Hydrazine – Chemical Abstracts Service Registry Number: 302-01-2: NGO response to *Canada Gazette Part I, Vol. 145, No. 3* — January 15, 2011 on the Proposed Risk Management Approach for a Chemical in Batch 10 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. 145, No. 3 – January 15, 2011 release of the proposed risk management approach document for hydrazine – Chemical Abstracts Service Registry Number (CAS RN: 302-01-2), of the Chemicals Management Plan (CMP), Batch 10 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 otherwise unable to afford legal assistance. In addition, CELA also undertakes substantive environmental policy and legislation reform activities in the areas 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 1999* (CEPA 1999), 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 effects 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 have submitted substantial comments on assessment results and proposed management options for substances in Batches 1 through 12 of the Industry Challenge, including the final assessments and draft risk management options for selected chemicals in Batches 1 to 9.

Consequently, we encourage decision makers to consider these substantial recommendations as ways for improving the current approach to chemicals management in Canada. These recommendations are intended to further strengthen and entrench the precautionary principle in the current decision making process and promote a higher level of accountability for all users, manufacturers, importers and sellers of chemicals in Canada.

In this submission, we comment on the proposed risk management instruments for hydrazine, the gaps associated with them, and make substantial recommendations on these instruments. 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.

In our comments, we have taken into consideration that hydrazine is toxic to the aquatic environment and that it is a likely human carcinogen at any level of exposure.

Background

Hydrazine, CAS RN 302-01-2 is used mainly as a corrosion inhibitor and an oxygen scavenger at power generating plants in Canada. It is also found as a residue in some consumer and industrial products, and pharmaceuticals. Based on information under section 71 of CEPA 1999, in 2006, 10 000–100 000 kg of hydrazine were used for industrial purposes in Canada.[1]

Hydrazine has been classified as a Group 2B carcinogen (i.e., possibly carcinogenic to humans) by the International Agency for Research in Cancer (IARC 1999) and as a Category 2 for carcinogenicity (i.e., should be regarded as being a human carcinogenic) by the European Commission.[2] The US Environmental Protection Agency (EPA) conducted a weight–of-evidence assessment of the carcinogenicity of hydrazine and classified it as a Group 2B carcinogen (i.e., probable human carcinogen). The US National Toxicology Program (2005) considered hydrazine to be "reasonably anticipated to be a human carcinogen".[3] These classifications were based on inadequate evidence for carcinogenicity in humans but there was sufficient evidence in experimental animals.

In the final assessment for hydrazine, it was concluded that on the basis of carcinogenicity, for which there may be a probability of harm at any level of exposure, the substance is entering or may be entering the environment in a quantity or a concentration or under conditions that constitute or may constitute a danger in Canada to human life or health.[4]

The final assessment also concluded that hydrazine is entering or may enter the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity.[5]

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[1] Environment Canada and Health Canada (a). January 2011. Screening Assessment for the Challenge – Hydrazine CAS RN 302-1-2. Page 10. See; http://www.ec.gc.ca/ese-ees/17647095-B851-46F4-A4BB-79F887D84666/batch10_302-01-2_en.pdf.
[2] Ibid. Page 48.
[3] Ibid. Page 48.
[4] Ibid. Page 54.
[5] Ibid.

Therefore, hydrazine meets one or more of the criteria under section 64 of CEPA 1999. It does not meet the criteria for persistence or bioaccumulation as set out in the *Persistence and Bioaccumulation Regulations* (Canada 2000) but it has been demonstrated to have an elevated potential for toxicity to aquatic organisms.[6]

The assessment noted that hydrazine will be considered for inclusion in the Domestic Substances List (DSL) inventory update initiative. In addition and where relevant, research and monitoring will support verification of assumptions used during the screening assessment and, where appropriate, the performance of potential control measures identified during the risk management phase.[7]

It was also proposed that hydrazine will be recommended for addition to the List of Toxic Substances in Schedule 1.[8] This would require the government to develop a regulation or instrument to prevent and control actions to protect the health of Canadians and the environment from the potential effects of exposure to hydrazine. The substance will not be subject to virtual elimination and may be managed using a lifecycle approach, to prevent or minimize its release into the environment.[9]

Based on the conclusions of the final screening assessment on hydrazine, our organizations support the recommendation to add hydrazine to the List of Toxic Substance in Schedule 1 of CEPA 1999. This recommendation will require the federal government to propose and finalize management measures to address hydrazine according to CEPA 1999.

