

Special Report on Canada's Chemical Management Plan

Ottawa's new Chemicals Management Plan (CMP) represents a determined effort by the federal government to assess and regulate a large number of potentially harmful chemicals. It could affect the day-to-day operations of thousands of Canadian companies. Anyone who manufactures, formulates, uses, imports, sells, transports, recycles or disposes of any of the nearly 1,700 chemicals on the regulatory review agenda will have to closely track, and get involved in, the evaluation and assessment process. Stakeholders risk having their access to key solvents, catalysts, reagents, monomers, additives, and other widely-used process chemicals severely restricted or phased out altogether.

The federal government is proposing restrictions under the Canadian Environmental Protection Act, 1999 (CEPA) on 300 substances that represent a significant hazard to either human health or the environment. It is also fast-tracking nearly 200 chemical compounds through an intensive assessment process to determine which are toxic and warrant more stringent control. It is screening another 1,200 suspect compounds, in order to identify those that deserve a more intensive examination. Finally, it has announced a dozen or so other initiatives to further restrict the use of specified toxic compounds (or families of compounds), or to phase out their commercial use in Canada.

The Table on pages 2-4 describes both the major components of Ottawa's Chemical Management Plan and other recent federal announcements regarding the control of toxic chemicals. These include:

- * The 193 substances of highest concern selected for screening assessments
- * Restrictions on the use of 148 substances of high ecological concern
- * Restrictions on new uses for 150 substances of high health concern
- * 1,200 additional substances selected for rapid screening
- * Creation of the Virtual Elimination List and addition of HCBd to that list
- * Proposed regs for PBDEs
- * Proposed regs for PFOS & related salts
- * Addition of 3 substances to Schedule I
- * Proposed regs for precursors of PFCAs
- * Final regs for 2-BE
- * Amendment of ODS regs covering methyl bromide
- * Guideline for mould in buildings
- * Risk management instruments for mercury-containing products & auto switches

During its first year in office, the federal government has reaped considerable criticism for its environmental policies and programs, especially its lamentable missteps on plans to address global warming and climate change.

On the proactive side, the Government is introducing — and funding to the tune of \$300 million over the next four years — the long awaited “missing link” in the evolution of a comprehensive policy to more effectively manage the risks posed by toxic chemicals in this country.

The feds appear determined to address the approximately 23,000 so-called “legacy” chemicals that were grandfathered in when the New Substances Notification (NSN) Regulations were promulgated under CEPA 13 years ago.

Under NSN Regulations, an importer or manufacturer proposing to introduce a new chemical into the Canadian economy, has been required to first subject the compound to a battery of tests to gauge its environmental, ecological and health implications. Meanwhile, the legacy chemicals on the Domestic Substances List (DSL) — with the exception of 67 compounds or families of compounds that ended up on one of two Priority Substances Lists back in the mid-1990s — got a free pass.

For the past seven years, staff at the Departments of Health and Environment have been categorizing the substances on the DSL — identifying which meet the criteria set forth in s.73 of CEPA 1999. This massive job was completed in September 2006.

Ottawa's Chemicals Management Plan (CMP) launches the next phase with the screening and evaluation of the substances that made the first cut and pose a potential threat to human health and the environment. The top priority is the screening of 193 substances described to be of “high concern” and currently in use by Canadian industry.

What does CMP mean to industry?

There are some widely-used industrial chemicals on that list of “high concern” substances. They span a wide range of the Canadian manufacturing landscape. Among the more familiar are: naphthalene and

