

Table 1. General information on PBT Ranking Schemes

| Organization | Title | Publication type | Date of adoption | Date(s) of updates/revisions | Regulatory Purpose | PBT reduction approach & regulations, policies, etc. used to achieve PBT reductions | Process for updates/revisions | Contact information; Key Staff | Internet link (document) | Internet link (program) |
|---|--|---|---------------------------------------|------------------------------|--|--|---|---|---|---|
| Inter/cross-national | | | | | | | | | | |
| United Nations | Stockholm Convention on Persistent Organic Pollutants | Treaty | Adopted 2001, Entered into force 2004 | - | To protect human health and the environment from persistent organic pollutants via measures to reduce or eliminate releases from intentional production and use, unintentional production, and stockpiles and wastes | Each party is to develop an "Implementation Plan" for achieving elimination and reduction goals set forth in the Protocol to be transmitted, reviewed and updated periodically (see Article 7). Each party must report the measures it has taken to implement its plan (Article 15) and is subject to a periodic "Effectiveness Evaluation" (Article 16). | Any party may propose a new chemical at any time. A committee determines whether or not the proposed chemical will be listed or not following a review of the PBT criteria (Annex D), a risk profile (Annex E) and socio-economic considerations (Annex F) (see Article 8). | http://www.pops.int/contact.htm | http://chm.pops.int/Portals/0/Repository/conf/UNEP-POPS-CONF-4-AppendixII.5206ab9e-ca67-42a7-afee-9d90720553c8.pdf | http://chm.pops.int/ |
| USEPA and Environment Canada | Great Lakes Binational Toxics Strategy | Strategy | 1997 | - | To set forth a collaborative process by which Canada and the U.S. will work towards the goal of virtual elimination of persistent toxic substances resulting from human activity, particularly those which bioaccumulate, from the Great Lakes basin, so as to protect and ensure the health and integrity of the Great Lakes ecosystem | Establishes reduction challenges for an initial list of persistent toxic substances targeted for virtual elimination. A process for determining baseline release levels and loadings of Level I and II substances through a data synthesis and modeling effort, based on best available data and scientific information will be established in order to measure progress. | As new information and data on opportunities, and their associated costs and benefits become available, EC and USEPA may revise the challenges, using a public consultation process involving their partners. | http://www.epa.gov/greatlakes/feedpp.html ; Edwin (Ted) Smith, 312-353-6571, smith.edwin@epa.gov | http://www.epa.gov/greatlakes/p2/bnsign.PDF | http://www.epa.gov/bns/index.html |
| International Joint Commission | 1987 Protocol Amending the 1978 Great Lakes Water Quality Agreement | Protocol - see Annex 12 for Persistent Toxic Substances Program | 1987 | - | To virtually eliminate the input of persistent toxic substances in order to protect human health and to ensure the continued health and productivity of living aquatic resources and human use thereof | Acceptable thresholds (in water and edible fish tissue) for each persistent toxic substance are identified and enforced in addition to the following tasks: 1) Completion of an inventory on raw materials, processes, products, by-products, waste sources and emissions, and quantitative data on the substances, together with recommendations on handling, use and disposition, 2) Establishment of close coordination between air, water and solid waste programs in order to assess the total input and to define comprehensive, integrated controls, 3) Establishment of joint programs for disposal of hazardous materials to ensure that these materials are properly transported and disposed of. A monitoring program, targeting research program, and early warning system will also be established. | May be amended by agreement of the Parties as long as amendments confirmed by an exchange of notes or letters between the Parties through diplomatic channels which shall specify the effective date or dates of such amendments and all amendments are communicated promptly to the International Joint Commission | Great Lakes Regional Office of the IJC, 100 Ouellette Ave., 8thFloor, Windsor, ON N9A 6T3; Douglas M. Bondy, Regional Assistant, bondyd@windsor.ijc.org | http://www.ijc.org/en/activities/consultations/glwqa/guide_3.php#1987 | |
| United Nations | United Nations Environment Programme Governing Council Decision 18/32 | Decision | 1995 | - | Calls for an assessment of the chemistry, toxicology, fate and transport, sources, benefits, alternatives, and reduction/elimination strategies for an initial list of POPs so that an international legal mechanism for addressing POPs may be established | None identified. Outcome of assessment will be used to determine appropriate approach. | - | - | http://www.chem.unep.ch/pops/index.htm | - |
| United Nations Economic Commission for Europe | Convention on Long-range Transboundary Air Pollution (UNECE-LRTAP) Protocol on Persistent Organic Pollutants | Convention | 1998 | - | To eliminate any discharges, emissions and losses of POPs, which are organic substances that: (i) possess toxic characteristics; (ii) are persistent, (iii) bioaccumulate, (iv) are prone to long-range transboundary atmospheric transport and deposition, and (v) are likely to cause significant adverse human health or environmental effects near to and distant from their sources | The Protocol bans the production and use of some products outright (aldrin, chlordane, chlordecone, dieldrin, endrin, hexabromobiphenyl, mirex and toxaphene). Others are scheduled for elimination at a later stage (DDT, heptachlor, hexachlorobenzene, PCBs). Finally, the Protocol severely restricts the use of DDT, HCH (including lindane) and PCBs. The Protocol includes provisions for dealing with the wastes of products that will be banned. It also obliges Parties to reduce their emissions of dioxins, furans, PAHs and HCB below their levels in 1990 (or an alternative year between 1985 and 1995). For the incineration of municipal, hazardous and medical waste, it lays down specific limit values. | Any Party may suggest an amendment. Amendments shall be adopted by consensus of the Parties at a session of the Executive Body. | http://www.unece.org/env/lrtap/secretariat.htm | http://www.unece.org/env/lrtap/full%20text/1998.POPS.e.pdf | http://www.unece.org/env/lrtap/pop_s_h1.htm |

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| OSPAR | The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") & associated manual for defining hazardous substances (DYNAMEC) | OSPAR: Convention, Dynamic Selection and Prioritization Mechanism for Hazardous Substances (DYNAMEC): Manual, Hazardous Substance Strategy: Strategy | Adopted 1992, Entered into force 1998 | - | OSPAR/Hazardous Substances Strategy: To prevent pollution of the maritime area by continuously reducing discharges, emissions and losses of hazardous substances, with the ultimate aim of achieving concentrations in the marine environment near background values for naturally occurring substances and close to zero for man-made synthetic substances; DYNAMEC: To select those hazardous substances that need to be addressed under the Hazardous Substances Strategy and to identify the substances which should be given priority in OSPAR's work | Hazardous Substances Strategy actions include: 1) identifying the sources of hazardous substances and their pathways to the marine environment, using, inter alia, information derived from monitoring, research, specific surveys and assessment activities, 2) establishing with the help of an appropriate combination of monitoring, modelling, risk characterisation and risk assessment techniques, whether these sources represent either a widespread problem or a problem restricted to regional or local environments within the maritime area; and as a result, 3) the identification of relevant measures to deal with the problem, including the adoption of measures to reduce discharges, emissions and losses of hazardous substances and taking into account the sources and pathways of hazardous substances and the substitution of hazardous substances with less hazardous (or, preferably, non-hazardous) substances, taking into account the sources and pathways of the hazardous substances. | The List of Substances of Possible Concern is a dynamic working list and will be regularly revised, as new information becomes available. | OSPAR Secretariat, New Court, 48 Carey Street, London WC2A 2JQ / UK, Tel: +44 (0) 20 7430 5200; secretariat@ospar.org | DYNAMEC: http://www.ospar.org/documents/dbase/publications/p00256_New%20DYNAMEC%20Manual.pdf | http://www.ospar.org/eng/html/welcome.html |
| United Nations | Globally Harmonized System of Classification and Labeling of Chemicals | System - see Chapter 4 for Environmental Hazards Classification, Annex 9 for Guidance on Hazards to the Aquatic Environment, and Chapter 3 for Health Hazards | 2003 | 2005, 2007 | To identify those chemical substances that present, through their intrinsic properties (i.e. aquatic toxicity, degradability, bioaccumulation) present, a danger to the aquatic environment and to human health | None - program only seeks to classify hazardous substances | The document is regularly revised and updated to reflect national, regional and international experiences in implementing requirements into national, regional and international laws, as well as the experiences of those doing the classification and labeling. | http://www.unece.org/trans/danger/publi/ghs/ghs_rev02/02files_e.html | http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html | |

