

March 2, 2010

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RE: Proposed Pollution Prevention Plans for Isoprene (1,3-Butadiene, 2-Methyl-) (CAS RN 78-79-5) : Responding to Canada Gazette, Part 1: Notices and Proposed Regulations, Vol. 145, No. 1 — January 1, 2011 on the Proposed Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Specified Substances on Schedule 1 of the Canadian Environmental Protection Act, 1999, related to the Resin and Synthetic Rubber Manufacturing Sector

Dear Ms. Kenny:

On behalf of the Canadian Environmental Law Association (www.cela.ca) and Chemical Sensitivities Manitoba, please consider the following comments in response to the “Proposed Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Specified Substances on Schedule 1 of the *Canadian Environmental Protection Act*, 1999, related to the Resin and Synthetic Rubber Manufacturing Sector” as published in the *Canada Gazette*, Part 1: Notices and Proposed Regulations, Vol. 145, No. 1 — January 1, 2011.

Our organizations provided substantial comments to Environment Canada in a letter dated September 20, 2010 in response to a pre-consultation document that focused on the development of P2 plans for the resin and synthetic rubber manufacturing sector related to the releases of isoprene. Therefore, we have attached our original comments to this submission for your further consideration (See Appendix A).

In our September 2010 letter, we raised a number of issues and made comments that are relevant in the efforts to promote pollution prevention strategies for the releases of isoprene into the environment. Generally, the scope and details of the proposed notice are not considered sufficiently prescriptive for facilities to adopt and implement pollution prevention strategies in their P2 Plans. Many of the issues noted in our September 20, 2010 submission have not been incorporated or addressed into the proposed notice. These issues continue to be relevant and as a result, we urge your department to reconsider these comments in the context of the proposed notice for P2 plans focused on releases of isoprene from the Resin and Synthetic Rubber Manufacturing Sector.

We are taking this opportunity to reiterate several important issues related to the proposed notice for P2 plans

1) *Outline explicit reduction and elimination targets expected from requiring pollution prevention plans.*

We note that the proposed notice does not include any estimates or targets for reduction and elimination for levels of isoprene releases to the environment. While the proposed notice states that the objective is “To reduce exposure to isoprene through the reduction of industrial isoprene emissions to the environment to the greatest extent practicable, using best available techniques economically achievable,”¹ the expected reductions for isoprene releases to the environment in this proposed plan, remain uncertain. It is our view that establishing levels of reduction or elimination of isoprene is essential to the effectiveness of P2 plans. The proposal in its design does not aim to reduce the overall use of isoprene by the sector because its focus is on environmental releases. The lack of targets for reduction or elimination makes it difficult to determine if the sector is exploring and implementing pollution prevention strategies that aim at evaluating all phases of the industrial process involving isoprene. In general, transparency and accountability will be more apparent in the process if facilities that are required to develop and implement P2 plans, also have established levels for reduction and elimination as a sector and for individual facilities. In addition, the establishment of reduction levels may provide the needed impetus for facilities to review their use of isoprene and identify opportunities for safe alternatives. This could help facilities move away from focusing on implementing control measures that enable them to meet the stipulated average 24 hour concentration levels for isoprene.

Recommendation: We urge the government to outline a reduction target of 75% of isoprene to the environment within two years, with further reductions with the ultimate goal of elimination.

2) *Maximum concentration level of 10 ug/m³*

We have stated our concerns with the application of an average 24 hour concentration level for isoprene at 10 ug/m³ – a value based on the highest identified background levels of isoprene in ambient air in urban area in Canada due to non-industrial sources. Based on the proposed notice, the maximum concentration of 10 ug/m³ for isoprene is not prescriptive. Facilities that exceed this concentration level are required to consider the “other factors” outlined in section 4 of the notice in order to reduce its emission levels. It is our view that this concentration level requires further discussion as there is insufficient information provided in the proposed notice to determine if ambient air concentration are sufficiently protective of the environment and the Canadian populations. To create reductions, these levels should be reduced over time so that

¹Government of Canada. *Canada Gazette*, Part 1: Notices and Proposed Regulations, Vol. 145, No. 1 — January 1, 2011 on the Proposed Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Specified Substances on Schedule 1 of the *Canadian Environmental Protection Act*, 1999, related to the Resin and Synthetic Rubber Manufacturing Sector, section 3.

environmental releases of isoprene will indeed result in an environmental decrease of isoprene over time.

Recommendation: We do not support the use of concentration levels to achieve the necessary reduction levels of isoprene to the environment.

3) Threshold for preparing P2 Plans

The proposed notice outlines a purchase, import and/or use threshold of 100 kg for facilities required to prepare and implement P2 plans. For facilities that fall under the use threshold, it is unclear as to number of these facilities and their general geographic locations. There is concern that some of these facilities may be located in the same geographic region or air shed, thereby affecting the overall loading of toxic pollutants released to the environment. While there may be efficiencies created by requiring the larger facilities to prepare P2 Plans, it should be the priority of the government to ensure that all facilities in the sector are required to prepare and implement such plans, regardless of the use threshold as this can be more effective in protecting human health and the environment.