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Toxic Substance(s)	Uses/Hazards	Government Action	Timelines
193 substances, considered of highest ecological and/or health concern, selected from the Domestic Substances List (DSL) for priority screening assessment	<p>These are the substances deemed of highest concern, and categorized according to s.73 of CEPA 1999 to be:</p> <ul style="list-style-type: none"> * persistent, accumulative in the food chain, and inherently toxic to the environment, and are known to be in commerce in Canada; and/or * a high hazard to humans, with a high likelihood of exposure to individuals in Canada 	<ul style="list-style-type: none"> * Under s.74 of CEPA 1999, the Ministers of Health and Environment are required to conduct screening assessments of all substances that meet the criteria for categorization to determine whether the substances are toxic or capable of becoming toxic under the Act * The Government has "challenged" industry to provide information to enable early completion of screening assessments and permit regulatory action as needed * The assessments will: improve information on persistence and/or bioaccumulation; identify industrial best practices in order to set benchmarks for risk management, product stewardship, and virtual elimination; and collect release, exposure, and substance use information 	<ul style="list-style-type: none"> * Notice of Intents to assess and manage the risks * posed by certain substances published in Canada Gazette, Part I, Dec. 9, 2006 * The first 15 substances to be screened will be named in Feb. 2007, subsequent lists will be released in 3-month intervals (preliminary list: www.chemicalsubstances.gc.ca) * Screening assessments of all substances to be completed within 3 years * Risk management measures to be promulgated 3 years of completion * Substances added to Schedule 1 of CEPA 1999 could be subject to mandatory P2 planning, virtual elimination, E2 planning, codes of practice, guidelines, and/or regulations
148 substances, considered of high ecological concern but not currently in commerce in Canada, selected from the DSL	<p>These substances are deemed of high concern due to their hazard characteristics, including persistence, bioaccumulative nature, and inherent ecological toxicity, but are not currently imported or manufactured in Canada in amounts above 100 kg per calendar year</p>	<ul style="list-style-type: none"> * The Government proposes to amend the DSL to apply the Significant New Activity provisions under s.81(3) of CEPA 1999 to these 148 substances * The restriction will ensure that users intending to re-introduce a listed substance into commerce must notify the government of the proposed new uses, and provide information to support assessment and the development of appropriate controls for the proposed use 	<p>Notice of Intent to amend the DSL published in Canada Gazette, Part I, on Dec. 9, 2006, with a 60-day comment period</p>
Approximately 150 substances, considered to pose a hazard to human health, selected from the DSL	<p>These substances are deemed inherently hazardous to human health; while current uses of these substances are responsibly managed, any new or increased use could increase exposure</p>	<p>Beneficial uses will be protected, while new uses will be subject to Significant New Activity restrictions under CEPA 1999; increased or new use of these substances will not be allowed without informed assessment and appropriate controls</p>	<p>Notices of Intent to be issued in early 2007</p>
