carpets; rubber and plastics; and paints and varnishes. The management approach being considered is the prohibition of the use of TCEP in these products and materials. The final extent of this prohibition will be determined upon further consultation and discussion with stakeholders.	The risk management approach being proposed appears to be conditional and extremely vague. The current proposal lacks details as to what would be the possible criteria for the prohibition of this substance in the products listed, specifically products that are commonly found in the home. It is our view that the government has sufficient evidence to call for a complete prohibition of TCEP in products, including products that are imported into Canada. For these reasons and the uncertainties listed below, the government proposal should be strengthened. • The government consultation and discussion with stakeholders does not include a timeframe and scope of the consultation to be undertaken. • The consultation does not specifically indicate the participation of other stakeholders other than the affected industries. • There was no mention of whether the consultation would include a discussion on viable alternatives for TCEP. • No proposal has been released by government to indicate if additional activities such as air monitoring of TCEP in homes will be conducted so as to contribute to the decision making process. • The proposed consultation does not provide proposed activities that may	Rec.: The government's risk management proposal for the possible prohibition of TCEP in products and materials found in the home should be strengthened. Such a proposal should include additional details on the scope and timeframe for prohibition to ensure protection of human health (including the workplace). Rec.: The proposed measures should explicitly ensure that vulnerable populations including babies and toddlers are included. Rec.: The proposed management measure should include environments outside of the home as they are venues of possible exposure to TCEP. Rec.: Government should include prohibition of products and materials containing TCEP imported into Canada as they are likely sources of TCEP. Rec.: The TCEP industry should be covered under proposed prohibition regulations as they are sources of human exposure to TCEP including worker exposure.

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		be undertaken to consider exposure to babies and toddlers from TCEP. The proposed risk management is not specific enough in its protection of this vulnerable subpopulation. • As mentioned above, the proposed risk management falls short of fully protecting the Canadian public as it fails to consider other likely exposure routes for TCEP where there are environments that are possibly comparable to the indoor home environment. • The proposed risk management does not address industry sectors using TCEP. The government needs to have a more encompassing risk management plan. Many options to address industrial sources are available through pollution prevention strategies that include implementing substitutes and considering green chemistry that would facilitate a phase out or a reduction in these sectors. It is very concerning that none of these were proposed in the government's approach. • Canada imports many products or materials that may contain TCEP. This area needs to be addressed comprehensively as these potential sources can be found in our homes and our workplace. • With respect to TCEP and other chemicals that exhibit toxic properties, the fact that occupational health and safety are not addressed under *CEPA*, is seen as a major gap in the CMP – Industry Challenge. While occupational health and safety are under provincial jurisdiction, a required outcome from the efforts under the CMP should include improved protection from toxic chemicals in the workplace. • At this time, no proposals have been released to the public as to how the government will share the information gathered through the	Rec.: The government should outline details in its management strategy on their efforts to communicate and work with the provinces, affected industries and unions. They should ensure the information on TCEP assessment findings, including occupational exposure, is received and appropriate follow-up is taken to address these findings. This would include exchange of data from assessed chemicals and proposed measures for managing these chemicals. It is also imperative that this process includes participation by other stakeholders including, labour, environmental, and health organizations, etc.

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		CMP with interested parties: provincial workplaces, ministries responsible for workplace safety and health, universities, environmental health departments, occupational health departments/clinics, and unions. Similarly, there is no explicit process to ensure the appropriate government agency will follow-up on these findings. • While there are regulations that are in place to protect workers in industry, monitoring and enforcement are not as frequent and stringent as they should be. As a result, the lack of awareness and knowledge about the hazards and risks associated with workplace chemicals still remain contentious issues. • It is simply inadequate to rely on MSDS sheets to ensure protection for people in workplaces.	

Additional issues

1) Consideration of other vulnerable populations

The comments related to children's health exposure to TCEP may be relevant for other vulnerable populations. The current government approach to data collection is very narrow in its scope and therefore does not aim to provide additional insight on the possible exposure of TCEP to other vulnerable populations such as people of low income, people with chemical sensitivities and aboriginal people. The development of appropriate measures that adequately protect health may be compromised by the limitations of the current approach.

Rec.: The management regime for TCEP should ensure that vulnerable populations such as people of low income, people with chemical sensitivities and aboriginal people are effectively protected from exposure to TCEP.

2) Lack of proposals to address waste and disposal methods

In many of our joint submissions responding to the draft and final assessment reports on chemicals under the Industry Challenge, our organizations have emphasized the lack of attention provided to the waste stream and disposal methods for these chemicals. This is a relevant matter when considering management options for TCEP as well as other chemicals. The assessment report and risk management document provide emphasis on the presence of TCEP in consumer products and indoor air. However, the corresponding measures to address these sources have not taken into account the presence of these chemicals in products that eventually end up in landfills or are incinerated when disposed of. It is critical that additional attention is paid to how these products are managed at their end of life.

We are concerned that there may be chemicals leaching from landfills to the surrounding environment. Similarly, disposal practices such as incineration may result in the release of harmful by-products. Also, an end product, such as sludge may be applied to agricultural land or disposed of in landfills, both practices that may have adverse environmental impacts. Some disposal methods pose additional sources of TCEP that have not been fully addressed in the risk management document. It is critical, therefore, that the approach to TCEP is more comprehensive than currently proposed. The approach should be based on prevention at the source.

Rec.: The government is urged to include and consider the impacts from disposal methods for products and materials containing TCEP.

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