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| US Federal Government | | | | | | | | | | |
| USEPA | Final Water Quality Guidance for the Great Lakes System (aka the Great Lakes Initiative) | Rule | 1995 | 2000 (final rule) | Establishes derivation methods and water quality criteria for protection of aquatic life, wildlife, and human health for 29 pollutants, including bioaccumulative chemicals of concern (BCCs), and places restrictions on the use of mixing zones for BCCs. | 1) Prohibits the establishment of mixing zones for new discharges of BCCs, and 2) Prohibits mixing zones for existing discharges of BCCs after November 15, 2010, subject to two exceptions for which pollution prevention programs may apply: (1) promotion of water conservation, and (2) technical and economic considerations. | The methodologies for establishing BAFs and criteria for pollutants, including BCCs, will be evaluated and revised, as appropriate, every three years. | http://www.epa.gov/glnpof/eedpp.html | http://www.epa.gov/fedrgstr/EPA-WATER/2000/November/Day-13/w28709.htm | http://www.epa.gov/waterscience/standards/gli/ |
| USEPA | Multimedia Strategy for Priority Persistent, Bioaccumulative, and Toxic (PBT) Chemicals | Strategy | 1998 | - | To further reduce risks to human health and the environment from existing and future exposure to priority persistent, bioaccumulative, and toxic (PBT) pollutants | 4 elements central to the Strategy are: 1) developing and implementing national action plans for priority PBT pollutants using the full range of EPA tools to achieve risk reduction, 2) screening and selecting more priority PBT pollutants for action, 3) preventing the introduction of new PBT pollutants into commerce, and, 4) measuring progress by linking activities to environmental results. | - | Sam Sasnett, (202) 260-8020, sasnett.sam@epa.gov | http://epa.gov/pbt/pubs/pbtstrat.htm | - |
| USEPA | National Waste Minimization Program | Voluntary program | post-1998 (unclear as to when final list was completed) | - | To promote a more sustainable society, reduce the amounts of waste generated, and lower the toxicity and persistence of wastes that are generated | Program offers tools to help voluntary members manage waste minimization efforts (e.g. "Chemical Management Services" - A business model in which the service provider is paid based on the quality and quantity of services provided, not on the volume of chemicals sold. Chemical management services reduce chemical lifecycle costs, risks, and environmental impacts): http://www.epa.gov/epawaste/hazard/wastemin/ols.htm | - | http://www.epa.gov/epawaste/comments.htm | - | http://epa.gov/wastemin/ |
| USEPA | Toxics Release Inventory (TRI) of the Emergency Planning and Community Right-to-know Act (EPCRA) & associated PBT Chemicals Final Rule | TRI: Part of Section 313 Title III of the Superfund Amendments and Reauthorization Act of 1986, PBT Rule: Rule | TRI: 1988 | 1999 - PBT Rule: Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Community Right-to-Know Toxic Chemical Reporting | TRI: To empower citizens, through information, to hold companies and local governments accountable in terms of how toxic chemicals are managed, PBT Rule: To define the characteristics of PBTs, lower the reporting thresholds for certain PBTs, and add certain other PBTs to the TRI list of toxic chemicals | TRI: Data on releases and transfers of certain toxic chemicals from industrial facilities are collected annually and made available to the public, PBT Rule: Listed chemicals classified as PBTs are subject to rigorous reporting thresholds | - | http://www.epa.gov/tri/contacts.htm | PBT Chemicals Final Rule: http://www.epa.gov/fedrgstr/EPA-WASTE/1999/October/Day-29/f28169.htm , TRI component of EPCRA: http://rwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=browse_us&docid=Cite:+42USC11023 | TRI: http://www.epa.gov/tri/ , PBT Rule: http://www.epa.gov/tri/lawsandregs/pbt/pbtrule.htm |
| USEPA | Toxic Substances Control Act (TSCA) Premanufacture Notice (PMN) Categorization: Category for Persistent, Bioaccumulative, and Toxic New Chemical Substances | Section 5 Action | 1999 | - | Establishment of a PBT category alerts potential PMN submitters to possible assessment or regulatory issues associated with PBT new chemicals review. It also provides a vehicle by which the Agency may gauge the flow of PBT chemical substances through the TSCA New Chemicals Program and measure the results of its risk screening and risk management activities for PBT new chemical substances; as such, it is a major element in the Agency's overall strategy to further reduce risks from PBT pollutants. | Designates proposed new chemicals as PBT so TSCA can determine if the chemical's production should be banned (thereby preventing PBT pollution) or allowed | - | Kenneth Moss, Chemical Control Division (7405), Environmental Protection Agency, 401 M St., SW., Washington, DC 20460, telephone number: 202-260-3395, e-mail address: moss.kenneth@epa.gov | http://www.epa.gov/fedrgstr/EPA-TOX/1999/November/Day-04/f28888.htm | http://www.epa.gov/oppt/newchems/index.htm |
| USEPA | PBT Profiler | Online risk-screening tool | 2002 | - | To predict a chemical's potential to persist in the environment, bio-concentrate in animals, and be toxic, properties which cause concern for human health and the environment <i>in the absence of data</i> . Used to identify materials that may need additional technical evaluation for PBT characteristics. | Determines if a chemical is expected to exceed the PBT criteria under EPA's New Chemicals Program and/or Toxic Release Inventory (TRI). Can also identify pollution prevention (P2) opportunities and help groups make informed decisions on which chemicals may be a concern. | - | http://www.epa.gov/oppt/sf/comments.htm | http://www.epa.gov/oppt/sf/tools/pbt profiler.htm | http://www.epa.gov/oppt/sf/tools/pbt profiler.htm |

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| Canadian | | | | | | | | | | |
| Environment Canada | Canada-Ontario Agreement Respecting the Great Lake Basin Ecosystem | Agreement | 1971 | 1976, 1982, 1986, 1991, 1994 (see section 4.2 Prevent and Control Pollution), 2001 | To achieve the virtual elimination of persistent, bioaccumulative and toxic substances from the Great Lakes Basin Ecosystem by encouraging and implementing strategies consistent with the philosophy of zero discharge | Without precluding the use of regulations, further voluntary and cooperative initiatives by responsible parties will be the primary mechanisms to achieve real and measurable reductions in the use, generation or release of both persistent, bioaccumulative and toxic substances, and other substances impairing the Great Lakes Basin Ecosystem. Canada and Ontario will, if necessary, use existing tools or develop new ones to regulate and legislate sources of persistent, bioaccumulative and toxic substances province-wide, and other toxic or undesirable substances locally or regionally. | Substances may be elevated from the Tier II listing to the Tier I listing through a weight-of-evidence approach, and through a process of stakeholder consultation. | http://www.on.ec.gc.ca/comments_e.html | http://www.on.ec.gc.ca/laws/coa/coa94-e.html | - |
| Government of Canada | Canadian Environmental Protection Act | Act | adopted 1999, entered into force 2000 | - | To contribute to sustainable development - development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs | Requires categorization of all substances on the Domestic Substances List to determine if they are toxic and either bioaccumulative or persistent. Substances meeting these criteria are then subject to a screening level risk assessment to determine if they are Priority Substances which are targeted for possible virtual elimination. | - | http://www.ec.gc.ca/CEPARegistry/comments/comment_frm.cfm | http://laws.justice.gc.ca/en/C-15.31/text.html | http://www.ec.gc.ca/CEPARegistry/the_act/ |
| Environment Canada | Canadian Environmental Protection Act: Toxic Substances Management Policy - Persistence and Bioaccumulation Criteria | Act | 1999 | - | To provide a framework for making science-based decisions on the effective management of toxic substances that are of concern because they are or may be used and released into the environment or because Canadians may be exposed to them through the environment. Objectives include: 1) virtually eliminate from the environment toxic substances that result predominantly from human activity and that are persistent and bioaccumulative (referred to in the Policy as Track 1 substances), and 2) manage other toxic substances and substances of concern, throughout their entire life cycles, to prevent or minimize their release into the environment (referred to in the Policy as Track 2 substances) | Management of both Track 1 and Track 2 substances will address, as appropriate, entry into the environment from both domestic and foreign sources, as well as remediation of areas already contaminated by a substance. Virtual elimination from the environment of Track 1 substances will be based on strategies to prevent the measurable release of the substances into the environment (by addressing sources of release to the environment or by removing or managing the substance if it is already in the environment). In cases where no measurable release limits cannot be satisfied, generation or use of a substance will not be acceptable. | The federal government will identify Track 1 substances proposed for virtual elimination from the environment. Stakeholders will have an opportunity to comment, with a fixed period of time to present scientific evidence objecting to or supporting a substance's selection, that is, whether it satisfies the criteria. The federal government will render a final, public decision after reviewing all the evidence. | http://www.ec.gc.ca/toxics/en/comments.cfm | http://www.ec.gc.ca/toxics/TSMP/en/tsmp.pdf | http://www.ec.gc.ca/TOXICS/EN/index.cfm |
| European Union | | | | | | | | | | |
| European Union | REACH, Annex XIII | Regulation | 2006 | - | To lay down the criteria for the identification of PBT and vPvB substances | Chemicals designated as PBTs or vPvB will be subject to an emission characterization/exposure assessment process which will be followed by a risk characterization. The manufacturer or importer of PBT or vPvB substances shall use the information as obtained in the exposure estimation when implementing on its site, and recommending for downstream users, risk management measures which minimize exposures and emissions to humans and the environment, throughout the lifecycle of the substance that results from manufacture or identified uses. | - | http://ec.europa.eu/enterprise/reach/contact_en.htm | http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:396:0001:0849:EN:PDF | http://ec.europa.eu/enterprise/reach/reach_more_info_en.htm |
| Australian | | | | | | | | | | |
| Australia is a member of the Stockholm Convention on Persistent Organic Pollutants | | | | | | | | | | |
| New Zealand | | | | | | | | | | |
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| US States and Regions | | | | | | | | | | |
| Washington Department of Ecology | The PBT Rule, Chapter 173-333 WAC, Persistent Bioaccumulative Toxins (PBT) | Rule | 2006 | - | To identify toxic chemicals that require further action because they remain ("persist") in the environment for long periods of time where they can bioaccumulate to levels that pose threats to human health and environment in Washington | Ecology will use the PBT list in the following ways: (a) <i>Chemical action plans</i> . To select chemicals for chemical action plan development, (b) <i>Ambient monitoring</i> . To help guide decisions on the design and implementation of Ecology programs for characterizing chemical concentrations in the ambient environment, (c) <i>Biomonitoring</i> . To encourage and inform the department of health regarding their efforts to monitor chemicals in human tissue, (d) <i>Public awareness</i> . To promote greater public awareness on the problems associated with PBT chemicals, the uses and sources of individual PBTs and steps that individuals and organizations can take to reduce PBT uses, releases and exposure, (e) <i>Voluntary measures</i> . To help identify opportunities for government agencies, businesses and individuals to implement voluntary measures for reducing and phasing out PBT uses and releases. | Ecology will periodically review and update the PBT list. The frequency of review will be determined by credible scientific information available on individual chemicals or chemical groups, rule-making petitions submitted to Ecology and available agency resources. A technical discussion paper summarizing the scientific information supporting the addition/removal of a chemical will be made available to the public prior to any official amendments to the PBT list. | Carol Kraege, (360) 407-6906, CKRA461@ecy.wa.gov; Holly Davies, (360) 407-7398, HDAV461@ecy.wa.gov | http://www.ecy.wa.gov/pubs/wac173333.pdf | - |
| Washington Department of Ecology | Strategy to Continually Reduce Persistent, Bioaccumulative, Toxic Chemicals (PBTs) in Washington State | Strategy | 2000 | - | To continually reduce risks to human health and Washington's environment from exposures to PBTs, by the year 2020, describe the broad outlines of a long-term strategy to reduce and, where possible, eliminate PBTs, promote dialogue and discussion on key environmental, economic, and societal issues associated with implementing a long-term strategy for protecting Washington residents, and introduce listing criteria and an initial list of PBTs for action in Washington state. | Implementing Chemical Action Plans (CAPs), Ecology will: 1) Reduce and, where possible, phase-out existing sources of PBTs, 2) Clean up PBTs from historical sources, 3) Prevent new sources of PBTs, 4) Build partnerships to promote efforts to reduce and eliminate PBTs and coordinate with other jurisdictional programs, 5) Ensure regulatory and non-regulatory approaches address cross-media (air, land, and water) effects, 6) Identify and prioritize additional PBTs, 7) Improve public awareness and understanding of PBT problems and solutions, 8) Improve and promote the development of information needed to make informed decisions on measures to reduce PBTs. | List will be updated after screening process to identify PBTs beyond the starter list (of 9 chemicals) is completed. | Carol Kraege, (360) 407-6906, CKRA461@ecy.wa.gov; Holly Davies, (360) 407-7398, HDAV461@ecy.wa.gov | http://www.ecy.wa.gov/pubs/0003054.pdf | http://www.ecy.wa.gov/biblio/0003054.html |
| Regional Sediment Evaluation Team | Northwest Regional Sediment Evaluation Framework (based on Dredged Material Management Program (DMMP) BCoCs definitions) | Framework | 2006 | - | To provide a regional framework for the assessment, characterization, and management of sediments in the Pacific Northwest | The identification of BCoCs plays a major role in establishing reason to believe that a bioaccumulation evaluation needs to be performed (as part of a process to determine a sediment management plan), particularly in the absence of tissue and sediment bioaccumulation triggers. | Major revisions will be presented annually by RSET to agency staff and the interested public for review and comment. | - | http://www.nws.usace.army.mil/publicmenu/DOCUMENTS/DMMP/RSET_Interim_Final.pdf | http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=dmmp&pagename=RSET |
| Oregon Department of Environmental Quality | Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment | Guidance | 2007 | - | To describe a process used by the Oregon Department of Environmental Quality (DEQ) to evaluate chemicals found in sediment for their potential contribution to risk as a result of bioaccumulation | Identifying bioaccumulative contaminants of interest (BCOI) is among the first steps in determining a sediment management plan for a contaminated site. | - | http://www.oregon.gov/DEQ/WQ/contact_us.shtml | http://www.deq.state.or.us/lq/pubs/docs/cu/GuidanceAssessingBioaccumulative.pdf | - |