Approximately 1,200 substances, that meet categorization criteria but considered of lower ecological concern, selected from the DSL for rapid screening	<p>These are substances that meet the categorization criteria under s.73(1)b of CEPA 1999, but it is considered unlikely that, following a screening assessment, they will be determined to be toxic in accordance with s.64 of CEPA 1999</p>	<ul style="list-style-type: none"> * Staff from the Ministries of Health and Environment will apply conservative, worst-case scenarios to these substances, in accordance with the <i>Technical Approach for "Rapid Screening" of Substances of Lower Ecological Concern</i> * The approach will identify those substances that should be reviewed for further consideration, as well as those for which no further action is required 	<ul style="list-style-type: none"> * Notice of application of a rapid ecological screening approach under s.74 published in the Canada Gazette, Part I, on Dec. 9, 2006 * The results of the rapid screening to be released for public comment in the spring of 2007
Hexachlorobutadiene (HCBD)	<p>HCBD occurs as a contaminant in chlorinated solvents at very low levels, and is generated as an unwanted by-product during formulation; HCBD has never been commercially produced in Canada, and is no longer imported as a pure chemical</p>	<p>HCBD becomes the first substance to be placed on the new Virtual Elimination (VE) List, with a level of quantification in chlorinated solvents of 0.06 ng/mL; substances on the list meet specific criteria for persistence, bioaccumulation and toxicity, and are entering the environment primarily due to human activity</p>	<ul style="list-style-type: none"> * Final Ministerial order to add HCBD to Virtual Elimination List published in Canada Gazette, Part II, Dec 13, 2006 * By placing a substance on the VE List, the Government aims to reduce releases of substances to levels below that which can be measured * The Government intends to name additional substances to the List
Six polybrominated diphenyl ethers (PBDEs): tetraBDE, pentaBDE, hexaBDE, heptaBDE, octaBDE, nonaBDE & decaBDE	<p>PBDEs are used as flame retardants in a wide variety of products, primarily plastics; all of the 1,300 tonnes of PBDEs used in Canada in 2000 were imported; PBDEs may pose an immediate or long-term harmful effect on the environment or its biological diversity; not considered to pose an immediate threat to human health; tetraBDE, pentaBDE and hexaBDE meet the criteria for virtual elimination under CEPA 1999</p>	<p>Proposed regulations would: prohibit the manufacture of PBDEs; prohibit the use, sale, offer for sale and import of tetraBDE, pentaBDE, hexaBDE, and mixtures, polymers and resins containing these substances; and will prohibit the manufacture of these mixtures, polymers and resins</p>	<ul style="list-style-type: none"> * Final order to add PBDEs to the List of Toxic Substances in Schedule 1 of CEPA 1999 published in Canada Gazette, Part II, Dec. 27, 2006 * Notice of draft Polybrominated Diphenyl Ethers Regulations published in the Canada Gazette, Part I, Dec. 16, 2006, with a closing date for public comments of Feb. 14, 2007 * Additional actions targeting products containing PBDEs, as well as additional actions on heptaBDE, octaBDE, nonaBDE and decaBDE will be developed in the future
Perfluorooctane sulfonate (PFOS), its salts & other compounds that contain C ₈ F ₁₇ SO ₂ , C ₈ F ₁₇ SO ₃ or C ₈ F ₁₇ SO ₂ N	<p>Used primarily on fabric, leather, packaging and carpets to repel water, oil, soil and grease, as well as a surfactant in electroplating, and an additive in firefighting foams, and paints and coatings; not manufactured in Canada and main international manufacturer ceased production in 2002; screening assessment concluded PFOS may pose an immediate or long-term harmful effect on the environment or its biological diversity; not considered to pose an immediate threat to human health</p>	<p>The proposed regulations would prohibit the manufacture, use, sale, offer for sale and import of PFOS, as well as manufactured items containing PFOS, other than a limited number of exemptions</p>	<ul style="list-style-type: none"> * Final order to add PFOS to the List of Toxic Substances in Schedule 1 of CEPA 1999 published in Canada Gazette, Part II, Dec. 27, 2006 * Notice of draft Perfluorooctane Sulfonate and its Salts and Certain Other Compounds Regulations published in Canada Gazette, Part I, Dec. 16, 2006, with a closing date for public comments of Feb. 14, 2007