The purchase, import and/or use threshold raises several important issues:

- There is a lack of consideration on the impacts to communities that are located adjacent to resin and synthetic rubber manufacturing facilities that are not required to develop P2 plans. These facilities will continue to be an on-going source of isoprene.
- The use of P2 plans may be inadequate to address situations where there may be multiple sources of releases of toxic chemicals and the cumulative impacts of toxic chemicals faced by vulnerable communities and individuals. This would include communities adjacent to industrial facilities, including those using and releasing isoprene.

Recommendation: We urge the government to remove the purchase, import and/or use threshold limit of 100 kg/year. All facilities should be required to develop and implement P2 plans that explicitly aim to reduce the levels of purchase, import and/or use of isoprene.

4) Implementation Timeframe

The proposed notice outlines an implementation timeframe of 48 months. This timeframe is inadequate given the absence of key elements to achieve reduction as outlined for these P2 plans. Significant changes to the implementation timeframe for P2 plans are warranted for this sector. Throughout this submission, we have identified a number of gaps in the scope of the proposed notice. It is our view, that the timeframe for implementing the proposed pollution prevention plans should be considerably reduced from the proposed 48 months to 24 months for achieving reductions for isoprene levels for purchase, import and/or use. In the proposed notice, facilities are provided with significant flexibility in the proposed notice to make the technological changes for this sector. In addition, the

inspection for determining isoprene concentration releases to air is only proposed to be once per year.

Recommendation: In addition to the above recommendations, the proposed implementation timeframe for the P2 plan should be reduced to 24 months instead of 48 months.

5) Sampling frequency

According to section 4(1)(c)(i) of the proposed notice, facilities will be “Conducting sampling and analysis of isoprene from stack releases, once a year, including exhaust air volume rates and typical/current concentration of isoprene released to air.”² A requirement to sample air releases once a year is inadequate, particularly for the purpose of determining a 24 hour maximum concentration level. We do not support the sampling regime as outlined in the proposed P2 notice for isoprene. Once a year sampling will not provide the necessary dataset required for a meaningful comparison of concentration levels as they vary with the annual seasons and the annual fluctuations in production activities at a facility. Furthermore, the concentration levels may vary significantly within a the period of a month or a 24 hour cycle. Sampling once a year cannot account for the day-to-day or month-to-month variation that a facility may experience over the course of the year. Given that the proposed notice requires sampling to be undertaken under normal operations, P2 plans should articulate in detail what would constitute “normal operating conditions” and what would be considered outside of these conditions. At present, there is no way to assess what “normal operating conditions” are for target facilities in this sector.

Furthermore, the proposed notice does not provide additional requirements for sampling in events where concentration levels are exceeded. There is no rationale provided for the exclusion of this requirement. When compared to the proposed notice of P2 plans for toluene diisocyanate (TDIs) released in 2010, a substantial regime for repeat sampling in events of exceedances was included.

Recommendation: We urge the government to expand and enhance the sampling regime for isoprene in the proposed P2 plans. The sampling regime should include provisions that would reflect variations in production levels, as well as the need to increase sampling to reflect seasonal changes.

Recommendation: The sampling regime should also include the provision to increase sampling in the event of exceedances.

Recommendation: Parameters for determining ‘normal operating conditions’ with respect to the sampling of isoprene should be clearly defined in the plan.

As noted above, we have highlighted a few of the issues relevant for consideration in the proposed notice. We also encourage you to reconsider the comments provided in our

² Ibid, section 4(1)(c)(i).

submission dated September 20, 2010. It is our view that the proposed P2 plans for resin and synthetic rubber manufacturing lacks the necessary elements that would result in substantial reduction of isoprene to the environment. We cannot support the proposed P2 plans for this sector without a substantial commitment to address and incorporate the recommendations included in this submission.

We welcome the opportunity to discuss these matters with you.

Yours truly,



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APPENDIX A

Letter to Bernard Madé

**RE: Working Document for Discussion on the Content of the
Proposed Pollution Prevention Planning Notice for the Resin
and Synthetic Rubber Manufacturing Sector
("Notice")(September 20, 2010)**

September 20, 2010

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RE: Preliminary NGO response to Working Document for Discussion on the Content of the Proposed Pollution Prevention Planning Notice for the Resin and Synthetic Rubber Manufacturing Sector (“Notice”)

On behalf of our organizations, the Canadian Environmental Law Association (CELA) and Chemical Sensitivities Manitoba, thank you for the opportunity to provide preliminary comments to the ***Working Document for Discussion on the Content of the Proposed Pollution Prevention Planning Notice for the Resin and Synthetic Rubber Manufacturing Sector (“Notice”)*** provided to us on August 25, 2010. The working document focuses on the requirements for pollution prevention plans (P2 plan) for the facilities in the resin and synthetic rubber manufacturing sector and plans to focus on Isoprene (1,3 - Butadiene, 2-Methyl-) (CAS RN: 78-79-5), which was found to be toxic based on the criteria of section 64 of the *Canadian Environmental Protection Act* on January 31, 2009, with the release of the final screening level risk assessment.

The comments below reiterate and expand on issues and comments previously submitted to Environment Canada on August 27, 2010 by the Canadian Environmental Law Association in response to *Supplement Canada Gazette*, Part I, Vol. No. (July 3, 2010) on another CEPA toxic substance, toluene diisocyanates (TDIs) - (CAS RNs: 91-08-7; 584-84-9; and 26471-62-5), which was targeted for P2 plans. The CELA letter is attached to this submission.