Risk management approach

Proposals by government

While both human health and the environment are of concern with respect to hydrazine, the risk management approaches for human health and the environment have focused on different elements pertinent to each area. Since hydrazine is not subject to virtual elimination, this proposed approach could possibly have several overlapping issues between the human and environmental objectives. These issues will be highlighted in the commentary below.

Our organizations have previously submitted comments on several of the proposed management tools described below. In this submission, we will reiterate several of the salient points we have made in the past but more specifically, as they pertain to hydrazine.

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[6] Ibid.
[7] Ibid.
[8] Ibid.
[9] Ibid.

The following are the proposed risk management tools and regulations for these areas:

Ø *Human health objective*

The Proposed Risk Management Approach document for hydrazine indicated that:

"The proposed human health objective for hydrazine is to minimize human exposure to the greatest extent practicable."[10]

Comment

The proposed human health objective should be strengthened to 'eliminate' rather than "minimize" human health exposure. The word "minimize" does not provide sufficient information as to the expected levels of reductions desired by government. The use of the word "eliminate" provides greater expression of the government's intention to protect human health. The use of the phrase "the greatest extent practicable" indicates that cost might be the most significant factor when government is making decisions on the management of hydrazine as well as other toxic substances. Indeed, protection of health and environment should take priority over cost related to addressing toxic chemicals. It is our view that the objective should read: "The proposed human health objective for hydrazine is to eliminate human exposure over time."

Recommendation: We urge the government to reword the human health objective to the following text:

"The proposed human health objective for hydrazine is to eliminate human exposure over time."

Ø *Environmental objectives*

The Proposed Risk Management Approach document for hydrazine indicated that:

"The proposed environmental objective is to prevent or minimize releases of hydrazine to water."[11]

[10] Environment Canada and Health Canada (b). January 2011. Proposed Risk Management Approach for the Challenge – Hydrazine CAS RN 302-1-2. Page 14. See: http://www.ec.gc.ca/ese-ees/BF03ABB4-6EDF-40F3-9456-D9081647C9FB/Batch10_302-01-2_rm_EN.pdf

[11] Ibid. Page 15.

Comments

- The proposed environmental objective should be strengthened to protect all environmental media including not only water, but also air and land. While hydrazine demonstrated the greatest impacts in the aquatic environment, there is significant concern that the proposed approach does not fully consider the entire ecosystem.
- Furthermore, the use of the words “prevent” and “minimize” also weaken the objective. It is our view that the objective should aim to prevent the releases of hydrazine to the environment. To achieve this, the focus should be on prevention through elimination. This approach should consider and emphasize technologies and potential substitutes that might not otherwise be considered. The use of the word ‘minimize’ supports a focus on control measures only, where our organization would prefer increase commitment towards an elimination strategy.

Recommendation: We urge the government to strengthen the environmental objective for risk management for hydrazine. We propose the following text:

“*The proposed environmental objective is to eliminate releases of hydrazine to all environmental media including air, water and land.”*

The Proposed Risk Management Approach document listed the following as specific instruments under consideration. Our comments to these proposals are presented in the following section.

1) Proposal to implement Significant New Activity (SNAc) provisions under CEPA 1999 to hydrazine. Therefore, any proposed new manufacture, import or use would be subject to further assessment, and would determine if the new activity requires further risk management consideration.

2) The development of an instrument to prevent or minimize releases of hydrazine to water from facilities in Canada that use boilers to produce steam or electricity where hydrazine is used as a corrosion inhibitor. Specifically, one proposal would be to have a notice requiring the preparation and implementation of pollution prevention plans for thermal and nuclear power generating facilities using hydrazine.

3) Proposal to lower the regulated threshold for the preparation and implementation of environmental emergency plans under the *Environmental Emergency Regulations*.[12]

[12] Ibid. Page 15

Specific Management Issues - Comments & recommendations

Alternative chemicals

Several potential alternative chemicals have been identified for hydrazine for boiler systems but it was noted that they do not have comparable properties to hydrazine and their breakdown products can affect the safety of the operating systems in which they are utilized. There were no alternatives identified for the nuclear facilities. One substitute identified as 2-butanone oxime, has been assessed under the Chemicals Management Plan, Challenge Program and was considered to meet the criteria under section 64(c) of CEPA 1999.[13]

The final assessment stated that no consumer products were identified as containing hydrazine as an ingredient. Nevertheless, it can be found as a residue in some consumer products such as cosmetics and natural health products, food additives and pharmaceuticals at low concentrations as a result of the use of polymer polyvinyl pyrrolidone (PVP) and the vinyl pyrrolidone/vinyl acetate copolymer copovidone in these products.[14] Data on hydrazine levels in other PVP-derived polymers were not available.[15] There was no mention of any alternative hydrazine-free or other safe polymers for these applications.