Toxic Substance(s)	Uses/Hazards	Government Action	Timelines
Pentachlorobenzene (QCB), Tetrachlorobenzenes (TeCBs), and 2-Methoxyethanol (2-ME)	QCB and TeCBs are found in small amounts in chlorobiphenyl liquids used to service some electrical equipment; 2-ME is found in diethylene glycol methyl ether, and used in coatings for aircraft refinishing and semiconductor manufacturing; QCB and TeCBs are harmful to the environment or its biological diversity, and meet the criteria for virtual elimination under CEPA 1999; 2-ME is harmful to human health	The regs ban the manufacture, use, sale, offer for sale and import of QCB and TeCBs or any mixture or product containing these substances, but allow exemptions where they are used with chlorobiphenyls; 2-ME faces similar prohibitions, but may be used where human exposure is not a concern and technical alternatives are not available	Final regulations (SOR/2006-279) to add QCB and TeCBs to the Prohibited Toxic Substances List in Schedule 2, Part 2, and 2-ME to Schedule 2, Parts 1 and 2, of the Prohibition of Certain Toxic Substances Regulations 2005 published in <i>Canada Gazette, Part II</i> , Nov. 29, 2006
Four new fluorotelomer-based substances (see Order for full names and descriptions)	Used in paper, fabric, leather, carpets, stone and tile as stain and water repellents, and as sizing agents in packaging and paper products, and as leveling agents in coatings; according to information submitted under the new substances notification and assessment regime, the four substances were determined to be sources of perfluorinated carboxylic acids (PFCAs) through the release of precursors; PFCAs are toxic, persistent, and bio-accumulative, and may have an immediate or long-term harmful effect on the environment or its biological diversity and may constitute a danger to human life or health	<ul style="list-style-type: none"> * The regs would add a new part to Schedule 1 of the Prohibition of Certain Toxic Substances Regulations, 2005, which would permit exclusions for certain manufactured items which may contain the prohibited substances * The proposed regulations will prohibit the manufacture, use, sale, offer for sale, and importation of the four substances, but will not apply when they are present in certain manufactured items 	<ul style="list-style-type: none"> * Order proposing the substances be added to the List of Toxic Substances in Schedule 1 of CEPA 1999 published in the <i>Canada Gazette, Part I</i>, on June 17, 2006; the deadline for public comments closed August 16, 2006 * The proposed regulations will maintain the prohibition imposed through three Notices of Ministerial Prohibitions published in the <i>Canada Gazette, Part I</i>, on July 17, 2004, and a fourth published on Feb. 5, 2005
2-Butoxyethanol (2-BE), which has the molecular formula C ₈ H ₁₄ O ₂ , in cleaning and paint products	Applies to the use of 2-BE in automobile cleaners, rug or carpet cleaners, floor or baseboard strippers, paint strippers or thinners, laundry stain removers, any other aerosol and non-aerosol cleaners, and aerosol and non-aerosol paints or coatings	The regulations set a series of concentration limits for 2-BE in various commercial and consumer products designed for indoor use	Final 2-Butoxyethanol Regulations published in <i>Canada Gazette, Part II</i> , Dec. 27, 2006
Methyl bromide	Methyl bromide is an ozone-depleting substance used as a fumigant to control pests in soils, structures and commodities; since Jan. 1, 2005, it has been prohibited to manufacture or import methyl bromide, except for permitted exemptions (such as quarantine and pre-shipment applications, as well as critical and emergency uses)	The proposed amendments would allow transfers of methyl bromide among those companies that have been granted a critical or emergency use exemption in a given year	The proposed Regulations Amending the Ozone-depleting Substances Regulations, 1998 were published in the <i>Canada Gazette, Part I</i> , Dec. 2, 2006, with a closing date for public comments of Jan. 31, 2007
Mould in residential buildings	The proposed residential indoor air quality guideline for moulds refers to fungi that can grow on building materials in homes or other buildings; Health Canada considers that mould growth in residential buildings may pose a health hazard; health risks depend on exposure and, for asthma symptoms, on allergic sensitization.	Regardless of the mould species found to be growing in a residential building, the Minister recommends: <ul style="list-style-type: none"> * controlling humidity and diligently repairing any water damage to prevent mould growth; and * cleaning thoroughly any mould growing in building. Tests for the presence of fungi in air cannot be used to assess risks to the health of building occupants.	<ul style="list-style-type: none"> * Pursuant to s.55(3) of CEPA 1999, the Minister of Health may propose a residential indoor air quality guideline for moulds * Notice of proposed residential indoor air quality guideline for moulds was published in the <i>Canada Gazette, Part I</i>, Dec. 23, 2006, with a closing date for public comments of Feb. 21, 2007
Mercury-containing products	Mercury is used in dental amalgams, lamps, switches and relays, batteries, thermostats, thermometers, fungicides and other products; some 10 tonnes of mercury were used in products imported or manufactured in Canada in 2003; mercury is on the List of Toxic Substances in Schedule 1 of CEPA 1999	The Risk Management Strategy (RMS) for mercury-containing products proposes instruments that will allow the Government to prohibit or limit mercury use in products, control imports or exports where necessary, set labelling requirements, and set controls on product disposal	The RMS for Mercury-Containing Products was posted on the CEPA Registry on Dec. 20, 2006, with a closing date for public comments of March 31, 2007
Mercury switches in end-of-life vehicles processed by steel mills	The light switch assembly and/or the anti-lock braking system assembly installed in a vehicle may include a mercury-containing capsule or switch	The proposed instrument would require the preparation and implementation of pollution prevention plans, including the removal of switches prior to processing, and the safe collection, storage, transport, recycling and disposal of mercury switches	Proposed notice published in the <i>Canada Gazette, Part I</i> , on Dec. 9, 2006, with a closing date for public comments of Feb. 7, 2007
Approximately 200 older pesticides, approved under the <i>Pest Control Products Act</i>	All decisions taken on pesticides prior to 1995 are subject to re-evaluation because the Government has increased its health and environmental standards	<ul style="list-style-type: none"> * The Government of Canada will accelerate the re-evaluation of the remaining 200 older pesticides * The review and registration of new and reduced-risk pesticides will also be accelerated 	<ul style="list-style-type: none"> * Re-evaluations of the older pesticides will be completed by 2009 * Evaluation of new pesticides is on-going
Approximately 100 products a year that are regulated under the Pharmaceuticals and Personal Care Product Regulations	Food, drugs and cosmetics are currently regulated for their impact on human health	Improved regulations for these substances are necessary in order to identify and manage the risks these substances may pose to Canadians when they are released in the environment	<ul style="list-style-type: none"> * Consultation with all commodity groups beginning in 2007 * Regulations to be implemented in 2010-11



