



October 29, 2008

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Re: Proposed Risk Management Approach for Chlorinated Paraffins

In response to Environment Canada's consultation on a proposed Risk Management Approach for Chlorinated Paraffins, we offer the following comments.

Background:

Chlorinated Paraffins (CPs) have long been known to be of serious concern to human health and the environment. The federal government identified them as being "priority substances" in 1988 and completed an evaluation in 1993 concluding that short-chain chlorinated paraffins (SCCPs) should be considered toxic under the *Canadian Environmental Protection Act* (CEPA) though such a designation has yet to occur under CEPA. Further study ensued to evaluate the toxicity of medium- (MCCPs) and long- (LCCPs) chain chlorinated paraffins.

By 2005, nearly twenty years after this group of chemicals was identified as a priority, the federal government announced that it would designate all three groups of CPs as CEPA-toxic, though this designation remains a proposal. The related Risk Management proposal, now available for consultation, appears to rescind previous conclusions taken by the federal government as to the necessary approach for regulating CPs.

In our view, the result of these changes will have little regulatory impact on addressing those remaining uses of CPs in Canada, it does not address CPs in imported products at all, and indeed amounts to little more than regulating the *status quo*. This change in the government's approach begs the question whether human and environmental health objectives are being served over the interests of those who profit from continued use of CPs or the import and sale of products containing these chemicals.

A Full Ban or "Virtual Elimination" of all CPs is Appropriate

The Proposed Risk Management Approach for Chlorinated Paraffins (CPs) reiterates the recommendation for addition of CPs to Schedule 1 of CEPA 1999. Furthermore under the proposed risk management approach, CPs containing up to 20 carbon atoms will be subject to Virtual Elimination. We agree that CPs should be added to Schedule 1, however we believe that in addition to CPs containing up to 20 carbons that liquid CPs of more than 20 carbons should also be subject to virtual elimination.

The following comments pertain to the proposal not to include C_{>20} liquid LCCPs as a candidate for virtual elimination.

CEPA 1999 defines "virtual elimination" as "the ultimate reduction of the quantity or concentration" of a toxic substance released into the environment as a result of human activity to below a specified level.¹ This level is to be determined by the Ministers of Health and Environment and set out in a Virtual Elimination List.² The *Act* states the Ministers of Environment and Health must propose virtual elimination where a toxic substance is listed in the Toxic Substances List and it is found that:

- the substance is persistent and bioaccumulative in accordance with the regulations;
- the presence of the substance in the environment results primarily from human activity; and
- the substance is not a naturally occurring radionuclide or a naturally occurring inorganic substance.³

Findings on Persistence of CPs

The April 2004 draft report titled *Follow-up on PSLI Substances for Which There Was Insufficient Information to Conclude Whether the Substances Constitute a Danger to the Environment; Chlorinated Paraffins* ("April 2004 Report") concluded that SCCPs, MCCPs and LCCPs are persistent.

The August 2008 report titled *Follow-up Report on a PSLI Assessment for Which Data Were Insufficient to Conclude Whether the Substances Were "Toxic" to the Environment and to the Human Health, Chlorinated Paraffins* ("August 2008 Report") also concluded that SCCPs, MCCPs and LCCPs are persistent.

Where the two reports differ is in their assessment of toxicity and bioaccumulation.

Findings on Toxicity of CPs

The April 2004 report conclude that SCCPs, MCCPs and C₁₈₋₂₀ and C_{>20} liquid LCCPs be considered "toxic" as defined in paragraph 64(a) of CEPA 1999 which means that they are toxic because they are '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'. This finding is based on evidence that SCCPs, MCCPs and LCCPs have the potential to harm pelagic and soil organisms although it was recognized in the report based on limited data that liquid LCCPs and C_{>20} solid LCCPs have low potential to harm Canadian wildlife through food chain effects.

The August 2008 report found only for the CPs containing up to twenty carbon atoms to be toxic under 64(a), although all CPs were found to constitute a danger in Canada to human life or health

¹ CEPA 1999, Section 65(1) and (2).

² CEPA 1999, Section 65(2).

³ CEPA 1999, section 77(4).

which is section 64(c) of CEPA 1999. Thus the C_{>20} liquid LCCPs were no longer considered to be toxic under 64(a). Unfortunately no explanation is given as to why the position on the toxicity of C_{>20} liquid LCCPs changed from the April 2004 report to the August 2008 report.

Findings on Bioaccumulation of CPs

The August 2008 report contained a similar reversal with respect to the determination of the bioaccumulation capacity of C_{>20} liquid LCCPs. The April 2004 report found that C_{>20} liquid LCCPs are bioaccumulative and thus recommended virtual elimination of C_{>20} liquid LCCPs as well as SCCPs and MCCPs based on those substances meeting all the requirements for virtual elimination. However the August 2008 reversed that finding stating they have some potential to bioaccumulate but did not meet the BAF>5000 regulatory threshold to be considered as bioaccumulative. However the reported Kows of C_{>20} liquid LCCPs of 7.46 – 12.83 exceed the threshold of 5 in the *Persistence and Bioaccumulation Regulation* (excerpt from regulation is below) which should be the default if adequate information is not available on BAF or BCF. Section 4 of the *Persistence and Bioaccumulation Regulation* defines bioaccumulation as follows:

4. A substance is bioaccumulative

- (a) when its bioaccumulation factor is equal to or greater than 5 000;*
- (b) if its bioaccumulation factor cannot be determined in accordance with a method referred to in section 5, when its bioconcentration factor is equal to or greater than 5 000; and*
- (c) if neither its bioaccumulation factor nor its bioconcentration factor can be determined in accordance with a method referred to in section 5, when the logarithm of its octanol-water partition coefficient is equal to or greater than 5.⁴*

In addition the August 2008 report cites some evidence of bioaccumulation from academic literature thus noting there is uncertainty in their conclusion that C_{>20} liquid LCCPs are not bioaccumulative. See excerpt below:

Although there are notable uncertainties, based mainly on the available BAF information, it is concluded that C_{>20} liquid LCCPs are not bioaccumulative substances according to the criteria stipulated in the Persistence and Bioaccumulation Regulations of CEPA 1999 (Government of Canada 2000).⁵

A precautionary approach, given the uncertainty, requires C_{>20} liquid LCCPs to be virtually eliminated. Indeed, in its discussion of Persistence and Bioaccumulation Status and Risk Implications, the report notes the need for precaution, as follows:

⁴ *Persistence and Bioaccumulation Regulation*, Section 4.

⁵ Environment Canada. August 2008. *Follow-up Report on a PSLI Assessment for Which Data Were Insufficient to Conclude Whether the Substances Were “Toxic” to the Environment and to the Human Health: Chlorinated Paraffins*. P. 11.

*Lastly, there are uncertainties associated with extrapolating from evidence that a substance is both persistent and bioaccumulative to a conclusion that it may be causing ecological harm. However, given that persistent and bioaccumulative substances have the potential to cause widespread harm that is difficult to reverse, a precautionary assessment approach is justified.*⁶

Products, Imported Products and House Dust Not Considered

The August 2008 report also notes that “another significant source of release of CPs to the environment is from losses during the service life of products containing CP polymers” (PVC, other plastics, paints, sealants, etc.) and notes that these releases are predicted to be mainly to urban/industrial soil and to wastewater. However, analyses conducted during 2003 by scientists working for Greenpeace found a wide range of hazardous chemicals in indoor dust from multiple sampling locations in the European Union.⁷ These chemicals included phthalate esters, alkylphenols, organotin compounds, brominated flame retardants and SCCPs, among others. Like the other chemicals, the SCCPs were found in most samples and the authors surmise that their presence presumably arises from their ongoing and/or previous widespread use as additives in plastics (especially PVC cables), rubbers, paints, etc.

Two conclusions can be drawn from this study, and others like it, that are finding unexpected and high levels of hazardous chemicals in house dust. First, this exposure source is being overlooked in chemicals assessment. Second, given the long life of many of the products from which these chemicals contribute to house dust, risk management responses have as much to do with existing as with historical uses of hazardous chemicals. Risk management responses should include educational efforts to increase public awareness about the potential for chemical exposure in house dust (including the contents of vacuum cleaners, dryer lint, and the surfaces of cleaning tools). This awareness is particularly important for prospective parents, pregnant women and parents of young children.

Finally, although the various reports to which this consultation refers note the reality of consumer products as ongoing sources of CPs, including ongoing though limited manufacturing of such products in Canada, it is silent about imported products. Ignoring this source renders the exposure assessment incomplete and the risk management response inappropriately narrow.

CEPA Provides for a Precautionary Approach to Regulating CPs

One of the fundamental principles underlying CEPA 1999 is the precautionary principle. Section 2(1) of *CEPA* 1999 states:

2. (1) In the administration of this Act, the Government of Canada shall, having regard to the Constitution and laws of Canada and subject to subsection (1.1),

⁶ Ibid. End of Section 4: http://www.ec.gc.ca/CEPARRegistry/documents/subs_list/ChlorinatedParaffins/CPs_P4.cfm

⁷ *Consuming Chemicals: Hazardous chemicals in house dust as an indicator of chemical exposure in the home.* Greenpeace. 2003.

(a) exercise its powers in a manner that protects the environment and human health, ***applies the precautionary principle that, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation,*** and promotes and reinforces enforceable pollution prevention approaches; [emphasis added]

Further, Section 76.1 of CEPA provides that when the Ministers are conducting and evaluating the results of ***“an assessment whether a substance specified on the Priority Substances List is toxic or capable of becoming toxic, the Ministers shall apply a weight of evidence approach and the precautionary principle.”*** [emphasis added]

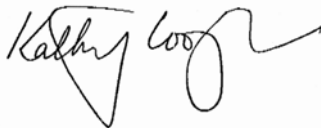
It is our recommendation, given the scientific uncertainty involved and incomplete understanding and characterization of CP exposure, that the requirement to adopt a precautionary approach under CEPA 1999, is valid. Further, although our detailed comments above are specific to liquid CPs of more than 20 carbons, we submit that $C_{>20}$ solid CPs should also be subject to virtual elimination on the basis of a prudent application of precaution.

Hence, we recommend that in addition to the measures proposed, that $C_{>20}$ liquid LCCPs and $C_{>20}$ solid LCCPs also be subject to virtual elimination under the Proposed Risk Management Approach for Chlorinated Paraffins.

Yours truly,



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