Hydrazine salts or derivatives are not permitted in cosmetics but there was no mention of allowable residual maximum limits according to Canada's Cosmetics Ingredient Hotlist.[16]

Hydrazine is also present as a formulant impurity in six registered pest control products for food use in Canada with concentrations in the parts per billion range.[17] Again, there was no mention of alternatives for this application.

Comments

- No alternatives for hydrazine were identified for use by the nuclear power generating facilities and considering the hazards associated with the processes in these facilities, information on whether this sector has identified hydrazine as a priority chemical for management action is warranted. Given the conclusions of the screening assessment, additional dialogue with this sector should be undertaken.
- The identification of alternatives for hydrazine and other CEPA toxic chemicals should always include a substantial assessment process that is based on the investigation of hazard properties of the alternative. The notation that 2-butanone oxime, found to be toxic under the CMP, can be an alternative for

[13] Ibid. Page 13.
[14] Environment Canada and Health Canada (a). Page 10.
[15] Ibid. Page 11.
[16] Environment Canada and Health Canada (b). Page 11.
[17] Environment Canada and Health Canada (a). Page 12.

hydrazine in boiler systems is noteworthy. This type of finding should trigger a more substantial policy discussion with involvement of all stakeholders on the decision making process required to ensure that the scope of management associated with toxic chemicals addresses these matters effectively.

- Ø It is important to note that some of the consumer products known to contain residual levels of hydrazine are accessible for use by children and pregnant women. As a result, we are not in agreement with the government's proposal that no risk management actions should be taken to specifically protect children from exposure to hydrazine. Hydrazine is a potential human carcinogen.
- Ø For consumer products, there appears to be no obvious attempt to replace polymers that contain residual hydrazine with polymers that are safe and do not contain residues of this and other substances that are of concern to human health and the environment. Without regulatory demands, such changes are not likely to occur.

Recommendation: Continued efforts should be made to replace hydrazine in power generating facilities. This would require the government to go beyond their present proposed management instruments and include a reduction in the use of hydrazine in these facilities with an aim towards eventual elimination.

Recommendation: Further to the above recommendation, significant commitments should be made to find and assess the safety of alternatives to hydrazine for the nuclear power generating facilities.

Recommendation: We urge the government to initiate a stakeholder process to develop an action plan aimed to address residual hydrazine in polymers that are used for consumer products including pharmaceuticals. This approach would aim to ensure that polymers and their residues are safe for human health and the environment.

Alternative processes

Different approaches have been taken by some power generating facilities to reduce the use and release of hydrazine although some processes will still result in some releases of hydrazine. In one power generating facility, no anti-corrosive agent is used.[18] In another case, a facility reported that zero discharge of hydrazine to the environment was achieved by using a closed-loop water management system.[19] However, some facilities send boiler water containing hydrazine to a settling lagoon where hydrazine further degrades.[20] There is subsequent monitoring for the concentration of hydrazine until it is sufficiently low before discharge to the environment.

[18] Environment Canada and Health Canada (b). Page 13
[19] Ibid.
[20] Ibid.

Comments

- Taking into consideration the other approaches mentioned above, we do not consider the use of settling ponds to be an acceptable method to control hydrazine releases to the environment. Apart from monitoring the concentration of hydrazine in the settling lagoons, no other obvious attempts have been made to make this approach more 'environmentally friendly'. The other approaches indicate that alternative processes are feasible and have positive impacts on the reduction of hydrazine releases to the environment.

- Since the nuclear power generating plants are responsible for most of the emissions of hydrazine to the environment with most of these releases to the aquatic environment (>90%),[21] it is unclear the extent to which these plants are instrumental in reducing the hydrazine levels as described above.

Recommendation: Based on information from the final screening document for hydrazine, there are possible ways to reduce or even eliminate the amount of hydrazine in effluent from power generating facilities to the aquatic environment. The government needs to promote these approaches in this sector in an attempt to reduce the quantities of hydrazine being used in the sector.

Recommendation: We strongly urge the government to develop an action plan for the reduction of hydrazine releases from nuclear power generating facilities. This plan should include the evaluation of the high levels of releases of hydrazine to the aquatic environment from these facilities and outline timelines for the reduction of the releases through a regulatory framework.