Scope of management for isoprene

Isoprene was identified as a non-threshold carcinogen by the government of Canada. The government's Proposed Risk Management Approach document identified two key recommendations to be considered on isoprene, they include: 1) “control and/or reduce isoprene air stack releases by the application of the best available technology economically achievable (BATEA)”; and 2) addition to the Cosmetic Ingredient Hotlist.³

Isoprene was added to the Cosmetic Ingredient Hotlist in 2010 as a prohibited substance. The addition of to the Cosmetic Ingredient Hotlist will not prevent the use of isoprene in household and consumer products such as cleaning products, toys and food

³ Environment Canada and Health Canada. *Proposed Risk Management Approach for 1,3-Butadiene, 2-Methyl (Isoprene) Chemical Abstracts Service Registry Number (CAS RN): 78-79-5*. January 2009. Accessed at http://www.ec.gc.ca/substances/ese/eng/challenge/batch2/batch2_78-79-5_rm.cfm#9.1.1

containers.⁴ Based on the carcinogenicity of isoprene and the fact that many products containing isoprene may result in direct exposure to human health, a substantial management response to prohibit the use of isoprene in other products is warranted.

The proposed notice to require P2 plans for the Resin and Synthetic Rubber Manufacturing aims to achieve the application of BATEA for releases of isoprene. While we are supportive that government is considering CEPA tools to address this CEPA toxic chemical, there are many on-going gaps in the application of P2 plans and as a result, the level of protection required to protect human health from exposure to isoprene, may be inadequate.

Given the final assessment on isoprene suggests that this chemical is a non-threshold carcinogenic, it is our view that the aim for management for isoprene should be a regulatory process that aims to phase out this substance from all anthropogenic sources, particularly its use in the resin and synthetic rubber manufacturing sector and establish a process that promotes the identification and application of safe substitutes for this substance.

Pollution Prevention Plan (P2 plans) elements

The Notice for pollution prevention plans offers opportunities to move in the direction of a phase out of isoprene in Canada. However, the elements of the Notice as currently proposed in the working document may not effectively achieve phase out of the anthropogenic uses of isoprene. There are no mandatory requirements for facilities to commit to a phase out or a reduction of use of isoprene over a specified time nor a commitment to identify, research or apply alternatives in order to achieve a phase out. Under the Chemicals Management Plan (CMP), there have been insufficient efforts directed to finding and assessing safe substitutes. In the application of P2 plans, further consideration in requiring safe substitutes would contribute further to prevention efforts.

Below are several critical elements that should be incorporated in the proposed notice for P2 plans. As noted earlier, similar comments have been submitted on toluene diisocyanate (TDIs);

- 5) *Outline explicit reduction and elimination targets expected from requiring pollution prevention plans.*

Currently, no estimated reduction targets are proposed or outlined for the preparation and implementation of P2 plans to promote the reduction in releases of isoprene to the environment. The absence of reduction targets for isoprene leaves a great deal of uncertainty about the expected outcome for the resin and synthetic rubber sector and essentially, provides the discretion to the targeted industry to determine what levels of reduction can be achieved. This approach could result in varying reduction levels or

⁴ Government of Canada. Chemicals Management Plan Web site. Chemical profile for 1,3-Butadiene, 2-methyl- (Isoprene) CAS Registry Number 78-79-5. Accessed September 16, 2010 at <http://www.chemicalsubstanceschimiques.gc.ca/challenge-defi/summary-sommaire/batch-lot-2/78-79-5-eng.php>.

none at all for this sector. Also, the lack of reduction targets could result in affected industries not using the appropriate technology that supports prevention by effectively reducing emissions nor considering measures that would move towards the elimination of isoprene as a feedstock. The working document outlines a menu of options available to the facilities that may contribute to the release of isoprene to the environment without providing preference for a specific approach or technology. The emphasis on process modifications and upgrades may result in some reduction but will not prevent the use of isoprene, particularly when it is used as a feedstock.

2) Number of facilities required to prepare P2 plans

It is unclear how many facilities in the resin and synthetic rubber manufacturing sector will be required to comply with P2 plans. According to pollution data from the National Pollutant Release Inventory, 14,500 kg of isoprene were released to air in 2006.⁵ In 2008, the release of isoprene to air according to NPRI was approximately 17,000 kg.⁶ In 2009, a total of 4 facilities (representing two companies) reported releases and transfer of isoprene according to preliminary data posted on the National Pollutant Release Inventory. The total amount of release was 38,000 kg for 2009.⁷ While two of four facilities reporting to NPRI noted that they report under the following North American Industry Classification System (NAICS): NAICS 2 Code: 31-33 – Manufacturing; NAICS 4 Code: 3252 - Resin, Synthetic. Rubber, & Fibre & Filament Mfg.; NAICS 6 Code: 325210 - Resin & Synthetic Rubber Mfg. rubber. The remaining two facilities by Nova Chemicals did not report under these NAICS codes.