Table 2. Persistence, Bioaccumulation, and Toxicity Criteria for PBT Ranking Schemes. Table is intended to be read from LEFT to RIGHT for each scheme in order to accurately understand PBT definitions*.

| Organization | Title | Chemical Definition | Persistence ($t_{1/2}$, d) ¹ | | | | | Bioaccumulation ¹ | | | | Toxicity | | |
|---|---|--------------------------------------|--|--------|----------|---------|---|------------------------------|----------|---------------------|--|---|---|--|
| | | | Air | Water | Sediment | Soil | Other | BCF | BAF | log K _{ow} | Non-numerical criteria | Human Health | Environment | |
| Inter/cross-national | | | | | | | | | | | | | | |
| United Nations | Stockholm Convention on Persistent Organic Pollutants | Persistent Organic Pollutants (POPs) | - | >60 or | >180 or | >180 or | Evidence otherwise sufficiently persistent; | >5000 or | >5000 or | >5 or | Monitoring data in biota or other reasons for concern; | Evidence of adverse effects or toxicity data indicate potential for effects or | Evidence for adverse effects or toxicity data indicate potential for effects and (see Table 3) | |
| USEPA and Environment Canada | Great Lakes Binational Toxics Strategy | Level 1 | Chemicals nominated (from previously defined lists ²) and agreed upon by the two countries | | | | | | | | | | | |
| | | Level 2 | One country or the other has grounds to indicate its persistence in the environment, potential for bioaccumulation and toxicity (based on previously defined lists ²). These grounds have not as yet been sufficiently considered by both nations such that they can agree to set joint challenge goals for these substances at this time. | | | | | | | | | | | |
| International Joint Commission | 1987 Protocol Amending the 1978 Great Lakes Water Quality Agreement | Persistent Toxic Substances | - | >56 | - | - | - | - | - | - | - | A substance which can cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in any organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances | | |
| United Nations | United Nations Environment Programme Governing Council Decision 18/32 | Persistent Organic Pollutants (POPs) | Chemicals from list generated by the United Nations Economic Commission for Europe in the context of the Convention on Long-range Transboundary Air Pollution (UNECE-LRTAP) | | | | | | | | | | | |
| United Nations Economic Commission for Europe | Convention on Long-range Transboundary Air Pollution (UNECE-LRTAP) Protocol on Persistent Organic Pollutants | Persistent Organic Pollutants (POPs) | - | >60 or | >180 or | >180; | - | >5000 or | >5000 or | >5; | - | Potential to adversely affect human health or | Potential to adversely affect environment and (See Table 3) | |
| OSPAR | The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") | Substances of Possible Concern | - | 50 and | - | - | - | ≥500 or | - | ≥4 and | - | T _{mammalian} : CMR (carcinogenic, mutagenic, or toxic for reproduction) or chronic toxicity or | T _{aq} : acute LC ₅₀ or EC ₅₀ ≤1 mg/L, long-term NOEC ≤0.1 mg/L | |
| | | Substances for Priority Action | Listed Substances of Possible Concern are further ranked according to their actual occurrence and effects in the marine environment and then selected from the ranked list if they are judged to require priority action by OSPAR. | | | | | | | | | | | |

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| Organization | Title | Chemical Definition | Persistence (t _{1/2} , d) ¹ | | | | | Bioaccumulation ¹ | | | | Toxicity | |
|----------------|--|--|---|---------|----------|---------|-------------------------------|------------------------------|-----|---------------------|------------------------|--------------|--|
| | | | Air | Water | Sediment | Soil | Other | BCF | BAF | log K _{ow} | Non-numerical criteria | Human Health | Environment |
| United Nations | Globally Harmonized System of Classification and Labeling of Chemicals | Substances hazardous to the aquatic environment Chronic (4 levels) | - | > 16 or | > 16 or | > 16 or | BOD ₅ /COD≤0.5 and | ≥500 or, | - | ≥4 and | - | - | <p>Chronic 1: 96 hr LC50 (for fish) ≤ 1mg/L and/or 48 hr EC50 (for crustacea) ≤ 1mg/L and/or 72 or 96 hr EC50 (for algae or other aquatic plants) ≤ 1mg/L;</p> <p>Chronic 2: 96 hr LC50 (for fish) >1 to ≤10 mg/L and/or 48 hr EC50 (for crustacea) >1 to ≤10 mg/L and/or 72 or 96 hr EC50 (for algae or other aquatic plants) >1 to ≤10 mg/L, unless the chronic toxicity NOECs are >1 mg/L;</p> <p>Chronic 3: 96 hr LC50 (for fish) >10 to ≤100 mg/L and/or 48 hr EC50 (for crustacea) >10 to ≤100 mg/L and/or 72 or 96 hr EC50 (for algae or other aquatic plants) >10 to ≤100 mg/L, unless the chronic toxicity NOECs are >1 mg/L;</p> <p>Chronic 4: Poorly soluble substances for which no acute toxicity is recorded at levels up to the water solubility and which are not rapidly degradable and have a log K_{ow} ≥ 4, indicating a potential to bioaccumulate (unless other scientific evidence exists showing classification to be unnecessary - such evidence would include an experimentally determined BCF <500, or a chronic toxicity NOEC >1 mg/L, or evidence of rapid degradation in the environment).</p> |
| | | Substances hazardous to the aquatic environment Acute (3 levels) | - | - | - | - | - | - | - | - | - | - | <p>Acute 1: 96 hr LC50 (for fish) ≤ 1mg/L and/or 48 hr EC50 (for crustacea) ≤ 1mg/L and/or 72 or 96 hr EC50 (for algae or other aquatic plants) ≤ 1mg/L;</p> <p>Acute 2: 96 hr LC50 (for fish) >1 to ≤10 mg/L and/or 48 hr EC50 (for crustacea) >1 to ≤10 mg/L and/or 72 or 96 hr EC50 (for algae or other aquatic plants) >1 to ≤10 mg/L, unless the chronic toxicity NOECs are >1 mg/L;</p> <p>Acute 3: 96 hr LC50 (for fish) >10 to ≤100 mg/L and/or 48 hr EC50 (for crustacea) >10 to ≤100 mg/L and/or 72 or 96 hr EC50 (for algae or other aquatic plants) >10 to ≤100 mg/L, unless the chronic toxicity NOECs are >1 mg/L.</p> |
| | | Health Hazards | - | - | - | - | - | - | - | - | - | - | - |

Table 2. Persistence, Bioaccumulation, and Toxicity Criteria for PBT Ranking Schemes. Table is intended to be read from LEFT to RIGHT for each scheme in order to accurately understand PBT definitions*.

| Organization | Title | Chemical Definition | Persistence (t _{1/2} , d) ¹ | | | | | Bioaccumulation ¹ | | | | Toxicity | | |
|------------------------------|---|--|---|----------------------------|----------------------------|------------------------|----------------|------------------------------|------------------|---------------------|--|------------------|--|--|
| | | | Air | Water | Sediment | Soil | Other | BCF | BAF | log K _{ow} | Non-numerical criteria | Human Health | Environment | |
| US Federal Government | | | | | | | | | | | | | | |
| USEPA | Final Water Quality Guidance for the Great Lakes System (aka the Great Lakes Initiative) | Bioaccumulative Chemicals of Concern (BCC) | - | >56 and | >56 and | - | >56 (biota) or | - | >1000 and | - | - | | Has the potential upon entering surface waters to cause adverse effects, either by itself or in the form of its toxic transformation product, as a result of bioaccumulation | |
| USEPA | Multimedia Strategy for Priority Persistent, Bioaccumulative, and Toxic (PBT) Chemicals | Persistent, Bioaccumulative and Toxic Chemicals (PBTs) | Level 1 chemicals from Canada-US Great Lakes Binational Toxics Strategy | | | | | | | | | | | |
| USEPA | National Waste Minimization Program | Priority Chemicals (PCs) ³ | Chemicals scoring ≥7 for human health or ecological concern based on EPA's Waste Minimization Prioritization Tool (WMPT) and PBT chemical priorities from other EPA programs compiled and used as initial list. This list was then screened to eliminate chemicals unlikely to be toxic and/or present in significant quantities in RCRA hazardous waste. The remaining chemicals were then ranked according to: 1) the PBT score from the WMPT; 2) chemical quantity and prevalence (or frequency of occurrence) in hazardous waste; 3) evidence that the chemical is present in the environment, particularly at levels of concern; and 4) the degree to which the chemical is a concern to the RCRA program. | | | | | | | | | | | |
| USEPA | Toxics Release Inventory (TRI) of the Emergency Planning and Community Right-to-know Act & associated PBT Chemicals Final Rule | Toxic chemicals on the TRI list Persistent Bioaccumulative Toxins (PBT) on the TRI list | A chemical may be added to the TRI list if there is sufficient evidence to establish any one of the following: (A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases. (B) The chemical is known to cause or can reasonably be anticipated to cause in humans: (i) cancer or teratogenic effects, or (ii) serious or irreversible: (I) reproductive dysfunctions, (II) neurological disorders, (III) heritable genetic mutations, or (IV) other chronic health effects. (C) The chemical is known to cause or can reasonably be anticipated to cause, because of: (i) its toxicity, (ii) its toxicity and persistence in the environment , or (iii) its toxicity and tendency to bioaccumulate in the environment , a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section. | | | | | | | | | | | |
| USEPA | | | ≥2 or ⁴ | ≥60 or | ≥60 or | ≥60 and | - | ≥1000 or | ≥1000 and | - | - | Same as TRI list | Same as TRI list | |
| USEPA | Toxic Substances Control Act (TSCA) Premanufacture Notice (PMN) Categorization: Category for Persistent, Bioaccumulative, and Toxic New Chemical Substances | New PBT Substance - Order Pending Testing/Significant New Use Rule (SNUR) | - | >60 or | >60 or | >60 and | - | ≥1000 (Fish) or | ≥1000 (Fish) and | - | Molecular Weight >1000 and Cross-sectional Diameter <20 Å, or <20*10 ⁻⁸ cm) and | - | Develop toxicity data where necessary. | |
| USEPA | | New PBT Substance - Ban Pending Testing | - | >180 or | >180 or | >180 and | - | ≥5000 (Fish) or | ≥5000 (Fish) and | - | Molecular Weight >1000 and Cross-sectional Diameter <20 Å, or <20*10 ⁻⁸ cm) and | - | Develop toxicity data where necessary. Testing results may justify removing chemical from high risk concern. | |
| USEPA | PBT Profiler | Moderately PBT (Orange) Highly PBT (Red) | - | ≥60 and <180 or >180 or | ≥60 and <180 or >180 or | ≥60 and <180; >180; | - | ≥1000 and <5000; ≥5000; | - | - | - | - | Fish only. Uses criteria developed in EPA's New Chemical Program. Fish ChV(mg/L): >10 = low concern, 0.1 - 10 = moderate concern, <0.1 = high concern. SAA | |