Recommendation: The government should prohibit the use of a holding pond or settling lagoon to reduce the concentration of hydrazine as this is not the most effective method of reducing releases to the environment.

Recommendation: The government should require the consideration and application of safer practices for addressing hydrazine concentration levels including an investigation of experience of the power generating sector in applying these alternative practices.

Pollution Prevention Plans (P2 Plans)

Under CEPA 1999, pollution prevention is identified as a key component in addressing the management of toxic substances. We support pollution prevention strategies for toxic substances that seek to achieve the phase out of toxic substances with an ultimate goal of elimination. CEPA 1999 provides a

[21] Environment Canada and Health Canada (a). Pages 12 – 13; Environment Canada and Health Canada (b). Page 10

foundation to seek a phase out of these toxic substances through pollution prevention.

However, P2 plans implemented to date under CEPA 1999 have not been designed to achieve the phase out or elimination of any toxic substances. Rather, the focus has been on controlling releases to the environment of the targeted toxic substance. While these plans may result in a reduction of releases of the toxic substance from a facility to the environment (as release concentration levels are established), it is often difficult to determine if there will be a subsequent overall reduction in the use of the toxic substance in Canada.

Our organizations have submitted comments on the adequacy of P2 plans to achieve necessary protection for human health and the environment. This included comments on the proposals for facilities using and releasing toluene diisocyanates (TDIs), isoprene, cyclic volatile methylsiloxane, D4, and bisphenol A (BPA). CELA has also commented on the proposed pollution plans for toluene diisocynates.

There is some concern with the focus on P2 plans targeting the use of hydrazine in the nuclear power generating sector, where maintaining the highest level of safety on site and in the surrounding communities is of the utmost importance. Efforts towards reducing hydrazine releases should be undertaken with substantial commitment to apply pollution prevention strategies, particularly with an emphasis on finding viable substitutes for hydrazine. In addition, it is critical that the surrounding communities and the facilities have on-going dialogue and engagement on issues of environmental safety matters pertaining to the facilities.

We offer the following recommendations as a means of strengthening the use of P2 plans in Canada.

Recommendation: We propose the inclusion of proposed targets for the reduction or elimination of hydrazine and timelines for achieving these targets to ensure the overall reduction in use or elimination of hydrazine.

Recommendation: We suggest that the identification and assessment of alternatives for hydrazine be a significant element in the preparation and implementation of pollution prevention plans.

Recommendation: The proposed P2 plan threshold for hydrazine should be at a level that would require all facilities to comply. We want to see P2 plans as part of a substantial strategy aimed at reducing the use of hydrazine in these facilities.

Recommendation: We urge the government to apply a life cycle approach in the P2 plans, including the transfer, disposal, or treatment of hydrazine.

Recommendation: We urge the government to expand the scope of the P2 plan to consider the impacts of hydrazine to the local community and to include enhanced public reporting and monitoring regimes.

Significant New Activities (SNAc)

The risk management objective for human health involves the application of the significant new activity (SNAc) provision under CEPA 1999 to hydrazine. Therefore, any proposed new manufacture, import or use would be subject to further assessment, and it would be determined if the new activity requires further risk management consideration. While the government has not found any consumer products that actually contain hydrazine as an intentionally added substance, it is present in some consumer products as a residue.

Comments

- Given the high use volume of hydrazine, the presence of this substance in consumer products, and the finding that it is a potential human carcinogen, the application of SNAc is considered inadequate for achieving the desired risk management objective for hydrazine. While the intent may be to create a notification process for the assessment of new uses, this approach does not promote reduction or elimination of hydrazine. The finding of toxicity under CEPA should require greater commitment for reduction and elimination efforts.
- Rather than a 'wait and see' approach as implicated with a SNAc, it would be more appropriate to prohibit the intentional addition of this substance to all consumer products and place restrictions on residual levels for hydrazine in consumer products and pharmaceuticals. Further, the use of polymers without residual hydrazine would be the preferred choice for a risk management instrument. This is discussed in more detail in the alternatives section.
- The SNAc provision was originally designed to address 'new' substances to Canada. It was not meant to address existing substances on the Domestic Substances List (DSL). Also, the use of the SNAc provision would not allow for a public comment period and, as a result, it lacks transparency.
- More specifically we question if there are cases where hydrazine is an actual component of a product, and not as a residue in consumer products below the trigger volume of 100 kg.