The uncertainty in the number of facilities requiring P2 plans is a gap in the approach. It is understood that any new facilities in the resin and synthetic rubber manufacturing sector that meets the threshold for use/purchase will be required to comply with the criteria for the P2 plans. If the Notice of P2 plans results in a very small number of participating facilities, further consideration for the developing regulations to seek the prevention of isoprene is much preferred. Facilities not required to create P2 Plans should still be regulated in their use of this chemical. A regulation may be a more

⁵ Environment Canada and Health Canada. Screening Assessment for the Challenge 1,3-Butadiene, 2-methyl- (Isoprene) Chemical Abstracts Service Registry Number 78-79-5. November 2008. Accessed at <http://www.ec.gc.ca/ese-ees/default.asp?lang=En&xml=AF3514D4-0915-C097-DA63-3E37E9836182>

⁶ Environment Canada. National Pollutant Release Inventory. Accessed at http://www.ec.gc.ca/pdb/websol/querysite/results_e.cfm?opt_report_year=2008&opt_facility=ALL&opt_facility_name=&opt_npri_id=&opt_chemical_type=CHEM_NAME&opt_cas_name=78-79-5&opt_cas_num=78-79-5&opt_location_type=ALL&opt_province=&opt_postal_code=&opt_urban_center=&community1=&opt_naics6=&opt_naics3=&opt_industry=NAICS4_Code&opt_naics4=&opt_nai6code=&opt_csic=&opt_media=all (search for isoprene and reporting facilities in 2008. Accessed on September 14, 2010).

⁷ Environment Canada. National Pollutant Release Inventory website. Accessed at http://www.ec.gc.ca/pdb/websol/querysite/results_e.cfm?opt_report_year=2009&opt_facility=ALL&opt_facility_name=&opt_npri_id=&opt_cas_name=78-79-5&opt_chemical_type=CAS&opt_cas_num=78-79-5&opt_location_type=ALL&opt_province=&opt_postal_code=&opt_urban_center=&community1=&opt_province_comm=&opt_industry=IS_Code&opt_naics6=&opt_naics3=&opt_naics4=&opt_nai6code=&opt_csic=&opt_media=all (search for isoprene and reporting facilities in 2009. Accessed on September 14, 2010).

effective way to prevent future releases of isoprene. Such a regulation could effectively discourage the future use of isoprene by facilities in resin and synthetic rubber manufacturing and directly require the consideration of possible safe alternatives.

3) Remove use/purchase threshold required for preparing P2 plans

Currently, the threshold proposed for preparing a P2 plan is 100 kg/year for substance use or purchase. It is our view that this threshold is too high and should be removed. All facilities using, purchasing or releasing isoprene should be captured by the provisions of the Notice. While the provisions aim to target facilities where there is potential for greatest reduction, there is a need to acknowledge that pollution prevention should be included for all facilities regardless of their manufacturing capacities.

Furthermore, in the assessment of isoprene, it was noted that it is a structural analogue to 1,3-butadiene, which has been associated with lymphohaematopoietic cancer in exposed workers.⁸ 1,3-butadiene is listed under the Toxic Substances List of CEPA. The evidence that isoprene may be linked to occupational illness suggest that improved provisions for worker protection from isoprene are necessary.

While CEPA does not address occupational settings, it is of particular importance to ensure the protection of workers from exposure to toxic chemicals. The Notice for P2 plans does not account for provisions intended to protect worker exposure from isoprene.

4) Public reporting requirements

The working document outlines a number of reporting requirements for facilities including interim progress reports. These reports are submitted to the government and it remains unclear how progress will be reported to the public during the implementation phase, with the exception of the requirements through CEPA for declarations made by the facilities for the completion and implementation of their P2 plans. Additional consideration and discussion are needed to demonstrate the progress to the public throughout the implementation phase. This would demonstrate the effectiveness or lack of effectiveness of the plans to reduce and eliminate isoprene as well as the possible implementation of safe substitutes.

However, no provisions have been made to require expanded reporting for isoprene or the mandatory reporting of pollution prevention activities through the National Pollutant Release Inventory. As noted in # 2 of our comments, four facilities (2 companies) report to the NPRI for releases and transfer of isoprene. These facilities have not provided

⁸ Environment Canada and Health Canada. *Screening Assessment for the Challenge 1,3-Butadiene, 2-methyl-(Isoprene) Chemical Abstracts Service Registry Number 78-79-5*. November 2008. Accessed at <http://www.ec.gc.ca/ese-ees/default.asp?lang=En&xml=AF3514D4-0915-C097-DA63-3E37E9836182>.

comments on pollution prevention activities.⁹ Given its designation as a CEPA toxic substance, consideration should be given to expand the reporting threshold required under NPRI that will require all facilities to report all their releases or transfers of isoprene.

Strengthening the overall requirements of reporting to the NPRI should provide a better picture of the releases and transfers of isoprene. It will also provide decision makers, interested stakeholders and the public, opportunities to assess the type of pollution prevention measures being taken by facilities. In the absence of regulatory action on isoprene and the limited public reporting for P2 plans, the additional information presented in NPRI reports outlining pollution prevention activities may provide meaningful information for facilities required to comply with the Notice.

Furthermore, reporting under NPRI offers an opportunity to expand on the pollution prevention activities undertaken by facilities. When used as a tool, P2 activities reported under NPRI have been underutilized by facilities to highlight substantial changes made by facilities. The NPRI program should be strengthened to make linkages between the P2 activities required under the proposed notice for the P2 plan and the reporting elements of the NPRI. These linkages should include improved reporting to the public through the NPRI website as well as explicitly outlined requirements in the P2 plans for annual reporting to the NPRI.