Table 2. Persistence, Bioaccumulation, and Toxicity Criteria for PBT Ranking Schemes. Table is intended to be read from LEFT to RIGHT for each scheme in order to accurately understand PBT definitions*.

| Organization | Title | Chemical Definition | Persistence (t _{1/2} , d) ¹ | | | | | Bioaccumulation ¹ | | | | Toxicity | | |
|--|--|---|---|-----------------------------------|-------------------------------------|----------|-------|------------------------------|----------|---------------------|---|---|---|--|
| | | | Air | Water | Sediment | Soil | Other | BCF | BAF | log K _{ow} | Non-numerical criteria | Human Health | Environment | |
| Canadian | | | | | | | | | | | | | | |
| Environment Canada | Canada-Ontario Agreement Respecting the Great Lake Basin Ecosystem | Tier I | Includes the 11 critical pollutants identified by the International Joint Commission, plus critical pollutants identified in the Niagara River and Lake Ontario Toxic Management Plans and the Lake Superior Binational Program. | | | | | | | | | | | |
| | | Tier II | Includes substances identified by science-based screening methodologies or Lakewide Management Plans. | | | | | | | | | | | |
| Government of Canada | Canadian Environmental Protection Act | PBT categorized substances | Persistent or | | | | | Bioaccumulative and | | | | Inherently toxic to human beings or to non-human beings, as determined by laboratory or other studies | | |
| Environment Canada | Canadian Environmental Protection Act: Toxic Substances Management Policy - Persistence and Bioaccumulation Criteria | Track 1 Substances (for Virtual Elimination) | ≥2 or | ≥182 or | ≥365 or | ≥182 and | - | ≥5000 or | ≥5000 or | ≥5 and | - | A substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that (a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity, (b) constitute or may constitute a danger to the environment on which life depends, or (c) constitute or may constitute a danger in Canada to human life or health (determined by a systematic risk-based assessment) and (See Table 3) | | |
| | | Track 2 Substances (for Life-Cycle Management) | Substances not meeting all the criteria for Track 1 will be candidates for full life-cycle management to prevent or minimize their release into the environment. | | | | | | | | | | | |
| European Union | | | | | | | | | | | | | | |
| European Union | REACH, Annex XIII | Persistent, Bioaccumulative and Toxic Substances (PBTs) | - | Marine: >60 or Freshwater: >40 or | Marine: >180 or Freshwater: >120 or | >120 and | - | >2000 and | - | - | - | Carcinogenic (cat 1 or 2) or, mutagenic (cat 1 or 2) or, reprotoxic (cat 1, 2, or 3) or, other evidence of chronic toxicity | Long-term marine NOEC <0.01 mg/L or, Long-term freshwater NOEC <0.01 mg/L | |
| | | Very Persistent and Very Bioaccumulative Substances (vPvBs) | - | Marine: >60 or Freshwater: >60 or | Marine: >180 or Freshwater: >180 or | >180 and | - | >5000 | - | - | - | - | - | |
| Australian | | | | | | | | | | | | | | |
| Australia is a member of the Stockholm Convention on Persistent Organic Pollutants | | | | | | | | | | | | | | |
| New Zealand | | | | | | | | | | | | | | |
| New Zealand is a member of the Stockholm Convention on Persistent Organic Pollutants | | | | | | | | | | | | | | |
| US States and Regions | | | | | | | | | | | | | | |
| Washington Department of Ecology | The PBT Rule, Chapter 173-333 WAC, Persistent Bioaccumulative Toxins (PBT) | Persistent Bioaccumulative Toxins (PBTs) | - | ≥60 or | ≥60 or | ≥60 and | - | >1000 or | >1000 or | >5 or | The chemical or chemical group is a metal and Ecology determines that it is likely to be present in forms that are bioavailable and | The chemical or chemical group has the potential to be toxic to humans or plants and wildlife based on credible scientific information that: (i) The chemical (or chemical group) is a carcinogen, a developmental or reproductive toxicant or a neurotoxicant, (ii) The chemical (or chemical group) has a reference dose or equivalent toxicity measure that is less than 0.003 mg/kg/day, or (iii) The chemical (or chemical group) has a chronic no observed effect concentration (NOEC) or equivalent toxicity measure that is less than 0.1 mg/L or an acute no observed effect concentration (NOEC) or equivalent toxicity measure that is less than 1.0 mg/L. | | |
| Washington Department of Ecology | Strategy to Continually Reduce Persistent, Bioaccumulative, Toxic Chemicals (PBTs) in Washington State | Persistent Bioaccumulative Toxins (PBTs) | See Appendix E - 9 chemicals identified as the 'starter list' as well as chemicals scoring a 7,8, or 9 on the Waste Minimization Prioritization Tool (WMPT) PBT section are first screened to determine their presence in Washington's environment based on their presence in any one of several Washington environmental detection/reporting databases. Chemicals found in one of these databases are then ranked based on a PBT score, an environmental presence score, and a quantity/prevalence score. The final list is determined after considering programmatic concerns (e.g. cost issues, public concerns, opportunities for reduction). | | | | | | | | | | | |

Table 2. Persistence, Bioaccumulation, and Toxicity Criteria for PBT Ranking Schemes. Table is intended to be read from LEFT to RIGHT for each scheme in order to accurately understand PBT definitions*.

| Organization | Title | Chemical Definition | Persistence (t _{1/2} , d) ¹ | | | | | Bioaccumulation ¹ | | | | Toxicity | |
|--|--|--|---|-------|----------|------|-------|------------------------------|-----|---------------------|---|--|-------------|
| | | | Air | Water | Sediment | Soil | Other | BCF | BAF | log K _{ow} | Non-numerical criteria | Human Health | Environment |
| Regional Sediment Evaluation Team | Northwest Regional Sediment Evaluation Framework (based on Dredged Material Management Program (DMMP) BCoCs definitions) | List 1. Primary Bioaccumulative Contaminants of Concern (BCoCs) - Definition 1 | - | - | - | - | - | - | - | >3.5 and | 95th percentile of detected tissue concentrations (or maximum concentrations) > Screening LOED | Have a final chronic value less than 0.1 milligrams per liter (mg/L), or have a cancer slope factor or Integrated Risk Information System (IRIS) weight of evidence (WOE) score of A or B, or have a reference dose value less than 0.06 milligrams/kilograms per day (mg/kg/day). | |
| | | List 1. Primary Bioaccumulative Contaminants of Concern (BCoCs) - Definition 2 | - | - | - | - | - | - | - | >3.5 and | Tissue detection frequency >10% and residue-effects LOED available and (see toxicity) | Have a final chronic value less than 0.1 milligrams per liter (mg/L), or have a cancer slope factor or Integrated Risk Information System (IRIS) weight of evidence (WOE) score of A or B, or have a reference dose value less than 0.06 milligrams/kilograms per day (mg/kg/day). | |
| | | List 2. Candidate Bioaccumulative Contaminants of Concern (BCoCs) - Definition 1 | - | - | - | - | - | - | - | >3.5 and | No tissue data available and sediment detection frequency >50% and median of detected sediment samples exceeds 10x MDL (10x reference area concentrations for trace metals) or sediment detection frequency >10% and median of detected samples exceeds 50x MDL (50x reference area concentrations for trace metals) and | Have a final chronic value less than 0.1 milligrams per liter (mg/L), or have a cancer slope factor or Integrated Risk Information System (IRIS) weight of evidence (WOE) score of A or B, or have a reference dose value less than 0.06 milligrams/kilograms per day (mg/kg/day). | |
| | | List 2. Candidate Bioaccumulative Contaminants of Concern (BCC) - Definition 2 | - | - | - | - | - | - | - | >3.5 and | No sediment or tissue data available and | Have a final chronic value less than 0.1 milligrams per liter (mg/L), or have a cancer slope factor or Integrated Risk Information System (IRIS) weight of evidence (WOE) score of A or B, or have a reference dose value less than 0.06 milligrams/kilograms per day (mg/kg/day). | |
| | | List 3. Potentially Bioaccumulative Contaminants | - | - | - | - | - | - | - | >3.5 and | No sediment or tissue data available and | No information on human and/or ecotoxicity | |
| | | List 4. Not Currently Considered Bioaccumulative - Definition 1 | - | - | - | - | - | - | - | <3.5 | - | | |
| | | List 4. Not Currently Considered Bioaccumulative - Definition 2 | - | - | - | - | - | - | - | >3.5 and | Tissue detection frequency <10% and 95th percentile of detected tissue concentrations (or maximum concentrations) < screening LOED or no screening LOED available or 95th percentile of nondetected concentrations (when all are NDs) < Screening LOED and marine sediment detection frequency <10% (for trace metals which are expected to be detected in nearly all cases, the criterion is < 10% elevated over reference area concentrations) and freshwater sediment detection frequency <10% | | |
| Oregon Department of Environmental Quality | Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment | Bioaccumulative Chemicals of Concern (BCC) | Same criteria as Northwest Regional Sediment Evaluation Framework | | | | | | | | | | |

* Language defining PBT criteria include words such as "and" or "or" to relate to the persistence and bioaccumulation definitions. Therefore, the sequence and wording selections in each table cell are important for understanding any given PBT scheme.