Recommendation: The SNAc provision is not considered the most protective risk management instrument for hydrazine. We urge the government to consider alternative management instruments which would include the application of a prohibition of the use of hydrazine in consumer products and the inclusion of residue concentrations for hydrazine in polymers used ion consumer products.

Recommendation: We suggest the government collect information on substitutes for polymers and copolymers that contain residual hydrazine

and develop recommendations for conducting an assessment of these substitutes through a multi-stakeholder process.

Recommendation: The government should release a comprehensive policy review with multi-stakeholder engagement to assess the applicability of SNAcs to existing substances addressed through CEPA.

Recommendation: The government should make revisions to the New Substances Program to ensure the inclusion of public engagement on all substances that are notified under the SNAc provision.

Environmental Emergency Plans: Lowering the regulated threshold for preparation and implementation

From the *Environmental Emergency Regulations* under Part 8 of CEPA 1999 (Canada 2003), facilities with the equivalent of at least 6.8 tonnes of pure hydrazine on site, that is in a concentration of 10% or greater, and with a hydrazine container size of at least 6.8 tonnes, are required to prepare and implement an environmental emergency plan.[22]

The use of environmental emergency plans are important for environmental and health protection in the event of an accident or spill. They do not seek to reduce or eliminate hydrazine over a specific time period. The elements of the plan would indicate how protective the plans are.

Considering the properties of hydrazine, we are of the opinion that the current regulated threshold should be lowered for the preparation and implementation of environmental emergency plans under the *Environmental Emergency Regulations* for this substance. While we agree that the current threshold needs to be significantly lowered, we are unsure of the extent to which the government would actually lower the present value. We are concerned that a new proposed value may still be insufficiently protective of the health of surrounding communities and workers, in the advent of an accident or spill.

It would be of significant value to local communities to have an understanding of the proposed lowering of the regulated threshold and the rationale for making these changes to the *Environmental Emergency Regulations.* This communication will also provide affected communities with an improved knowledge about the level of accountability facilities are required to have and their level of preparedness for environmental emergencies.

In updating environmental emergency plans, additional consideration should be given to the following issues and elements:

[22] Environment Canada and Health Canada (b). Page 11.

1) These plans should address all toxic chemicals within a facility, not only hydrazine.

2) The plans should include a process to address public accountability and the reporting of non-compliance. The public should receive annual reports on the effective implementation of these requirements. Public reporting should also provide details on facilities that have been required to implement their environmental emergency plans and the subsequent outcomes.

Recommendation: Because of the aquatic toxicity of hydrazine and its potential to be a human carcinogen, we are requesting that the government makes a significant reduction in the regulated threshold for this substance in the Environmental Emergency Regulations.

Recommendation: We are requesting that the government, industry and community representatives develop a comprehensive communication strategy to ensure transparency and effective preparedness for affected communities. This communication strategy should not be limited to communications related to changes in the threshold value but include contingency plans for workers and the surrounding communities.

Recommendation: We urge the government to require an environmental emergency plan be an integral element of a regulatory management regime that is designed to promote the elimination of hydrazine in use, manufacture, import, release, and disposal.

National Pollutant Release Inventory (NPRI)

The final assessment stated that in the Canadian data of releases of hydrazine and its salts under the National Pollutant Release Inventory (NPRI), four to five facilities per year reported releases from 2004 to 2008: three nuclear power generating plants, one producer of specialty chemicals and one manufacturer of chemical products.[23] The nuclear power generating plants were responsible for most of the emissions of hydrazine to the environment with most of these releases to the aquatic environment (>90%).[24] With a reporting threshold of 10 tonnes manufactured, processed or otherwise used,[25] it is possible that some facilities, particularly medium and small sized facilities, are not reporting releases to the environment under NPRI.

While the NPRI indicate that hydrazine is released into the liquid effluent from nuclear reactor plants, there are also lesser releases from stream generating

[23] Environment Canada and Health Canada (a). Pages 12 – 13; and Environment Canada and Health Canada (b). Page 10.
[24] Ibid.
[25] Environment Canada. 2010. Listing of National Pollutant Release Inventory Substances for 2010. See: http://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=6A1C06B9-1.

plants and fossil-fuelled power generating plants.[26] There are other systems in these power generating plants that use smaller quantities of hydrazine for corrosion and pH control. These might also release hydrazine containing effluent to the aquatic environment.