5) End of life and waste management and disposal issues

The P2 plans propose to focus on the release of isoprene to the environment. There is a lack of focus on prevention of isoprene at the end of life. In fact, the elements considered for P2 plans do not add any particular emphasis on the waste stream. The P2 plans should require enhanced facility responsibility in waste management and disposal of isoprene.

6) Consideration of other pollutants from the resin and synthesized rubber sector

The production and products resulting from use of isoprene in the resin and synthesized rubber undoubtedly will result in the release of other pollutants. Based on the NPRI data, these facilities release and transfer various pollutants such as the criteria air contaminants (VOCs, particulate matter) as well as other pollutants (e.g. n-hexane, ethylene, hydrochloric acid)¹⁰, while the working document mentions other pollutants, section 4 mentions: "Other factors to consider in preparing the plan." It is unclear how

⁹ Environment Canada. National Pollutant Release Inventory. Accessed September 15, 2010 at http://www.ec.gc.ca/pdb/websol/querysite/facility_information_e.cfm?opt_npri_id=0000001944&opt_report_year=2008.

¹⁰ National Pollutant Release Inventory Website. Search for releases of facility releasing isoprene. For example, see 2009 Facility and Substance Information for Lanxess Inc – Lanxess East at http://www.ec.gc.ca/pdb/websol/querysite/facility_substance_summary_e.cfm?opt_npri_id=0000011130&opt_report_year=2009.

effective the pollution prevention plans will impact the release of pollutants from these facilities, if at all. VOCs and particulate matter may contribute to the formation of smog and their control would benefit from the implementation of prevention measures. Additional commentary and quantified data should be included in the Notice as to the impacts of the proposed pollution prevention measures to reduce the level of production, release or disposal of the other pollutants. This information will improve the quality and the transparency of the P2 plan requirements.

7) Best Available Technology Economically Achievable (BATEA)

The definition presented in the working document should be expanded to include explicit changes to substance feedstock. The definition is primarily weakened with the qualifier “economically achievable.” While it is important to recognize the cost associated with effectively managing chemicals that are considered non-threshold carcinogens, some additional emphasis should be placed on the potential benefits of seeking to prevent future contributions of the release of isoprene to the environment. The potential cost to the health system by not taking the necessary steps to prevent the use of isoprene is not considered in the process for assessing the measures needed to reduce exposure from isoprene. The prevention of exposure to this chemical could provide substantial savings to the health care system as well as the inherent value of protecting the Canadian population from illnesses related to this chemical. The consideration of protection of human health should be the priority over cost savings for specific processes or technology.

8) Sampling and testing requirements inadequate

In the P2 plan requirements, facilities will be required to determine the average concentration of isoprene at or beyond the facility boundaries. The methods for estimation rely on the use of an air dispersion modelling system, AERMOD. However, the process to support the estimation of maximum 24-hr average concentration requires sampling or analysis of isoprene from stack releases only once a year according to section 3(1)3a.¹¹ The sampling frequency is considered inadequate. The process does not require any sampling during abnormal conditions that may occur within the facility nor does it specify the need to report these occurrences.

Furthermore, under section 3(1)3 of the working document, it was noted that the focus of sampling and testing will be “at or beyond the facility boundaries.” It is unclear what distance “beyond the facility boundaries” would entail. This detail is critical and should be specified.

The sampling for isoprene should be conducted in several locations and at different times in the year. Testing should include on-site locations where workers may be exposed, as well as in various locations in neighbouring communities to the facilities so

¹¹ Environment Canada. *Working Document for Discussion on the Content of the Proposed Pollution Prevention Planning Notice for the Resin and Synthetic Rubber Manufacturing Sector* (“Notice”) released in August 2010.

that isoprene concentrations and possible impacts to fenceline communities could be evaluated.

There may be specific communities (e.g., low income) that are more susceptible to the impacts of isoprene or those that may be uniquely exposed to several sources of toxic chemicals. This justifies the need to assess the cumulative and even synergistic impacts of these toxic chemicals.

The Notice should be revised to require substantial sampling for isoprene to assess how vulnerable populations and communities may be impacted from the use and release of isoprene.

9) *Maximum concentration level of 10 ug/m³*

The working document outlines a number of factors that need to be considered in the preparation of the P2 plans and in establishing a threshold maximum 24-hour average concentration level of 10 ug/m³. It remains unclear how the factors outlined in section 3.(1)3 and 3(1)4 will achieve prevention of isoprene as they do not include prescriptive requirements for implementation. Furthermore, the emphasis for improving the process is focused on controlling the release of isoprene to the environment rather than the prevention of its use. This is evident in the following examples: section (3(1)4 b focused on “establishing and implementing a leak detection and repair program...” and section 3(1)4c considered “standards and operating practices for controlling air emissions...”

The plans do not discuss the options available for phasing out the use of isoprene nor do they present any details on safe substitutes for isoprene. It would be beneficial to establish a process that would investigate safe substitutes to isoprene and integrate it into the P2 plans.