¹ t_{1/2} = chemical half-life (in days). To convert all data to half-life in days, months were assumed to be 30 days long and weeks 7 days long. BCF = bioconcentration factor, BAF = bioaccumulation factor, log K_{ow} = logarithm of the octanol-water partition coefficient.

² Previously defined lists include "Bioaccumulative chemicals of concern" (BCCs) from the "Final Water Quality Guidance for the Great Lakes System," USEPA, March 1995; Substances identified by the "Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA)," 1994; Substances identified as critical pollutants by the International Joint Commission (IJC), 1987; Substances designated "Lakewide Critical Pollutants" in Lakewide Management Plans (LaMPs); "persistent organic pollutants (POPs) of concern" identified in the United Nations Environment Programme Governing Council Decision 18/32 of May 1995, and incorporated into the Council of the Commission for Environmental Cooperation's Sound Management of Chemicals Agreement between the U.S., Canada, and Mexico (Resolution #95-5), October 1995

³ These 31 PCs are based on the list of 53 chemicals EPA identified in its 1998 Federal Register "Notice of Availability: Draft RCRA Waste Minimization Persistent, Bioaccumulative and Toxic (PBT) Chemical List" [Federal Register: November 9, 1998. Volume 63, Number 216. Page 60332-60343. <http://www.epa.gov/fedrgstr/EPA-WASTE/1998/November/Day-09/f29952.htm>]. Note: EPA has since deferred the use of the framework employed to generate this list.

⁴ Air criteria alone is not enough to qualify chemical as persistent.

Table 3. Additional Criteria and Considerations for PBT Ranking Schemes

| Organization | Title | Other, non-PBT Criteria | Chemical Analytical Detection Considerations | Availability and Type of Ambient Monitoring Data Used | Financial Considerations |
|---|---|---|---|---|---|
| Inter/cross-national | | | | | |
| United Nations | Stockholm Convention on Persistent Organic Pollutants | Long-range Transport: Measured levels of the chemical in locations distant from the sources of its release or monitoring data showing that long-range environmental transport of the chemical, with the potential for transfer to a receiving environment, may have occurred via air, water or migratory species or environmental fate properties and/or model results that demonstrate that the chemical has a potential for long-range environmental transport through air, water or migratory species, with the potential for transfer to a receiving environment in locations distant from the sources of its release. For a chemical that migrates significantly through the air, its half-life in air should be greater than two days. | - | Monitoring data in biota may be used to indicate that the bio-accumulation potential of a chemical is sufficient to justify its consideration within the scope of this Convention. Monitoring data showing measured levels of a chemical in locations distant from the sources of its release may also be used to indicate the potential long-range environmental transport of a chemical to justify its consideration within the scope of this Convention. | Taken into account upon adding new chemicals (See Article 8, Annex F) |
| USEPA and Environment Canada | Great Lakes Binational Toxics Strategy | - | - | Environmental monitoring data are used to establish baseline levels of substances as well as evaluate progress towards achieving virtual elimination (i.e. not used to determine PBT list). | Taken into account upon establishing reduction challenges (i.e. not used to determine PBT list) |
| International Joint Commission | 1987 Protocol Amending the 1978 Great Lakes Water Quality Agreement | - | Substances are not detectable when using best available technology, which will be subject to change as technology improves and new levels are adopted. | Monitoring data in biota and sediments are used to evaluate spatial trends, the impact of substances on human health, the sources of input of substances, and the presence of previously unidentified substances (i.e. not used to determine PBT list). | - |
| United Nations | United Nations Environment Programme Governing Council Decision 18/32 | - | - | - | Considered in identifying potential POP substitutes (i.e. not used to determine PBT list) |
| United Nations Economic Commission for Europe | Convention on Long-range Transboundary Air Pollution (UNECE-LRTAP) Protocol on Persistent Organic Pollutants | Long-range Transport: Vp <1000 Pa and half life in air greater than 2 days or monitoring data in a remote area indicating long-range transport | - | Monitoring data are used to evaluate progress and establish accountability of the Parties (i.e. not used to determine PBT list). | Taken into consideration in identifying strategies for accomplishing goals of Protocol (i.e. reduction and elimination; not used to determine PBT list) |
| OSPAR | The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") | - | - | Per the Safety Net Procedure (see Annex 5), if a substance does not meet all of the PBT criteria and monitoring data indicate it's presence in the marine environment such that experts can determine that the substance can give rise to a level of concern equivalent to that for, and require a similar approach as, substances which do meet all three sets of the PBT criteria, the substance may be added to the List of Substances of Possible Concern. | - |
| United Nations | Globally Harmonized System of Classification and Labeling of Chemicals | - | For toxicity test endpoints, 1) if aqueous measurements of a substance are less than the detection limit, one-half of that detection limit shall be reported; 2) if the water solubility of a substance is less than its solubility and toxicity is observed, the toxicity endpoint may be reported as less than the detection limit. | Monitoring data may be used as supporting evidence of a substance's persistence or degradation. | - |

Table 3. Additional Criteria and Considerations for PBT Ranking Schemes

| Organization | Title | Other, non-PBT Criteria | Chemical Analytical Detection Considerations | Availability and Type of Ambient Monitoring Data Used | Financial Considerations |
|--|--|--|---|--|--|
| US Federal Government | | | | | |
| USEPA | Final Water Quality Guidance for the Great Lakes System (aka the Great Lakes Initiative) | - | EPA acknowledged that if hidden loadings exist and analytical method detection levels improve, significant cost impacts from reducing BCCs could occur, which could ultimately effect scope of regulation given the economic exception (i.e. detection limits not considered in determining PBT list). | One of the requirements of the Technical and Economic Exception is that the discharger implement an ambient monitoring plan to ensure compliance with water quality standards and consistency with any applicable TMDL or such other strategy (i.e. monitoring data not used to determine PBT list). | An economic analysis was conducted to determine the overall financial impacts of rule and is used in determination of Technical and Economic Exceptions, but this analysis was not used to determine the PBT list. |
| USEPA | Multimedia Strategy for Priority Persistent, Bioaccumulative, and Toxic (PBT) Chemicals | - | - | Monitoring data used to measure progress towards achieving Strategy goals (i.e. not used to determine PBT list). | - |
| USEPA | National Waste Minimization Program | - | - | - | - |
| USEPA | Toxics Release Inventory (TRI) of the Emergency Planning and Community Right-to-know Act & associated PBT Chemicals Final Rule | - | - | Monitoring data may be used to provide the information required to list a chemical on the TRI or to classify a chemical as a PBT (i.e. not used to determine PBT list). | An economic analysis was conducted to determine financial impacts of rule, but this analysis was not used to determine PBT list. |
| USEPA | PBT Profiler | - | - | Measured data preferred over predicted or estimated data. | - |
| Canadian | | | | | |
| Environment Canada | Canada-Ontario Agreement Respecting the Great Lake Basin Ecosystem | - | - | - | The financial implications of implementation of this agreement were examined but were not considered in determining PBT list. |
| Government of Canada | Canadian Environmental Protection Act | - | "Level of quantification" means, in respect of a substance, the lowest concentration that can be accurately measured using sensitive but routine sampling and analytical methods. | - | - |
| Environment Canada | Canadian Environmental Protection Act: Toxic Substances Management Policy - Persistence and Bioaccumulation Criteria | Concentration in environment largely resulting from human activity | Measurable release limits will be developed as appropriate for a Track 1 substance to allow verification that no measurable release has been achieved and to allow enforcement of any regulations that may be developed. Limits will be based on the <i>lowest concentration of a substance that can be accurately detected and quantified using sensitive but routine analytical methods</i> (i.e. detection limits not considered in determining PBT list). | The presence of a Track 1 substance in the environment will be monitored to ensure that management plans are achieving the objective of virtual elimination and to assess the need for additional action (i.e. monitoring data not used to determine PBT list). | While socio-economic factors have no bearing in setting the ultimate objective for Track 1 substances (virtual elimination from the environment), such factors will be taken into account when determining interim targets, appropriate management strategies and time lines for implementation. Socio-economic factors will also be considered when determining long-term environmental goals, targets, strategies and time lines for Track 2 substances (i.e. not used to determine PBT list). |
| European Union | | | | | |
| European Union | REACH, Annex XIII | - | - | - | - |
| Australian | | | | | |
| Australia is a member of the Stockholm Convention on Persistent Organic Pollutants | | | | | |
| New Zealand | | | | | |
| New Zealand is a member of the Stockholm Convention on Persistent Organic Pollutants | | | | | |

Table 3. Additional Criteria and Considerations for PBT Ranking Schemes

| Organization | Title | Other, non-PBT Criteria | Chemical Analytical Detection Considerations | Availability and Type of Ambient Monitoring Data Used | Financial Considerations |
|--|--|-------------------------|--|---|---|
| US States and Regions | | | | | |
| Washington Department of Ecology | The PBT Rule, Chapter 173-333 WAC, Persistent Bioaccumulative Toxins (PBT) | - | - | Monitoring data may be used to measure the performance of Chemical Action Plans (i.e. not used to determine PBT list). | Ecology will identify the costs of implementing the Chemical Action Plan, but this information does not influence PBT list. |
| Washington Department of Ecology | Strategy to Continually Reduce Persistent, Bioaccumulative, Toxic Chemicals (PBTs) in Washington State | - | - | Monitoring data are used to screen for environmental presence in Washington (after PBTs are identified by the WMPT). Candidate chemicals will be considered present in Washington's environment if it is found in on of the following databases/sets: Washington State Fish Consumption Advisory List, ATSDR Hazdat database for Washington State, Water Quality 303d list for Washington state, Ecology's Sediment Quality database (SEDQUAL), Ecology's Environmental Information Management (EIM) database, or as reported from a Washington Source: Toxics Release Inventory (TRI) for treatment, storage, and disposal facilities (TSDs) and water discharges in Washington state, National Toxics Inventory for air emissions from Washington facilities. This inventory includes air emissions reporting from TRI as well as air emissions from other sources such as mobile and area sources. Other sources of information may also be considered. A baseline monitoring program will also be developed and used in combination with existing monitoring programs to measure progress in reducing PBTs. | Taken into account in final stage of prioritization |
| Regional Sediment Evaluation Team | Northwest Regional Sediment Evaluation Framework (based on Dredged Material Management Program (DMMP) BCoCs definitions) | - | See non-numerical bioaccumulation criteria. Degree of environmental detection is incorporated into criteria. | See non-numerical bioaccumulation criteria. Sediment and tissue monitoring data used to determine BCoC classification. | - |
| Oregon Department of Environmental Quality | Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment | - | - | - | - |

Table 4. Chemicals Selected by PBT Ranking Schemes

| | Inter/cross-national | | | | | | OSPAR | | | United Nations | | | USEPA | | USEPA | | USEPA | | USEPA | |
|---|----------------------|---|--|--------------------------------------|---|---|--|---|--|--|--|--|--|---|---|--|---|---|------------------|--------------|
| | United Nations | USEPA and Environment Canada | | International Joint Commission | United Nations | United Nations Economic Commission for Europe | OSPAR | | United Nations | | | USEPA | USEPA | USEPA | USEPA | | USEPA | | USEPA | |
| | | Stockholm Convention on Persistent Organic Pollutants | Great Lakes Binational Toxics Strategy | | 1987 Protocol Amending the 1978 Great Lakes Water Quality Agreement | United Nations Environment Programme Governing Council Decision 18/32 | Convention on Long-range Transboundary Air Pollution (UNECE-LRTAP) Protocol on Persistent Organic Pollutants | The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") | | Globally Harmonized System of Classification and Labeling of Chemicals | | | Final Water Quality Guidance for the Great Lakes System (aka the Great Lakes Initiative) | Multimedia Strategy for Priority Persistent, Bioaccumulative, and Toxic (PBT) Chemicals | National Waste Minimization Program | Toxics Release Inventory (TRI) of the Emergency Planning and Community Right-to-know Act & associated PBT Chemicals Final Rule | | Toxic Substances Control Act (TSCA) Premanufacture Notice (PMN) Categorization: Category for Persistent, Bioaccumulative, and Toxic New Chemical Substances | | PBT Profiler |
| Persistent Organic Pollutants (POPs) | Level 1 | Level 2 | Persistent Toxic Substances | Persistent Organic Pollutants (POPs) | Persistent Organic Pollutants (POPs) | Substances of Possible Concern | Substances for Priority Action | Substances hazardous to the aquatic environment - Chronic (4 levels) | Substances hazardous to the aquatic environment - Acute (3 levels) | Health Hazards | Bioaccumulative Chemicals of Concern (BCC) | Persistent, Bioaccumulative and Toxic Chemicals (PBTs) | Priority Chemicals (PCs) | Toxic chemicals on the TRI list | Persistent Bioaccumulative Toxins (PBT) | New PBT Substance - Order Pending/Significant New Use Rule (SNUR) | New PBT Substance - Ban Pending Testing | Moderately PBT (Orange) | Highly PBT (Red) | |
| Aliphatic hydrocarbons | | | | | | | | | | | | | | | | | | | | |
| 1,5,9 cyclododecatriene | | | | | | | x | | | | | | | | | | | | | |
| Cyclododecane | | | | | | | x | | | | | | | | | | | | | |
| Dioxins/Furans | | | | | | | | | | | | | | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | | | | | | | | | | | x | | | | | | | | | |
| Polybrominated dibenzodioxins and furans (as a group) | | | | | | | | | | | | | | | | | | | | |
| Polychlorinated dibenzo-p-dioxins (PCDDs, dioxins) (as a group) | x | x | | | x | x ⁴ | x | | | | | x | x | | x* | | | | | |
| Polychlorinated dibenzofurans (PCDFs, furans) (as a group) | x | x | | | x | x ⁴ | x | | | | | x | x | | | | | | | |
| Metals/Metalloid/Organometallics | | | | | | | | | | | | | | | | | | | | |
| Alkyl-lead | | x | | | | | | | | | | | | | | | | | | |
| Arsenic | | | | x | | | | | | | | | | | | | | | | |
| Cadmium | | | x* | x | | | x | | | | | | x | | | | | | | |
| Chromium | | | | x | | | | | | | | | | | | | | | | |
| Copper | | | | x | | | | | | | | | | | | | | | | |
| Iron | | | | x | | | | | | | | | | | | | | | | |
| Lead | | | | x | | | x* | | | | | | x | | x* | | | | | |
| Mercury | | x* | | x | | | x* | | | | x | x* | x | | x* | | | | | |
| Methyl mercury | | | | | | | | | | | | | | | | | | | | |
| Nickel | | | | x | | | | | | | | | | | | | | | | |
| Selenium | | | | x | | | | | | | | | | | | | | | | |
| Tetraethyltin | | | | | | | | | | | | | | | | | | | | |
| Tributyltin | | | x | | | | | | | | | | | | | | | | | |
| Zinc | | | | x | | | | | | | | | | | | | | | | |
| Organic ester | | | | | | | | | | | | | | | | | | | | |
| Ethanyl ester | | | | | | | x | | | | | | | | | | | | | |
| Organic nitrogen compound | | | | | | | | | | | | | | | | | | | | |
| 3,3'-(ureylenedimethylene)bis(3,5,5-trimethylcyclohexyl) diisocyanate | | | | | | | x | | | | | | | | | | | | | |
| 4-(dimethylbutylamino)diphenylamin (6PPD) | | | | | | | x | | | | | | | | | | | | | |
| Pesticides (Insecticides, Fungicides, Herbicides) | | | | | | | | | | | | | | | | | | | | |
| 2-propenoic acid, (pentabromo)methyl ester | | | | | | | x | | | | | | | | | | | | | |
| Aldrin | x | x | | x | x | x ² | | | | | | | | | | | | | | |
| Chlordane | x | x | | x | x | x ² | | | | | x | x | | | x | | | | | |
| Chlordecone (Kepone) | | | | | | x ² | | | | | | | | | | | | | | |
| Dacthal | | | | | | | | | | | | | | | | | | | | |
| Dichlorodiphenyltrichloroethane (DDT) | x | x** | | x** | x | x ² | | | | | x** | x | | | | | | | | |
| Dicofol | | | | | | | x | | | | | | | | | | | | | |
| Dieldrin | x | x | | x | x | x ² | | | | | x | x | | | | | | | | |
| Endosulfan | | | | | | | x | | | | | | | | | | | | | |
| Endosulfan, alpha | | | | | | | | | | | | | x | | | | | | | |
| Endosulfan, beta | | | | | | | | | | | | x | | | | | | | | |
| Endrin | x | | x | x | x | x ² | | | | | | | | | | | | | | |
| Ethyl O-(p-nitrophenyl) phenyl phosphonothionate (EPN) | | | | | | | x | | | | | | | | | | | | | |
| Flucythrinate | | | | | | | x | | | | | | | | | | | | | |
| Heptachlor | x | | x | x | x | x ² | | | | | | | x | | x | | | | | |
| Heptachlor epoxide | | | x | x | | | | | | | | | x | | | | | | | |
| Heptachloronorborene | | | | | | | x | | | | | | | | | | | | | |
| Hexachlorocyclohexane | | | x | | | x ³ | x | | | | x | | | | | | | | | |
| Hexachlorocyclohexane-alpha | | | | | | | x | | | | x | | | | | | | | | |
| Hexachlorocyclohexane-beta | | | | | | | x | | | | x | | | | | | | | | |
| Hexachlorocyclohexane-delta | | | | | | | | | | | x | | | | | | | | | |
| Hexachlorocyclohexane-gamma (Lindane) | | | | x | | x ³ | | | | | | | x | | | | | | | |
| Isodrin | | | | | | | x | | | | | | | | | | | | x | |
| Kelthane | | | | | | | | | | | | | | | | | | | | |
| Methoxychlor | | | | x | | | x | | | | | | x | | x | | | | | |

Table 4. Chemicals Selected by PBT Ranking Schemes

| | Inter/cross-national | | | | | | OSPAR | | | United Nations | | | USEPA | | | USEPA | | USEPA | |
|--|---|--|---|---|--|---|--|--|--|---|--|--|---|---------------------------------|---|---|---|-------------------------|------------------|
| | United Nations | USEPA and Environment Canada | International Joint Commission | United Nations | United Nations Economic Commission for Europe | | | | | | USEPA | USEPA | USEPA | | | | | USEPA | |
| | Stockholm Convention on Persistent Organic Pollutants | Great Lakes Binational Toxics Strategy | 1987 Protocol Amending the 1978 Great Lakes Water Quality Agreement | United Nations Environment Programme Governing Council Decision 18/32 | Convention on Long-range Transboundary Air Pollution (UNECE-LRTAP) Protocol on Persistent Organic Pollutants | The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") | Globally Harmonized System of Classification and Labeling of Chemicals | | Final Water Quality Guidance for the Great Lakes System (aka the Great Lakes Initiative) | Multimedia Strategy for Priority Persistent, Bioaccumulative, and Toxic (PBT) Chemicals | National Waste Minimization Program | Toxics Release Inventory (TRI) of the Emergency Planning and Community Right-to-know Act & associated PBT Chemicals Final Rule | Toxic Substances Control Act (TSCA) Premanufacture Notice (PMN) Categorization: Category for Persistent, Bioaccumulative, and Toxic New Chemical Substances | | PBT Profiler | | | | |
| Persistent Organic Pollutants (POPs) | Level 1 | Level 2 | Persistent Toxic Substances | Persistent Organic Pollutants (POPs) | Persistent Organic Pollutants (POPs) | Substances of Possible Concern | Substances for Priority Action | Substances hazardous to the aquatic environment - Chronic (4 levels) | Substances hazardous to the aquatic environment - Acute (3 levels) | Health Hazards | Bioaccumulative Chemicals of Concern (BCC) | Persistent, Bioaccumulative and Toxic Chemicals (PBTs) | Priority Chemicals (PCs) | Toxic chemicals on the TRI list | Persistent Bioaccumulative Toxins (PBT) | New PBT Substance - Order Pending/Significant New Use Rule (SNUR) | New PBT Substance - Ban Pending Testing | Moderately PBT (Orange) | Highly PBT (Red) |
| Mirex | x | x | | x | x | x ² | | | | | x | x | | | | | | | |
| Oxadiazon | | | | | | | | | | | | | | | | | | | |
| Parathion | | | | | | | | | | | | | | | | | | | |
| Pendimethalin | | | | | | | | | | | | | x | | x | | | | |
| Pentachloroanisole | | | | | | | | | | | | | | | | | | | |
| Pentachlorobenzene | | | x | | | | | | | | x | | | | x | | | | |
| Pentachloronitrobenzene | | | | | | | | | | | | | x | | | | | | |
| Pentachlorophenol (PCP) | | | x | | | | | | | | | | x | | | | | | |
| Photomirex | | | | | | | | | | | | | | | | | | | |
| Tetrasul | | | | | | | | | | | | | | | | | | | |
| Toxaphene | x | x | | x | x | x ² | | | | | x | x | | | x | | | | |
| Trifluralin | | | | | | | | | | | | | x | | x | | | | |
| Pharmaceuticals | | | | | | | | | | | | | | | | | | | |
| Clotrimazole | | | | | | | | | | | | | | | | | | | |
| Diosgenin | | | | | | | | | | | | | | | | | | | |
| Phenols | | | | | | | | | | | | | | | | | | | |
| 2,4,5-Trichlorophenol | | | | | | | | | | | | | | | | | | | |
| 2,4,6-tri-tert-butylphenol | | | | | | | | | | | | | | | | | | | |
| 4-Nonylphenol, branched | | | | | | | | | | | | | | | | | | | |
| Nonylphenol/ethoxylates (NP/NPEs) and related substances | | | | | | | | | | | | | | | | | | | |
| Octylphenol | | | | | | | | | | | | | | | | | | | |
| Tetrabromobisphenol A | | | | | | | | | | | | | | | | | | | |
| Phthalates | | | | | | | | | | | | | | | | | | | |
| Dibutylphthalate (DBP) | | | | | | | | | | | | | | | | | | | |
| Diethylhexylphthalate (DEHP) | | | | | | | | | | | | | | | | | | | |
| Phthalic acid esters (as a group) | | | | x | | | | | | | | | | | | | | | |
| Polybrominated Biphenyls (PBBs) | | | | | | | | | | | | | | | | | | | |
| Hexabromobiphenyl | | | | | | | | | | | | | | | | | | | |
| Polybrominated Diphenyl Ethers (PBDE) | | | | | | | | | | | | | | | | | | | |
| 4-Bromophenyl phenyl ether | | | | | | | | | | | | | | | | | | | |
| Hexabromocyclododecane | | | | | | | | | | | | | | | | | | | |
| Pentabromodiphenyl ether | | | | | | | | | | | | | | | | | | | |
| Pentabromoethylbenzene | | | | | | | | | | | | | | | | | | | |
| Brominated flame retardants (as a group) | | | | | | | | | | | | | | | | | | | |
| Polybrominated diphenyl ethers (PBDE) (as a group) | | | | | | | | | | | | | | | | | | | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | |
| Polychlorinated biphenyls (as a group) | x | x | | x | x | x ^{2,3} | | | | | x | x | x | | x | | | | |
| Total Arochlor polychlorinated biphenyls (PCBs) (as a group) | | | | | | | | | | | | | | | | | | | |
| Polychlorinated Naphthalenes | | | | | | | | | | | | | | | | | | | |
| Hexachloronaphthalene | | | | | | | | | | | | | | | | | | | |
| Octachloronaphthalene | | | | | | | | | | | | | | | | | | | |
| Pentachloronaphthalene | | | | | | | | | | | | | | | | | | | |
| Tetrachloronaphthalene | | | | | | | | | | | | | | | | | | | |
| Trichloronaphthalene | | | | | | | | | | | | | | | | | | | |
| Polychlorinated naphthalenes (as a group) | | | | | | | | | | | | | | | | | | | |