Currently, reporting on pollution prevention activities under NPRI is completed on a voluntary basis. Therefore, it is challenging to analyze the NPRI data for trends in pollution prevention efforts. Assessing progress in reducing NPRI pollutants without this valuable information makes it much more difficult to determine effective strategies applied by facilities.

Finally, the NPRI program has not undergone changes in reporting requirements since the CMP was released. This has been identified as a weakness in the Canadian approach to chemicals management. A process to improve this program is needed as more chemicals are expected to be assessed. Knowledge of the use-level, current releases and transfer of chemicals is extremely valuable to the decision making process.

Recommendation: We urge the government to eliminate the reporting threshold for hydrazine under the NPRI to require reporting from all of the facilities using, transferring or processing the substance.

Recommendation: The government should prepare a report to the public that would discuss changes in releases of hydrazine to the environment. This report should include greater details to explain the significant increases to water and land documented in 2008.

Recommendation: The requirements for reporting pollution prevention activities under NPRI should be made mandatory. Reporting on pollution prevention activities will identify opportunities for reductions to air, water, and land.

Pharmaceutical products

It was noted in the Risk Management Approach document that there are pharmaceutical products that contain hydrazine as a residual substance.[27] The current approach to the disposal of pharmaceutical products is inconsistent in Canada. Human pharmaceuticals are not always disposed of in a drug take-back program. Often they are disposed of down the drain. As a result, it is possible for hydrazine to be released to the aquatic environment from wastewater treatment systems. The quantity of hydrazine released to the aquatic environment from the disposal of pharmaceuticals has not been fully documented but this issue represents a possible source of environmental release due to a

[26] Environment Canada and Health Canada (a). Pages 12 – 13; and Environment Canada and Health Canada (b). Page 10.
[27] Environment Canada and Health Canada (a). Pages 10 and 11

lack of effective drug take-back programs in all provinces and territories. This information gap should be better addressed.

Recommendation: The government should ensure that all provinces have effective drug take-back programs and that these programs are well promoted in the public arena.

Drinking water standards

At present, there are no guidelines established for hydrazine levels in drinking water but in the United States, the US EPA has estimated that hydrazine poses a 1 × 10–6 cancer risk level at concentrations of 10 ng/L for hydrazine in drinking water (US EPA 1991).[28] However, the US EPA has not developed a maximum contaminant level for hydrazine in drinking water.[29] In the absence of Canadian experimental data, the Canadian government should ensure the protection of drinking water and its sources for all Canadians from all CEPA toxic chemicals, including hydrazine.

Recommendation: In the absence of Canadian monitoring data, we urge to the Canadian government to ensure that drinking water and its sources are protected from hydrazine and other CEPA toxic chemicals.

Worker exposure levels

Based on the results of the final assessment of hydrazine, it is unclear how these results would impact on the exposure levels of workers using hydrazine. In the absence of efforts to address occupational exposure to potential toxic chemicals in the assessment process, the government should outline a clear commitment to communicate and work with provincial/territorial governments to address the findings of the final assessment on hydrazine. These efforts should aim to decrease the level of occupational exposure to hydrazine.

Recommendation: We propose that the federal government outlines its commitment to communicate with the provincial/territorial governments on the findings of the final assessment on hydrazine. In addition these efforts should aim to decrease the level of occupational exposure to hydrazine.

Conclusion

From the final screening assessment, hydrazine meets at least one of the criteria of section 64, CEPA 1999. It is toxic to species in the aquatic environment but it is not persistent or bioaccumulative. As a result, the risk management proposed

[28] Environment Canada and Health Canada (a). Page 48.
[29] Ibid.

for hydrazine will not include the elimination of the substance but rather the government proposed to apply the following instruments:

1) SNAc provision,
2) Environmental Emergency Plans with proposed reduction in the threshold, and
3) pollution prevention (P2) plans for thermal and nuclear power plants that use and release hydrazine.

We have indicated in our comments above that these instruments are not sufficiently stringent to effectively manage hydrazine. As a result, our recommendations have been offered in response to key management proposals with a view that these areas need to be strengthened. In particular, we stress that nuclear power generating stations require considerable attention not only because of their releases of hydrazine to the aquatic environment but also because of the inherent toxicity of the other materials present in these facilities. We need to investigate the potential of alternatives or best practices applied by other sectors as they relate to the operations of the nuclear power generating stations.

Finally, we also note that the need for government to direct attention to the presence of hydrazine as a residual in a range of pharmaceutical and consumer products. It is critical that the government review and act to eliminate exposure to hydrazine through these other paths of human exposure.

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