Finally, the rationale in establishing a 24-hour average maximum concentration for isoprene was not outlined in the working document, with the exception of including a footnote. We seek some clarification as to the adequacy of this concentration level and what overall estimated levels of reduction of isoprene are expected using this concentration level. It is also not clear why a threshold value that is based on the highest identified ambient air concentration of isoprene in urban areas in Canada [National Air Pollution Surveillance (NAPS) Network, 2006], was chosen as a maximum threshold concentration. The maximum concentration levels should be determined for protection of human health and should aim to promote the prevention of exposure. With the uncertainties as described in the final risk assessment with regards to exposure and human health, it is felt that the proposed maximum concentration level of 10 ug/m³ should be reviewed with an aim to significantly reduce to levels that promote prevention.

Conclusions

We hope these comments are carefully considered in the process to improve the overall management for isoprene from the industrial application.

We strongly urge the government to apply a regulatory measure that aims for a phase out of the anthropogenic use of isoprene rather than applying measures that control rather than prevent the release of isoprene to the environment. While the intent of the prohibition of isoprene as a cosmetic ingredient is supported, we are concerned that the reliance of a non-regulatory tool to achieve this purpose may not achieve the intended prohibition. The Cosmetic Ingredient Hotlist should be made a regulatory tool with adequate public reporting requirements on compliance.

Similarly, while the intentions set out for P2 plans are to prevent or control the release of isoprene and to reduce the exposure to isoprene, the elements of P2 plans have many gaps that may not effectively be protective to human health. While the government expects the P2 plans to result in reductions of exposure to isoprene, there is very little confidence that such efforts will result in a meaningful reduction and even a phase out of the anthropogenic use of isoprene. We urge the government to seek more realistic opportunities to apply prevention measures that focus on use reduction and the application of safe substitutes. Therefore, the proposed Notice for P2 plans will require significant revisions to address the gaps identified above and for them to be more in line with a preventative approach for isoprene use.

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CANADIAN ENVIRONMENTAL LAW ASSOCIATION
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August 27, 2010

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Dear Mr. Madé:

RE: Response to Supplement Canada Gazette, Part I, Vol. No. (July 3, 2010) – Proposed Notice Requiring the Preparation and Implementation of Pollution Prevention Plans for Toluene Diisocyanates (TDIs)

The Canadian Environmental Law Association (CELA) (www.cela.ca) is submitting the following comments in response to the publication of ***Supplement Canada Gazette, Part I, Vol. No. (July 3, 2010) – Proposed Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Specified Substances on Schedule 1 of the Canadian Environmental Protection Act, 1999, Implicated in the Polyurethane and Other Foam Sector (Except Polystyrene)***. These comments follow up on CELA's participation at the consultation meeting coordinated by Environment Canada on March 22, 2010 in Ottawa to discuss pollution prevention plans (P2) for three toluene diisocyanates (TDIs) with the following CAS numbers: 91-08-7; 584-84-9; and 26471-62-5. Furthermore, these comments urge the Government of Canada to effectively manage, that is, focus on phase out and elimination of TDIs, which have been found to be toxic under the *Canadian Environmental Protection Act, 1999 (CEPA, 1999)* and addressed under the Chemicals Management Plan.

Overall, the adequacy of the Government's proposal to apply a regulatory instrument to manage TDIs has been discussed over the past year. The non-governmental organizations which submitted comments in response to the scope of the risk management regime considered for TDIs, and again through the consultation process to discuss pollution prevention plans for TDIs, articulated that the preferred management approach for TDIs should focus on a phase out and elimination of use of TDIs. It is our view that the notice for P2 plans which focuses on TDIs demonstrates a partial measure towards the preferred approach for a phase out of TDIs. This proposal should be further strengthened using other regulatory instruments to ensure that the government seeks to reduce, with an eventual phase out of use, of TDIs. This could include but

should not be limited to adding the TDIs on the *Prohibition of Specific Toxic Substances Regulations* under *CEPA*, applying specific regulations on TDIs that require the development of action plans for reductions from all sources of TDIs beyond the scope of the proposed P2 plans, initiate a policy dialogue focused on the identification of safe alternatives to TDIs and conducting alternative assessments on safety of these alternatives.

CELA noted the following gaps in the Notice for Pollution Prevention Plans for TDIs. Also during the plenary of the public consultation on TDIs held on March 22, 2010 CELA articulated these comments. The comments and recommendations outlined below continue to be relevant as the government takes steps to manage TDIs under *CEPA*. We hope that measures to address TDIs aim to fulfill the objectives of pollution prevention under *CEPA*, particularly as it further develops P2 plans for the polyurethane and other foam sector. However, to make significant strides towards this, these comments deserve careful consideration by the government.

1) The absence of proposed targets for reduction or elimination of TDIs and timelines for achieving targets does not ensure overall reduction or elimination of use of TDIs

The P2 plans should seek to promote overall reductions and eventual elimination of TDIs. However, it is uncertain if the proposed notice for P2 plans will indeed contribute to an overall reduction of use of TDIs over time. There are several limitations that will hinder the progress towards the overall reduction or elimination of TDIs, including:

- Focus on managing releases of TDIs to the environment, particularly to air, rather than on sources of TDI
- Absence of process to identify and implement alternatives and substitutes;
- Require P2 plans limited to specific sector(s), the polyurethane and other foam sector industry, rather than all sources of TDIs.