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butane, carbon black, quartz and cristobalite, acetic acid ethenyl ester (better known as vinyl acetate, and used in polyvinyl resins, paints, coatings, adhesives and many other products), 2-propenamide (or acrylamide, used in dyes, adhesives, ore processing and sewage treatment), cobalt (widely used in steel alloys, electroplating and other processes), isoprene (used to make synthetic rubber), the monomer bisphenol-A (used to make polycarbonate plastics and epoxy resins), nitrilotriacetic acid or NTA (used in water treatment), the catalysts chloro-methane (methyl chloride) and vanadium oxide, the solvents toluene diisocyanate (TDI), chloromethylbenzene, hexane, formamide and nitromethane, Michler's ketone (used in dyes), the reducing agent hydrazine, the refrigerant and propellant 2-methyl propane (isobutane), and the chemical intermediate thiourea, as well as a number of common dyes, colourants, additives, plasticizers and flame retardants.

Many of the other listed substances are used every day in the chemical, plastic and rubber, textile, printing, iron and steel, electroplating, and pharmaceutical sectors.

Anyone scanning the list of high concern substances, published December 9th, 2006, in the *Canada Gazette, Part I*, should be prepared to do a little extra digging. In many cases, the authors did not employ the more common or generic name for a listed substance. For example, toluene-2,6-diisocyanate (TDI) is listed under "Benzene, 1,3-diisocyanato-2-methyl-", and bisphenol-A is under "Phenol, 4,4-(1-methylethylidene)bis-". Both listings are scientifically valid, but may be unfamiliar to many readers. We recommend cross-referencing by the CAS numbers.

The Government also provides a search engine on its "Chemical Substances" website at www.chemicalsubstances.gc.ca so that interested parties can check the status of all the substances covered by the categorization exercise.

Be prepared to get involved

For the next three to four years, anyone who uses, manufactures, imports or otherwise has a stake in the future availability of any of these listed substances

will need to invest considerable time and expertise in order to participate in the assessment and evaluation process.

Every three months over the next year and a half, the Departments of Environment and Health will compile and release batches of profiles on 15 to 30 of the 193 substances of greatest concern. Stakeholders will be "challenged" by the Government, through a series of notices in the *Canada Gazette*, to supply detailed data on the import, manufacture, use, environmental release and disposal of each of the substances profiled.

The Government says it will allow interested parties up to six months to submit this information, which will also be used to refine estimates of product use, exposure, environmental release, persistence and /or bio-accumulation, and "to develop and benchmark best practices for risk management, product stewardship and virtual elimination."

Within six months of the deadline for information (or 90 days, if no information is forthcoming), the Departments of Environment and Health will then draft a "screening assessment" report for each substance. This report will include a determination of whether the substance is "toxic" in accordance with s.64 of CEPA 1999, and whether it should be added to Schedule I, the List of Toxic Substances, or even be targeted for virtual elimination under the Act. Again, interested parties will have a 60-day window to comment on the assessment, the new information presented, and any proposal for further action.

If deemed "CEPA-toxic", the Ministers have up to six months to publish a notice detailing their final recommendations. A risk management approach will be issued at the same time, outlining actions the Government proposes to take to protect Canadians and their environment from risks associated with these substances.

Once a substance is added to Schedule I, the Minister of the Environment will have the authority to promulgate regulations, guidelines, codes of practice, pollution prevention notices or other instruments, as he or she deems appropriate, to reduce the environmental and/or human health impacts of the substance. Under *CEPA 1999*, the Minister has two years to publish a

proposed instrument in the *Canada Gazette* following the addition of a substance to Schedule I.

Depending on the Minister's decision, users of a CEPA-toxic substance could be forced to develop pollution prevention plans, search for substitute chemicals, investigate alternative manufacturing processes or, where these are impractical or unavailable, invest in expensive closed-cycle or emission reduction technology. Yet again, stakeholders will be given an opportunity to participate in the decision-making exercise, and could argue for special dispensation to continue using a toxic substance, under controlled conditions, in situations where practical and affordable alternatives do not exist.

The next steps

While the CMP continues to rumble forward, there have been a series of releases from various federal Ministers announcing prohibitions on assorted flame retardants, solvents, repellants and other chemical additives, as well as plans to reduce mercury releases to the environment, remove mould from residential buildings, label cosmetic products, tinker with the list of ozone depleting substances, and accelerate the review of older pesticides. The attached table describes each of the components of the CMP, as well as the other recently announced federal initiatives to control or manage toxic chemicals.

The Government also introduced the Virtual Elimination (VE) List and named its first inductee, hexachlorobutadiene. Compounds added to the VE List must meet specified criteria for persistence, bioaccumulation and toxicity, and be entering the environment primarily due to human activity. Virtual elimination means environmental releases will have to be reduced "to a concentration level below that which can be accurately measured using sensitive but routine sampling and analytical methods." And the Government has vowed more inductees are on the way.

While several of these initiatives may have originated under the previous Government - and, taken individually, none matches the scope or impact of the CMP -- we haven't seen this level of activity on the toxic substances portfolio in more than a decade.