Table 4. Chemicals Selected by PBT Ranking Schemes

| | Inter/cross-national | | | | | | | | | | US Federal Government | | | | | | | | | |
|--|---|--|-----------------------------|---|---|--|---|--|--|----------------|--|---|-------------------------------------|--|---|---|---|-------------------------|------------------|--|
| | United Nations | USEPA and Environment Canada | | International Joint Commission | United Nations | United Nations Economic Commission for Europe | OSPAR | | United Nations | | USEPA | USEPA | USEPA | USEPA | | USEPA | | USEPA | | |
| | Stockholm Convention on Persistent Organic Pollutants | Great Lakes Binational Toxics Strategy | | 1987 Protocol Amending the 1978 Great Lakes Water Quality Agreement | United Nations Environment Programme Governing Council Decision 18/32 | Convention on Long-range Transboundary Air Pollution (UNECE-LRTAP) Protocol on Persistent Organic Pollutants | The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") | | Globally Harmonized System of Classification and Labeling of Chemicals | | Final Water Quality Guidance for the Great Lakes System (aka the Great Lakes Initiative) | Multimedia Strategy for Priority Persistent, Bioaccumulative, and Toxic (PBT) Chemicals | National Waste Minimization Program | Toxics Release Inventory (TRI) of the Emergency Planning and Community Right-to-know Act & associated PBT Chemicals Final Rule | | Toxic Substances Control Act (TSCA) Premanufacture Notice (PMN) Categorization: Category for Persistent, Bioaccumulative, and Toxic New Chemical Substances | | PBT Profiler | | |
| Persistent Organic Pollutants (POPs) | Level 1 | Level 2 | Persistent Toxic Substances | Persistent Organic Pollutants (POPs) | Persistent Organic Pollutants (POPs) | Substances of Possible Concern | Substances for Priority Action | Substances hazardous to the aquatic environment - Chronic (4 levels) | Substances hazardous to the aquatic environment - Acute (3 levels) | Health Hazards | Bioaccumulative Chemicals of Concern (BCC) | Persistent, Bioaccumulative and Toxic Chemicals (PBTs) | Priority Chemicals (PCs) | Toxic chemicals on the TRI list | Persistent Bioaccumulative Toxins (PBT) | New PBT Substance - Order Pending Testing/Significant New Use Rule (SNUR) | New PBT Substance - Ban Pending Testing | Moderately PBT (Orange) | Highly PBT (Red) | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene | | | | | | | | | | | | | x | | | | | | | |
| Acenaphthylene | | | | | | | | | | | | | x | | | | | | | |
| Anthracene | | | | | | | | | | | | | x | | | | | | | |
| Benzo(a)pyrene | | x | | | | | | | | | | | x | | | | | | | |
| Benzo(g,h,i)perylene | | | | | | | | | | | | | | x | | | | | | |
| Dinitropyrene | | | x | | | | | | | | | | | | | | | | | |
| Fluoranthene | | | | | | | | | | | | | | | | | | | | |
| Fluorene | | | | | | | | | | | | | | | | | | | | |
| Naphthalene | | | | | | | | | | | | | | | | | | | | |
| Perylene | | | | | | | | | | | | | | | | | | | | |
| Phenanthrene | | | | | | | | | | | | | | | | | | | | |
| Pyrene | | | | | | | | | | | | | | | | | | | | |
| Polycyclic aromatic hydrocarbons (PAHs) (as a group) | | | x ¹ | | | | x | | | | | | | | | | | | | |
| Semi-volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | |
| 1,2,3,4,-Tetrachlorobenzene | | | x | | | | | | | | x | | | | | | | | | |
| 1,2,3-Trichlorobenzene | | | | | | | x | | | | | | | | | | | | | |
| 1,2,4,5,-Tetrachlorobenzene | | | x | | | | | | | | x | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | | | | | | x | | | | | | | | | | | | | |
| 1,2,5-Trichlorobenzene | | | | | | | x | | | | | | | | | | | | | |
| 1,3,5-Trichlorobenzene | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dichlorobenzene | | | x | | | | | | | | | | | | | | | | | |
| Dibenzofuran | | | | | | | | | | | | | | | | | | | | |
| Hexachloro-1,3-butadiene | | | x | | | | | | | | | | | | | | | | | |
| Hexachlorobenzene (HCB) | x | x | | | x | | | | | | x | x | x | | x | | | | | |
| Hexachlorobutadiene | | | x | | | | | | | | | | x | | | | | | | |
| Hexachloroethane | | | | | | | | | | | | | | | | | | | | |
| Tetrachlorobenzene | | | x | | | | | | | | | | | | | | | | | |
| Synthetic musk | | | | | | | | | | | | | | | | | | | | |
| Musk xylene | | | | | | | x | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | | | | | | |
| 2,4,6-bromophenyl 1-(2-(2,3-dibromo-2-methylpropyl)) | | | | | | | x | | | | | | | | | | | | | |
| 3,3'-dichlorobenzidine | | | x | | | | | | | | | | | | | | | | | |
| 4,4'-methylenebis(2-chloroaniline) | | | x | | | | | | | | | | | | | | | | | |
| Biphenyl | | | | | | | | | | | | | | | | | | | | |
| Octachlorostyrene | | x | | | | | | | | | | x | | | | | | | | |
| Perfluorooctane sulfonates (PFOS) (as a group) | | | | | | | x | | | | | | | | | | | | | |
| Polycyclic aromatic compounds (PACs) (as a group) | | | | | | | | | | | | | | | | | | | | |
| Short-chain chlorinated paraffins (as a group) | | | | | | | x | | | | | | | | | | | | | |
| Total dissolved solids | | | | x | | | | | | | | | | | | | | | | |

¹ as a group, including: anthracene, benzo(a)anthracene, benzo(g,h,i)perylene, perylene, and phenanthrene
² Substances scheduled for elimination
³ Substances scheduled for restrictions on use
⁴ Substances scheduled for emissions reductions goals
⁵ including the following four indicator compounds: benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene
⁶ as a group, as defined in the TRI
⁷ as a group, including but not limited to: benz(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, perylene, phenanthrene
⁸ and its compounds
⁹ and its metabolites