One critical element necessary to make significant progress in avoiding the creation of TDIs and promoting the reduction of levels of TDIs over time is establishing specific targets for reduction and elimination. In addition, a specific timeframe in which these targets should be achieved is also an essential element for the risk management of TDIs. The overall risk management approach for TDIs has not included such targets. Indeed, the main tool for managing TDIs is the proposed P2 plan. The absence of reduction or elimination targets and timelines in the notice significantly weakens its effectiveness.

While the proposal includes specific schedules for preparing P2 plans, completion of implementation of the P2 plans, and the submission of interim reports, the proposal fails to provide an overall timeframe which will determine the overall effects of P2 plans from the polyurethane and other foam sectors to an overall reduction or elimination of TDI. This target should be established to demonstrate how the results of P2 plans is intended to contribute to the overall reduction or elimination of TDIs.

We urge the government to apply a reduction of 75% of TDIs from all sectors, including facilities in the polyurethane and other foam sector within 2 years of implementation of pollution prevention plans. The ultimate goal of these P2 plans should be the eventual phase

out of TDIs from these facilities within 3 years. Levels for reduction and eventual elimination along with timelines should be included in the notice for P2 plans.

2) The perpetuation of control measures will not achieve pollution prevention.

While the government website¹² states that Notices do not prescribe the form of P2 plans, the proposed P2 plans for TDIs do very little to support the intent of pollution prevention. Pollution prevention is defined in *CEPA 1999* as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste and reduce the overall risk to the environment or human health."¹³ Various elements of the proposed P2 plans appear to focus on minimization rather than avoidance in the creation of TDIs. The notice does very little to promote the phase out and elimination of TDIs in the polyurethane and other foam sector. There are a number of details in the Notice that tend to shift the focus from real pollution prevention efforts towards only improving control measures that are currently in place. For example, the development of P2 plans focuses on the application of "best environmental techniques" (referred to in section 3 of the notice), defined in the notice but severely limited by the accompanying terms such as "economically achievable." Furthermore, the term "techniques" focuses on plant equipment used in the process as well as the design, lay-out and maintenance of the plant. Since it is expected that the cost associated with potential updates or improvements to available technology will be a significant factor for affected facilities, it is expected that facilities will focus their investment in improving current technology rather than replace technology that may seek to replace the use of TDIs. In other words, the proposal lacks any specificity on changes that may be required in the process to accommodate a switch in feedstock from TDIs to alternatives to TDIs.

In addition, section 3(1)4a of the notice also notes a detection limit of 0.2 ug/m³ for the purpose of sampling and measuring TDIs in ambient air. The establishment of the detection limit further perpetuates the emphasis of simply seeking controlling releases of TDIs to the environment, instead of phase out and elimination. These detection limits can change over time due to several factors including the sensitivity of available detection technology. The presence of these detection limits would guide facilities to avoid exceedances of the detection limit rather than invest time and resources towards those processes that prevent and avoid the releases, including a shift away from the use of TDIs in the first place.

If the pollution prevention objectives under CEPA are to be fully achieved, we would support a greater focus in the notices on real prevention methods rather than controlling releases.

3) Proposed threshold for requiring P2 plans set too low to require all facilities to consider pollution prevention measures

¹² Environment Canada. 2010. "Pollution Prevention (P2) Plans." Accessed 25 August 2010: <http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=BC71EA4E-1>

¹³ Government of Canada. 1999. *Canadian Environmental Protection Act*. Section 3 - Definitions

We noted in the March 2010 consultation and again here that the 100 kg/year use threshold of TDIs is far too high. There is no basis for establishing the threshold at 100 kg/year but it is a use level that has been applied for other activities undertaken by the government to collect data under the CMP. For example, this threshold has been used for surveys conducted under CEPA section 71, the update of selected substances on the Domestic Substances List, and now it is also under discussion for applying regulations to address industrial releases of siloxane (D4).¹⁴ By establishing the use/reporting threshold for developing pollution prevention at 100 kg/year, there will be a very limited number of facilities required to meet the proposed notice. Only the bigger facilities producing foams will be captured under this scenario leaving many small to medium size businesses unaccounted for in pollution prevention plans or any management regime for TDIs. During the plenary of the March 2010 consultation, the proposed threshold was estimated to capture **only** 2 facilities. No substantial scenario has been presented by government to demonstrate the number and type of facilities that would be required to prepare P2 plans for different threshold levels. It is unclear how many facilities in the polyurethane and other foam sector will not be required to comply with the Notice, and how much these facilities contribute to the overall use, release and disposal of TDI. This information is needed. The current proposed use levels is a significant flaw in the approach as there are many more small to medium sized facilities whose combined usage is considerable and should be required to manage TDIs.

We are deeply concerned that the scope of the plans will not adequately result in the levels of reduction of TDIs needed to protect the environment and human health because the approach will only apply to a few facilities. While 85% of the TDIs are used in the manufacture of flexible polyurethane foam, we do not know how much of the TDIs used by the sector will be reduced by the facilities required to prepare pollution prevention plans. ***We strongly oppose the use of 100 kg/year as the threshold for P2 plans. The use threshold level should be lowered to 20 kg/year to capture more facilities. We also urge the government to require pollution prevention plans for all facilities, without exceptions.*** Such an approach will ensure that all facilities are required to undertake a process that will evaluate plant operations and consider where preventative measures can be undertaken.

4) Opportunities to promote alternatives in a pollution prevention approach too limited

Throughout the CMP implementation process, non-governmental organizations have expressed the need to consider alternatives to replace CEPA toxic substances as an important element in efforts to promote the phase out or prohibition of toxic chemicals. The discussions on alternatives have been limited to date within the scope of the CMP overall as well as in the risk management discussions on TDIs. However, with the proposed notice for P2 plans for TDIs in polyurethane and other foams sector, the opportunities to expand on these efforts are appropriate and timely.

However, we are extremely discouraged that the notice, which is aimed specifically to promote pollution prevention to address TDIs fails to make progress on alternatives; there is currently no explicit focus on the need to identify and consider the adoption of non toxic alternatives to TDIs in the polyurethane and other foam sectors. This is not only a flaw in the notice released for

¹⁴ See Environment Canada. July 2010. Consultation Document: Octamethylcyclotetrasiloxane (D4) Chemical Abstracts Service Registry Number 556-67-2. pg. 14, section 5.2.1 (Application and exclusion)

public comments but a limitation within the framework of *CEPA 1999*, which does not include legal obligations to identify and assess safe alternatives for toxic chemicals.

The government should take these opportunities to explore options that would further the goals of pollution prevention and greater commitment to identify alternatives, particularly in P2 plans as would be appropriate. ***Therefore, facilities in the polyurethane and other foam sectors should be required to identify alternatives - chemicals and processes that do not exhibit the toxic properties of TDIs and can be considered safe replacements for TDIs over time. It should be noted further that it would be necessary to conduct an alternative assessment for all potential alternatives. The assessment of alternatives would aim to evaluate the inherent hazards of each alternative rather than conduct the usual risk based approach that relies on assessing the exposure and hazard potential of chemicals.***

The government should seize opportunities that promote the identification, evaluation and implementation of alternatives to toxic chemicals. Although information on alternatives may not yet be known, a more fulsome focus on alternatives should be considered as they provide opportunities for growth and innovation in the industry that do not rely on TDI for producing foam, particularly polyurethane foam.

5) Consideration of full life cycle absent in P2

The focus of the P2 requirements will be releases to air of TDIs, with specific attention to point and stack releases. In our view, the focus of pollution prevention strategies and the development of P2 plans should consider the full life cycle of the TDIs in polyurethane foams and other foam facilities. Although the assessment results indicated that releases of TDIs to air is the major source of release to the environment, the attempts to promote prevention should not diminish the focus of releases to all environmental media. ***The scope of the notice should be expanded to ensure that all sources of releases of TDIs be evaluated and the best available techniques be applied to avoid the opportunity for facilities to reduce or eliminate releases to air by shifting releases of TDIs to other environmental media, such as water or land.***

Furthermore, consideration of the life cycle approach in the notice has not been fully accounted. As with the assessment approach, there has been little to no consideration of break down products, by-products and metabolites from TDIs that may be the result of the use, release and disposal of TDIs. For TDIs, the range of by-products, breakdown products and metabolites resulting from the use of TDIs are unknown. Some effort should be taken to identify these products because there may be cases where they may be more toxic than TDIs themselves. The Notice does provide the opportunity to add other substances in the scope of the Notice. ***Therefore, we urge the government to consider the expansion of the list of substances to include all breakdown products, by-products and metabolites of TDI that are toxic.***

Finally, the waste stream and disposal methods as a source of reducing TDIs are not a focus of the Notice. However, the TDIs used in the polyurethane and other foam sector end up in the production of various household furniture, automotive upholstery, mattresses, pillows, packaging and carpet underlay. The eventual disposal of products containing TDIs is not addressed under

the Notice. *The government should give further consideration in the Notice to potential TDIs releases in the disposal of household and automotive products containing TDIs.*

6) Public reporting on implementation progress required

Details of P2 plans are not required to be disclosed to the public but declarations on the preparation and implementation of the plans are required under *CEPA*. The lack of access to the P2 plans continues to limit transparency to the public, which has been consistently noted by NGOs. However, the public knowledge on the impacts of P2 plans in achieving the objectives of *CEPA* on pollution prevention or the risk management objectives for toxic chemicals like TDIs remains limited. For plants required to comply with the Notice for P2 plans, their public accountability on their progress to meet their obligations should be acknowledged and supported. This is especially so for those plants located in close proximity to neighbourhoods. There is particular concern that the Notice does not provide any provisions for communicating with the public, with particular emphasis on the neighbouring community, during situations where there the releases of TDIs has exceeded the proposed 0.2 ug/m^3 in a 24hr time period or the implications from a regulatory perspective for non-compliance.

Public knowledge on progress relies on adequate reporting to the public on progress of implementation efforts. However, the Notice requires interim reports to be submitted to the Minister on three occasions but there is a lack of detail on the type of report available to the public. This gap should be addressed. *Public reporting should be made more explicit in the Notice. Furthermore, the details of reporting to the public on achieving pollution prevention should include the levels of reductions achieved by facilities, the methods applied to achieve reductions, comparison of results from previous years; and for facilities that do not achieve reductions of TDIs provide rationale and action plan for making reductions. These results should be released on an annual basis for public comments.*

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