Table 4. Chemicals Selected by PBT Ranking Schemes

| | Environment Canada | | Government of Canada | Environment Canada | | European Union | | Australia is a member of the Stockholm Convention on Persistent Organic Pollutants | New Zealand is a member of the Stockholm Convention on Persistent Organic Pollutants | US States and Regions | Washington Department of Ecology | Washington Department of Ecology | Regional Sediment Evaluation Team | | | | | | Oregon Department of Environmental Quality | | | | | | | |
|---|--|---------|---|--|--|--|---|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|---|
| | Canada-Ontario Agreement Respecting the Great Lake Basin Ecosystem | | Canadian Environmental Protection Act | Canadian Environmental Protection Act: Toxic Substances Management Policy - Persistence and Bioaccumulation Criteria | | REACH, Annex XIII | | | | | The PBT Rule, Chapter 173-333 WAC, Persistent Bioaccumulative Toxins (PBT) | Strategy to Continually Reduce Persistent, Bioaccumulative, Toxic Chemicals (PBTs) in Washington State | Northwest Regional Sediment Evaluation Framework (based on Dredged Material Management Program (DMMP) BCoCs definitions) | | | | | | Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment | | | | | | | |
| | Tier I | Tier II | PBT categorized substances | Track 1 Substances (for Virtual Elimination) | Track 2 Substances (for Life-Cycle Management) | Persistent, Bioaccumulative and Toxic Substances (PBTs) | Very Persistent and Very Bioaccumulative Substances (vPvBs) | | | | Persistent Bioaccumulative Toxins (PBTs) | Persistent Bioaccumulative Toxins (PBTs) | List 1. Primary Bioaccumulative Contaminants of Concern (BCoCs) - Definition 1 | List 1. Primary Bioaccumulative Contaminants of Concern (BCoCs) - Definition 2 | List 2. Candidate Bioaccumulative Contaminants of Concern (BCoCs) - Definition 1 | List 2. Candidate Bioaccumulative Contaminants of Concern (BCoCs) - Definition 2 | List 3. Potentially Bioaccumulative Contaminants | List 4. Not Currently Considered Bioaccumulative Definition 1 | List 4. Not Currently Considered Bioaccumulative Definition 2 | Bioaccumulative Chemicals of Concern (BCC) | | | | | | |
| Aliphatic hydrocarbons | | | Lists of substances resulting from categorization mandated by CEPA are available at http://www.ec.gc.ca/CEPARegistry/subs_list/dst/dstsearch.cfm . Separate lists are available for substances classified as P and T (993 chemicals), P and T (2047), and B and T (811). | Enables ongoing identification of substances regulated under CEPA as a PBT - no list available. | | Enables ongoing identification of substances regulated under REACH as a PBT - no list available. | | | US States and Regions | Strategy identifies 9 chemicals on a starter PBT list (Aldrin/Dieldrin, Benz(a)pyrene, Chlordane, DDT (4 DDD/DDE), Dioxins and Furans, Hexachlorobenzene, Mercury, PCBs, Toxaphene) and 65 chemicals on a list of potential PBTs to be screened and prioritized (See Appendix E). No final, comprehensive list is available. | | | | | | | | | | | | | | | | |
| 1,5,9 cyclododecatriene | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyclododecane | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dioxins/Furans | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | | | | | | | | | | | | | | | | | | | | | | | | | | x |
| Polychlorinated dibenzodioxins and furans (as a group) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polychlorinated dibenzo-p-dioxins (PCDDs, dioxins) (as a group) | x | | | | | | | | | | | | | | | | | | | | | | | | | x |
| Polychlorinated dibenzofurans (PCDFs, furans) (as a group) | x | | | | | | | | | | | | | | | | | | | | | | | | | x |
| Metals/Metalloid/Organometallics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkyl-lead | x | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | | | | | | | | | | | | | | | | | | | | | | | | | | x |
| Cadmium | | x | | | | | | | | | | | | | | | | | | | | | | | | x |
| Chromium | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copper | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Iron | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lead | | | | | | | | | | | | | | | | | | | | | | | | | | x |
| Mercury | x | | | | | | | | | | | | | | | | | | | | | | | | | x |
| Methyl mercury | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nickel | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Selenium | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tetraethyltin | | | | | | | | | | | | | | | | | | | | | | | | | | x |
| Tributyltin | | x | | | | | | | | | | | | | | | | | | | | | | | | x |
| Zinc | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Organic ester | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ethanyl ester | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Organic nitrogen compound | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3,3'-(ureylenedimethylene)bis(3,5,5-trimethylcyclohexyl) diisocyanate | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-(dimethylbutylamino)diphenylamin (6PPD) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pesticides (Insecticides, Fungicides, Herbicides) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-propenoic acid, (pentabromo)methyl ester | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aldrin | x | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chlordane | x | | | | | | | | | | | | | | | | | x | | | | | | | | |
| Chlordecone (Kepone) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dacthal | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dichlorodiphenyltrichloroethane (DDT) | x | | | | | | | | | | | | | | | | | x | | | | | | | | |
| Dicofol | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dieldrin | x | | | | | | | | | | | | | | | | | x | | | | | | | | |
| Endosulfan | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endosulfan, alpha | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endosulfan, beta | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endrin | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ethyl O-(p-nitrophenyl) phenyl phosphonothionate (EPN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flucythrinate | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heptachlor | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heptachlor epoxide | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heptachloronorborene | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hexachlorocyclohexane | | x | | | | | | | | | | | | | | | | | | | | | | | | |
| Hexachlorocyclohexane-alpha | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hexachlorocyclohexane-beta | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hexachlorocyclohexane-delta | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hexachlorocyclohexane-gamma (Lindane) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Isodrin | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kelthane | | | | | | | | | | | | | | | | | | x | | | | | | | | |
| Methoxychlor | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 4. Chemicals Selected by PBT Ranking Schemes

| | Environment Canada | | Gouvernement du Canada | Environment Canada | | European Union | | Australia is a member of the Stockholm Convention on Persistent Organic Pollutants | New Zealand is a member of the Stockholm Convention on Persistent Organic Pollutants | US States and Regions | Washington Department of Ecology | Washington Department of Ecology | Regional Sediment Evaluation Team | | | | | | | | Oregon Department of Environmental Quality |
|--|--|---------|--|--|--|--|---|--|--|-----------------------|--|--|--|--|--|--|--|---|---|--|---|
| | Canada-Ontario Agreement Respecting the Great Lake Basin Ecosystem | | Canadian Environmental Protection Act | Canadian Environmental Protection Act: Toxic Substances Management Policy - Persistence and Bioaccumulation Criteria | | REACH, Annex XIII | | | | | The PBT Rule, Chapter 173-333 WAC, Persistent Bioaccumulative Toxins (PBT) | Strategy to Continually Reduce Persistent, Bioaccumulative, Toxic Chemicals (PBTs) in Washington State | Northwest Regional Sediment Evaluation Framework (based on Dredged Material Management Program (DMMP) BCoCs definitions) | | | | | | | | Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment |
| | Tier I | Tier II | PBT categorized substances | Track 1 Substances (for Virtual Elimination) | Track 2 Substances (for Life-Cycle Management) | Persistent, Bioaccumulative and Toxic Substances (PBTs) | Very Persistent and Very Bioaccumulative Substances (vPvBs) | | | | Persistent Bioaccumulative Toxins (PBTs) | Persistent Bioaccumulative Toxins (PBTs) | List 1. Primary Bioaccumulative Contaminants of Concern (BCoCs) - Definition 1 | List 1. Primary Bioaccumulative Contaminants of Concern (BCoCs) - Definition 2 | List 2. Candidate Bioaccumulative Contaminants of Concern (BCoCs) - Definition 1 | List 2. Candidate Bioaccumulative Contaminants of Concern (BCoCs) - Definition 2 | List 3. Potentially Bioaccumulative Contaminants | List 4. Not Currently Considered Bioaccumulative Definition 1 | List 4. Not Currently Considered Bioaccumulative Definition 2 | Bioaccumulative Chemicals of Concern (BCC) | |
| Mirex | x | | Lists of substances resulting from categorization mandated by CEPA are available at http://www.ec.gc.ca/CEPARegistry/subs_list/ds/dssearch.cfm . Separate lists are available for substances classified as P and T (2047), and B and T (811). | Enables ongoing identification of substances regulated under CEPA as a PBT - no list available. | | Enables ongoing identification of substances regulated under REACH as a PBT - no list available. | | | | x | | | | | | | | | | | |
| Oxadiazon | | | | | | | | | | | | | | | | | | | | | |
| Parathion | | | | | | | | | | | | | | | | | | | | | |
| Pendimethalin | | | | | | | | | | | | | | | | | | | | | |
| Pentachloroanisole | | | | | | | | | | | | | | | | | | | | | |
| Pentachlorobenzene | | | | | | | | | | | | | | | | | | | | | |
| Pentachloronitrobenzene | | | | | | | | | | | | | | | | | | | | | |
| Pentachlorophenol (PCP) | | x | | | | | | | | | | | | | | | | | | | |
| Photomirex | | | | | | | | | | | | | | | | | | | | | |
| Tetrasul | | | | | | | | | | | | | | | | | | | | | |
| Toxaphene | x | | | | | | | | | | | | | | | | | | | | |
| Trifluralin | | | | | | | | | | | | | | | | | | | | | |
| Pharmaceuticals | | | | | | | | | | | | | | | | | | | | | |
| Clotrimazole | | | | | | | | | | | | | | | | | | | | | |
| Diosgenin | | | | | | | | | | | | | | | | | | | | | |
| Phenols | | | | | | | | | | | | | | | | | | | | | |
| 2,4,5-Trichlorophenol | | | | | | | | | | | | | | | | | | | | | |
| 2,4,6-tri-tert-butylphenol | | | | | | | | | | | | | | | | | | | | | |
| 4-Nonylphenol, branched | | | | | | | | | | | | | | | | | | | | | |
| Nonylphenol/ethoxylates (NP/NPEs) and related substances | | | | | | | | | | | | | | | | | | | | | |
| Octylphenol | | | | | | | | | | | | | | | | | | | | | |
| Tetrabromobisphenol A | | | | | | | | | | | | | | | | | | | | | |
| Phthalates | | | | | | | | | | | | | | | | | | | | | |
| Dibutylphthalate (DBP) | | | | | | | | | | | | | | | | | | | | | |
| Diethylhexylphthalate (DEHP) | | | | | | | | | | | | | | | | | | | | | |
| Phthalic acid esters (as a group) | | | | | | | | | | | | | | | | | | | | | |
| Polybrominated Biphenyls (PBBs) | | | | | | | | | | | | | | | | | | | | | |
| Hexabromobiphenyl | | | | | | | | | | | | | | | | | | | | | |
| Polybrominated Diphenyl Ethers (PBDE) | | | | | | | | | | | | | | | | | | | | | |
| 4-Bromophenyl phenyl ether | | | | | | | | | | | | | | | | | | | | | |
| Hexabromocyclododecane | | | | | | | | | | | | | | | | | | | | | |
| Pentabromodiphenyl ether | | | | | | | | | | | | | | | | | | | | | |
| Pentabromoethylbenzene | | | | | | | | | | | | | | | | | | | | | |
| Brominated flame retardants (as a group) | | | | | | | | | | | | | | | | | | | | | |
| Polybrominated diphenyl ethers (PBDE) (as a group) | | | | | | | | | | | | | | | | | | | | | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | |
| Polychlorinated biphenyls (as a group) | | x | | | | | | | | | | | | | | | | | | | |
| Total Arochlor polychlorinated biphenyls (PCBs) (as a group) | | | | | | | | | | | | | | | | | | | | | |
| Polychlorinated Naphthalenes | | | | | | | | | | | | | | | | | | | | | |
| Hexachloronaphthalene | | | | | | | | | | | | | | | | | | | | | |
| Octachloronaphthalene | | | | | | | | | | | | | | | | | | | | | |
| Pentachloronaphthalene | | | | | | | | | | | | | | | | | | | | | |
| Tetrachloronaphthalene | | | | | | | | | | | | | | | | | | | | | |
| Trichloronaphthalene | | | | | | | | | | | | | | | | | | | | | |
| Polychlorinated naphthalenes (as a group) | | | | | | | | | | | | | | | | | | | | | |

